



APL Unified Managed Account (UMA) Trading

User Guide for Master Managers



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About this Document

The APL UMA Master Manager User Guide is a comprehensive resource designed to help master managers navigate the complexities of Unified Managed Account (UMA) administration and trading. The guide covers essential tasks such as account setup, submodel assignments, cash management, rebalancing, and detailed reporting. It also provides instructions for using specialized tools like the Multi-What-If trading tool, submodel reallocation utilities, and nightly rebalancing configurations.

APL's UMA solution is a robust platform that enables seamless management of multi-strategy portfolios by integrating master managers and submanagers within a single unified ecosystem. The system supports real-time trading, drift monitoring, and automated rebalancing across multiple custodians and account structures.

With its flexible model mapping, customizable cash flows, and comprehensive reporting features, the UMA module enhances collaboration between master managers and submanagers while providing transparency at both the account and sleeve levels. This ensures that investment strategies remain aligned with portfolio goals, allowing firms to deliver personalized, tax-efficient outcomes at scale.

1.1 Traditional vs. Managed Account Platform

This manual is written as a user guide for the InvestCloud Unified Managed Account (UMA) application.

There are two versions of UMA addressed in this document:

- Traditional UMA - The InvestCloud Unified Managed Accounts (UMA) platform is a wealth management platform that enables users to maintain multiple investment vehicles such as Separately Managed Accounts (SMAs), mutual funds, and Electronically Traded Funds (ETFs) under one registration based on a target asset allocation. The platform's overlay management capabilities enables users to monitor drift, trade, rebalance, calculate performance, and provide reporting at both the total account and sleeve level
- Managed Account Platform - Under the managed account platform, Mutual Fund Advisory (MFA) products are integrated with UMA in a separate sleeve. The features that are available to traditional MFA clients are available here, so that clients can manage UMA and MFA accounts on a single platform

Note: The managed account platform is available by client request.

This document focuses primarily on Traditional UMA. See [Chapter 4: Managed Account Platform](#) for information about features related to the managed account platform. Also see the Mutual Fund Advisory User Guide for additional information about MFA screens and options.

1.2 Requirements to use Unified Managed Account

- IBM PC compatible computer
- Modem (unless you have a network connection)
- Communications software (such as KEA)
- User ID
- Password
- Configuration of your existing system to accommodate the MMS component if desired
- Configuration of your existing system to accommodate the managed account platform if desired

If you need any of these items, contact your Client Account Manager.

Chapter 2: Overview

2.1 What is APL?

APL stands out as a comprehensive and mature wealth management platform that integrates a wide range of functionalities across portfolio management, model management, data reconciliation, order execution, billing, and performance reporting. Its unified ecosystem streamlines workflows by connecting front-, middle-, and back-office operations through seamless interoperability between key components.

With solutions for centralized trading, model management, and data validation, APL ensures that users can align investment strategies with real-time market insights and execute tax-sensitive trades efficiently. This inter-connectivity empowers wealth managers, financial advisors, and operations teams to achieve operational excellence while maintaining regulatory compliance and enhancing client outcomes.

APL's depth of feature coverage, supported by decades of innovation and strategic enhancements, offers unparalleled versatility and precision. The platform's components bridge gaps between sponsors, advisors, and asset managers, enabling real-time collaboration and data synchronization. Advanced audit tracking, customizable dashboards, and integrated compliance checks reduce manual errors and provide robust decision support.

APL's robust architecture supports complex portfolios and multi-custodial environments, reinforcing its reputation as a future-proof solution that meets the evolving needs of the financial industry.

2.2 Unified Managed Accounts (UMA)

UMA is an application that allows portfolios to be managed electronically on two levels: the master manager level, and the submanager level.

Master Manager

A master manager allocates funds to each submanager, and handles administration of the UMA.

UMA enables a master manager to:

- Establish UMA accounts for clients
- Manage allocation of assets to each submanager according to a master model
- Process flows into and out of the UMA (deposits, withdrawals, dividends, etc.)
- Handle account rebalancing trades
- Produce reports

Submanager

- Maintain models for strategies, called submodels
- Trade portions of client portfolios without affecting the portion managed by other submanagers

- Produce reports for a submodel or the submodels they manage without viewing other submanagers' portions of a portfolio

2.3 What is MSP?

During the first quarter of 2007, InvestCloud deprecated “Multiple Strategy Portfolios” or MSP in favor of UMA. Some components of MSP are still used in UMA and are labeled as “MSP.” MSP is a feature subset of UMA, not a separate application.

2.4 What is Mutual Fund Advisory?

The InvestCloud Mutual Fund Advisory (MFA) Product is a tool that supports the administration and trading of mutual fund advisory programs. For more information about MFA, please contact your Client Account Manager.

2.5 What is Single Sleeve MFA?

A Single Sleeve MFA is a UMA account where the Master Composite Model assigned to the account contains only one UMA Sub Model, and that UMA Sub Model is an MFA Model type.

2.6 What is MMS?

Model Management Solution (MMS) allows users to create, edit, maintain and publish models and benchmarks. MMS may be used by both internal and external managers.

For more information about MMS, see the MMS User Guide.

For MFA accounts under the managed account platform, models are created and managed using MMS.

2.7 Multiple Strategy Accounts

Currently, there are four different types of UMA products, also referred to as Multiple Strategy Accounts (or MSPs) available to investors. These basic types are often referred to as “generations.”

First Generation. The entire program is contained within the sponsor organization. Submodels for each strategy are maintained by in-house submanagers. An in-house master manager maintains the submodel allocations within the master models. And all account administration, trading, reporting, etc. are also done within the sponsor organization.

Second Generation. The sponsor organization partners with a single asset manager holding company which provides all of the submodels for the various strategies available within the program. The sponsor organization maintains the submodel allocations within the master models and provides the account administration, trading, report, etc.

Third Generation. The sponsor organization partners with several separate asset managers who each provide submodels for different strategies. The sponsor organization maintains the submodel allocations within the master models and provides the account administration, trading, report, etc.

Fourth Generation. This type of program works similarly to the “third generation” except that the sponsor organization does not maintain the master model. Each account holder’s financial advisor maintains a custom master model for each account. These master models can be changed dynamically. This type of program is expected to evolve into a program that allows the account holder to communicate with the sponsor directly to change sub-model allocations dynamically.

2.8 Roles in UMA management

- The “master manager” is the program sponsor or firm that is responsible for most of the day-to-day oversight of the accounts. This oversight includes:
- Creating and maintaining master models that maintain the allocation of submodels managed by different submanagers
- Opening new UMA accounts
- Assigning the proper master model code and rules for a particular UMA account
- Performing initial trades
- Performing periodic trades to rebalance the account
- Processing all flows into and out of the account (dividends, deposits, withdrawals, etc.)

The master manager works closely with the portfolio submanagers, who provide the individual portfolio strategies. Each submanager creates a submodel that contains the securities that comprise their strategy. These submodels are part of a particular master model that is assigned to any number of accounts.

Typically, trades on individual submodels are initiated by their associated submanagers. However, rebalancing an account can also be performed by the master manager.

2.9 Mutual Fund Trading for UMA Accounts

In addition to trading equities and fixed income securities, UMA also accommodates mutual fund trading through the various UMA Trading Tools by allowing trades for mutual funds to be generated correctly: i.e. mutual fund buys are reflected in dollars and sells are reflected in units.

Notes:

- Contact InvestCloud to activate mutual fund trading in your directory or to confirm that this capability is activated
- Managed Account Platform UMA provides Mutual Fund Advisory in addition to this Mutual Fund Trading functionality

Mutual Fund Issue Types

The mutual fund trades apply only to securities set up with the following issue types (ISSTY field in the Security Master): 35, 80, 81, 82, 83, 801, 802.

Before using UMA mutual fund trading functionality, please confirm that all mutual funds have been set up with the correct issue type in the Security Master.

Mutual Fund Sleeve Tags

Tagging mutual fund trades with the appropriate UMA/MSP sleeve tag is an essential issue to consider. Normally, since Net Asset Values are not available in time for the normal end-of-day process for posting executed trades, mutual funds are posted through the custodial interface.

UMA enables trading and posting mutual funds with sleeve tags.

Rounding

Whenever a trade/block is created, mutual funds are purchased using dollar amounts rounded to 2 decimal places and sales are in share amounts of up to 4 decimal places.

If configured, and a trading tool is set to buy/sell in dollars, additional rounding rules may be applied before allocation and again at posting time. Depending on the configuration, trades may be totaled prior to rounding or each trade may be rounded separately. This feature allows you to define whether the trade for each sleeve is handled separately or whether a custodian treats buys/sells for the same security in one account as one trade for mutual fund traded across multiple sleeves.

Note: Please contact your InvestCloud representative for additional details regarding configuration.

Pending Mutual Fund Orders

Clients can opt for the Pending Mutual Fund Order feature. This feature is applicable to clients that are setup to trade mutual funds within the trading system, route mutual fund orders to participating custodians for execution, and systematically receive back executions from the custodian.

The Pending Mutual Fund Order feature addresses the issue of late communication and posting of mutual fund order executions. It provides a consistent and systematic way of handling late confirming mutual fund order executions that otherwise would require ad-hoc, manual intervention to address.

Its purpose is to decrease operational and trading risk due to lack of or incomplete mutual fund execution data available from external custodial sources in a timely manner.

This feature identifies and manages pending mutual fund orders (orders with late executions). It includes pending mutual fund orders in the trading system via a block so that the affected accounts appear whole for continued trading and to avoid positions/actions being unwound based on false drift violations.

Contact your InvestCloud representative for comprehensive details and configuration options.

2.10 Managing Multiple Strategy Portfolios

UMA provides the sponsor of a Unified Managed Account program, as well as the involved submanagers, all the functionality necessary to launch the product and trade the accounts.

Each submanager can create and maintain individual strategies, or submodels. This submodel functionality enables the manager to enter the ticker symbol for a security and the percent of the security to hold. The submodel also features “date out” and “date in” fields that enable the submanager to identify securities to hold, but not to continue to buy. This is useful for fixed-income securities that are replaced with newer issues in the future.

The “date in” and “date out” fields are also used to swap securities out, to be replaced by other securities. For example, an older five year on-the-run Treasury note can be replaced by a new five year on-the-run note after a particular date.

To create a master model or overall allocation strategy, the sponsor or master manager enters the code for each submodel, along with the appropriate allocation percentage. The UMA system then checks to verify that the total of these allocations equals 100%. Finally, the Sponsor/Manager or submanager builds and maintains the accounts using this master model.

2.11 Opening new UMA accounts

The master manager can open a new UMA account like any other account in APL, adding the master model code (in a designated account profile field) as soon as it is known.

Setting account parameters

The master manager also sets specific parameters for each account, such as drift and rebalancing rules, that when violated, alert the system to rebalance the account. For instance, if any of the submodels in an account become over or under-allocated by a certain percent, the account is considered “out of balance” and is rebalanced. Also, if there is a significant inflow of cash and the maximum cash level is passed, an automatic rebalancing is triggered to use the cash and rebalance the account. The parameters can be different for each account, or the master manager can set defaults to be used for each account.

Periodic rebalancing

The master manager also specifies an anniversary date on which the account is rebalanced automatically. Anniversary rebalancing can occur on an annual, semi-annual or quarterly basis. Either position or sleeve drift can be used for nightly/drift rebalancing. The master manager can also coordinate the anniversary rebalancing so that they occur on the same day for all accounts. This way, the master manager does not have to deal with rebalancing occurring every day of the month.

To search and select UMA accounts based on their anniversary rebalancing date and frequency, access an account selection prompt in APL, InvestCloud Infodex, or the Trading and Windows interface and perform a search on the following fields:

- MSPDTE: Next anniversary rebalancing date
- MSPFRQ: Anniversary rebalancing frequency

To establish and activate these fields, please contact InvestCloud.

2.12 Cash Management

Please run the MSPPOSTGLFLOWS at the time the account is added to the MSP/UMA Universe for the initial allocation of cash across the submodels.

For additional information about the MSPPOSTGLFLOWS function, please refer to “Adjusting submodel cash balances in real-time”.

Notes:

A preferable tool to use to allocate cash for newly added accounts is the Sleeve Reallocation Tool, accessed from the Master Manager Trading menu. The major advantages to this tool are; having cash flow as a pre-cursor to trading, immediate transparency into the results and ensuring that cash values are in synch with proposed trade values.

It is a best practice recommendation that reallocation of sleeve cash be done using the Sleeve Reallocation Tool. This tool can post all cash movements for specific sleeves prior to rebalancing and uses MSPPOSTGL to post transaction to EDGL, thus providing an audit trail, which does not exist when using MSPPOSTGLFLOWS. This tool can serve as a replacement to MSPPOSTGLFLOWS.

For additional information about the Sleeve Reallocation Tool see the “Sleeve Reallocation Tool” section.

2.13 Managing UMA accounts

Typically, submanagers can manage their submodels with a subset of trading tools available on the InvestCloud Trading System. They can swap securities within their submodels, and update their submodel by adding the new securities. They can also perform a what-if scenario, make custom adjustments to an account, or rebalance their portion of an account to its submodel.

Accounts can be monitored daily for drift away from their respective submodels, or for any other violations to the rules established when the account was opened. When these parameters are violated, the UMA system automatically proposes trades that can bring the account into conformity. The UMA Nightly Batch Rebalancing process automatically checks the consecutive number of days for drift to trigger a rebalance. In addition, the account can also be rebalanced any time at the discretion of the master manager.

In addition, a master model can be linked to a UMA/MSP model account so that the submodel weightings of the master model track the account. Updating the model can be performed manually by the master manager or the submanager.

2.14 Nightly Rebalancing

The UMA nightly rebalance function process:

- Identifies accounts that are due for rebalancing
- Determines what rebalancing types are due
- If multiple rebalance types are due at the same time, system rebalances as per following hierarchy

The hierarchy for rebalancing is:

1. Systematic Contributions and Withdrawals Rebalance

Accounts eligible for Systematics are excluded from the below rebalance types

2. Anniversary Rebalance
3. Drift Rebalance

Automatic rebalancing can be set up with different groups of accounts, with different UMA rebalancing parameters, when running the rebalance function in multiple batch jobs.

The UMA nightly rebalance function process will identify accounts that are due for rebalancing.

A separate block is created for each activity (e.g., Anniversary, Cash Flow, Day 2 Liquidation, and Nightly block).

The new block titles are:

- UMA OVERNIGHT REBALANCE
- UMA ANNIVERSARY REBALANCE
- UMA PRIOR DAY LIQUIDATION
- UMA SYSTEMATIC CASH FLOWS

Clients have the option to combine trades for all sub-models.

Choosing not to combine across sub-models will result in new separate blocks and the new block names above prefixed by the associated sleeve code name.

APL blocks will be classified as UMA blocks, and tagged as either Master Manager or Submanager, as appropriate.

Nightly Rebalancing with Automatic Sleeve Value Reallocation

A configuration parameter is necessary in order to enable this feature. To activate it please contact your InvestCloud representative.

If configured, when the nightly rebalance function runs the Sleeve Reallocation tool is automatically run for all sleeves in the selected accounts prior to the rebalance.

This tool realigns UMA sleeves as close as possible to a master model by flowing cash between over-weighted and underweighted sleeves prior to trading.

Sleeve trading cash balances are updated to reflect the cash movements. MSPRCV and MSPDLV cash movements resulting from the reallocation process are posted to the Intraday Cash Adjuster with POST = YES. Cash movements will be posted to EDGL.

An effects report, REALLOC.LRP, is generated.

Once the reallocation process is completed the nightly rebalance process runs.

See the Sleeve Reallocation Tool™ for further details on the reallocation process.

Note: This process replaces the MSPPOSTGLFLOWS function which is disabled as part of the setup/ configuration for this feature. If configured, when MSPPOSTGLFLOWS is run online or in batch it is ignored. An InvestCloud best practice recommendation is to employ the Sleeve Reallocation Tool full time in place of MSPPOSTGLFLOWS.

2.15 Reporting

In addition to the hundreds of reports already available in the system, a variety of reports associated with UMA are provided to enable the master manager to:

- Locate drift at either the submodel level or the individual security level
- Observe the overall master model strategy at the security level
- List the audit trail of changes to submodels and master models
- Review the performance of strategies
- View the cash available to submodels

In addition, several existing reports have been modified to enable submanagers to view their portion of accounts.

2.16 Performance reporting

Performance reporting tools similar to those available in other APL systems are available. The user can view sector, account, and composite performance statistics. UMA also assists in calculation of GIPS-compliant returns. Performance reporting capabilities also include performance attribution tools and custom-blended indexes. Special reports assist in GIPS-compliant composite reporting. In a multiple strategy portfolio, performance for each strategy comprising an account is available.

UMA uses the Modified Dietz formula to calculate performance for sleeves and styles. To ensure accurate performance data, the system also tracks cash flows between styles and/or sectors. Please refer to the APL Guide to Performance Measurement and Benchmarks for detailed information on performance measurement in APL.

2.17 Getting Started

Start APL Window, and select the data universe with which you are working.

An example of the selection menu is shown below:

```
WHICH DATA UNIVERSE WOULD YOU LIKE?
```

```
-----  
MGR EQ CHI `AND`RR LT 95
```

```
MGR EQ NJ `AND`RR LT 95
```

```
MGR EQ BOS `AND`RR LT 95
```

```
MGR EQ SD `AND`RR LT 95
```

```
MGR EQ CHI NJ`AND`RR LT 95`SORT`SNAM`A
MGR EQ SAMP`AND`RR EQ 5
RR EQ 40
OBJECT EQ PERF
RR NE 99
RR EQ 40
RR EQ 10
MGR EQ MSP`*MSPUNIV1
```

Notes:

- Top-level menus for your system are typically programmed by InvestCloud to meet your requirements. Therefore, the exact names of the menu items that start APL UMA may be different
- APL UMA works with “data universes” in the APL Windows environment. APL Windows enables you to group accounts, aggregate performance data, and produce reports. See the APL Windows System User Guide for more complete information on this powerful system
- Currently, all UMA/MSP accounts must be in a universe separate from other non-UMA accounts
- UMA/MSP Universes are tagged as “MSPUNIV1.”
- If the list of universes is long, use the F4 key to search for a particular universe or type in the universe code/identifier

Upon selecting a universe, and depending on the set up of APL UMA functions, you may be able to access one or both of the following options, as shown in this dialog box:

```
PORTVUE - PRIVATE MENU8.3.8 PRICES AS OF: 07/29/02|
InvestCloud SUB-SELECT: MGR EQ
MSP`*MSPUNIV1
MSP DEMONSTRATION
-----
MANAGER MENU
-----
1. MSP MASTER MANAGER
2. MSP SUB MANAGER
```

2.18 Selecting accounts using UMA-specific tools

To find UMA accounts in the APL system, you can select accounts based on submodel weight at an account selection prompt or you can use the MSP version of the APL Account Selection Screen.

Note: Selecting accounts based on submodel weight To select UMA accounts at any account selection prompt, you can specify the weighting of a particular submodel. For example, if you would like to select all accounts where the weighting in submodel ABCLCV is greater than 25% of the entire account, type ABCLCV GT 25 at an account selection prompt. Please note that these values are calculated as of close of business the previous day and do not update intraday.

To activate this functionality, please contact InvestCloud Client Services.

The \$NXTRBL pseudo field identifies the Next Rebalance Date. It returns a non-zero date only for UMA accounts. A date value of zero is presented for all non-UMA accounts.

2.19 Selecting accounts using a UMA-specific Account Selection Screen

The UMA version of the Account Selection Screen allows you to choose accounts based on percentage criteria that you specify, such as the percent in cash or the percent in fixed income securities. The UMA version of the Account Selection Screen is the same as the standard APL Account Selection

Screen except that the UMA version has an additional field, called SUB MODEL. When the cursor is on this field, you can choose a submodel by pressing F1 and selecting it from the menu. Then, specify submodel weights, based on the range defined in the Submodel row, in the 'Common Range

Selection' section of the screen. Please note that the all other values listed in the Common Range Selection will refer to the overall account and not the specified submodel. For instance, selecting ABCFIX as a SUB MODEL selection and entering a yield range will result in a search that brings back accounts with overall account yields within that range, but not within the ABCFIX portion of the account.

To access the UMA version of the Account Selection Screen, type \SELECTACMSP at any account selection prompt within any report, function, or trading tool.

```
Account Selection Screen
-----
Number of Accounts Found:
RR : 40          ADM :          MGR :          FDTYPE :
SUB MODEL: MDL
Should all range selections be based on the sub model? No
```

| Common Range Selection: | | Low | High |
|--|-------|---------|---------|
| Sub Model | | 20.00% | 25.00% |
| Moody Rating | | | |
| S & P Rating | | | |
| Yield | | 0.00% | 0.00% |
| Duration | | 0.00% | 100.00% |
| Percent in Cash | 0.00% | 100.00% | |
| Percent in Fixed | | 0.00% | 100.00% |
| Percent in Equity | | 0.00% | 100.00% |
| Target Fixed | | 0.00% | 100.00% |
| Target Equity | | 0.00% | 100.00% |
| Additional Search Criteria (eg: AND RESID EQ NY) | | | |

F-3 to Exit F-6 to Refresh F-7 to Search F-10 to View or Use Accounts

Chapter 3: Managed Account Platform

Under the Managed Account Platform UMA provides access to MFA single-sleeve functionality. For detailed information on MFA see the MFA User Guide.

3.1 Access Single Sleeve MFA

Once you have logged into Managed Account Platform UMA you can access Single Sleeve MFA through either the Master Manager or Sub Manager.

```
PORTVUE- PRIVATE MENU12.1.1PRICES AS OF:11/08/11¢
ABC PRIVATE INVESTMENT MANAGEMENT DIVISION
UMA MASTER MANAGER
-----
1. UMA MASTER MANAGER MENUD. TAG UMA BLOCK
2. UMA SUB MANAGER MENUE. ADD INTRADAY CASH
3. SETSUPERVISORF. SELECT A SUBSET OF ACCTS
4. MULTIMODELLOADG. WINDBUILD ACCTS
5. MASTER MGR BLOCK STATUSH. PRINT REPORTS
I.
BROWSE LAST REPORT CREATED
6. TAG UNMAPPED TAXLOTSJ. FLIST- BROWSE REPORTS BY USER
7. AUDIT UNTAGGED LOTSK. LOGOFF THE SYSTEM
8. MOVE ONE SEC AMONG SUBMODELS
9. SWAP SLEEVES AMONG MASTERMODELS
A. SPLIT DIVIDENDS AMONG SUBMODELS
B. UMA POSTGLFLOWS
C. UMA GLFLOWSDEL
```

Note: The previous screen depends on client configuration and may differ from the illustration above.

1. Select UMA Master Manager Menu (or Sub Manager Menu)

```
WELCOME TO THE MSP CONTROL MENU
SELECT DESIRED OPTION
ESC TO EXIT
-----
                ADMINISTRATION TOOLS
                ACCOUNT MAINTENANCE
                MODEL MAINTENANCE
                TRADING
                MUTUAL FUND ADVISORY TRADING TOOL
                REPORTS
                BROWSE REPORTS
                HELP
```

2. Select Mutual Fund Advisory Trading Tool

```
PORTVUE- PRIVATE MENU11.9.1PRICES AS OF:11/08/11¢
ABC PRIVATE INVESTMENT MANAGEMENT DIVISION
MUTUAL FUND ADVISORY TRADING TOOLS
-----
ACCOUNT MAINTENANCEREPORTING
-----
1. PRODUCT AND FUND ALLOCATION SCREENS
2. ACCOUNT OPTION MAINTENANCE SCREENA. DRIFT REPORT
B. DRIFT SUMMARY AND VIOLATIONS REPORT
TRADINGC. POSITION DRIFT REPORT
-----D. MODEL SETTLEMENT PERIODS
3. AD HOC TRADING SCREENE. ASSET CLASS DRIFT REPORT
4. BLOCK SETTLEMENT REPORTF. PORTFOLIO HOLDINGS- AUDIT
5. BLOCK ORDER STATUSG. PORTFOLIO VALUATION REPORT
6. RAISE CASH FOR FEESH. BROWSE LAST REPORT CREATED
7. SET SUPERVISOR STATUSI. FLIST- VIEW ALL REPORTS
8. CHANGE UNIVERSESYSYSTEM SERVICES
```

```
-----  
TEMPLATE MANAGEMENTJ. WINDBUILDACTS-UPDATE CHANGES  
-----K. LOG OFF THE SYSTEM  
9. SECURITY ASSET TYPE/CLASS CODING
```

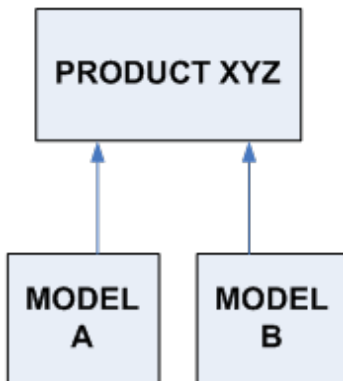
3.2 Product and Fund Allocation Screens

Products and Models

The term Product means a set of rules that controls the parameters of a trading strategy. Product defines acceptable asset type and asset type ranges for an investment strategy that must be followed by all investment models linked to that strategy. In addition the Product specifies drift tolerances and rules used in trading.

Products are used only for single-sleeve MFA accounts within UMA platform.

Models are composed of mutual fund allocations, and rely on a product in order to determine correct fund allocation. Each model is associated with only one product, but multiple models may be associated with a single product.



Managed account platform clients must manage models in MMS. To learn more about MMS models see the MMS user guide.

To view a Product screen:

1. Select Product and Fund Allocations Screens

```
PRODUCT PORTFOLIO RETRIEVAL  
-----  
PRODUCT : TITLE :
```

```
-----  
-----  
-----  
-----  
SELECT PRODUCT AND HIGHLIGHT YOUR CHOICE  
-----  
-----  
F1-HelpF3-QuitF7-List Products F10/Return-Go
```

2. Select an account and press F10

```
Asset Type Maintenance Screen  
-----  
Product Name: GENERCProduct Description: GENERIC MODEL PORTFOLIO  
LowerUpper  
Asset TypeRangeRange  
-----  
Blended0.000.00  
Cash Equivalent0.000.00  
Equity0.000.00  
Fixed Income0.000.00  
Global1.000.00  
-----  
-----  
F-3 ExitF-7 Linked Models F-8 Asset Class Ranges
```

This screen is read-only. In order to perform model functions for single-sleeve managed account platform, MMS must be used.

3.3 Account Option/Maintenance Screen

Once you are in the Mutual Fund Advisory Trading Tools screen you can view the Account Option/Maintenance Screen.

1. Select 1. Account Option Maintenance Screen. The Account Selection screen will open
2. Select an account. Press F7 to view a list of accounts from which you can select

The Account Option/Maintenance Screen opens.

Note: If systematic are not configured, those fields will be blank.

```

Account Option /
Maintenance Screen                               Act1 of1
-----
Account Number : 123456Systematics:
Account Name : ACCT NMETrade Method : PRO-RATE DOLLAR AMOUNT
Account Short Name : ACTNMMin. Trade :      50.00
           Model : JMSL1A- JMSL1ABuy:      12.12           0.00

Start Date :01/02/2012
Rebalance Option:Day of Month :15
Frequency :ACT.365 + 3 Frequency :MONTHLYANNUAL
Stop Date:12/12/2012
Start Date:04/21/2003
Auto Rebalance? :YESUse Cash First for Sales : YES
Sell :15.150.00
Other Options:Start Date:01/15/200501/21/2008
Fee Option: SHARESDay of Month :
Min. Block Trade $ :1000 Frequency:  BI-WEEKLYWEEKLY
Min Percent Change :0.00 Stop Date:01/15/2009
-----
F-3 Exit F-7 Previous Account F-8 Next Account
F-9 Cycle F-10 Save
    
```

Options

| Field label | Description |
|----------------|--------------------|
| Account Number | The account number |

| Field label | Description |
|--------------------|--|
| Account Short Name | The Account SNAM |
| Model | The model code. |
| Frequency | Auto rebalance frequency. |
| Start Date | Auto rebalancing start date. |
| Auto Rebalancer | Auto rebalancer flag |
| Fee Option | Auto rebalancing fee flag. Displays M (Money Market) or S (Shares). |
| Min Block Trade | A numeric value that represents the Minimum Type to apply. A minimum can be assigned at the block level for the entire block. Only one trade in the block for an account needs to meet the minimum block amount in the MINDOL field in INFODEX. |
| Min Percent Change | The minimum percent change will be stored in this field if a trade minimum value is designated when rebalancing |
| Systematics | <p>The UMA Nightly Batch Rebalancing process identifies and processes accounts that are due for a systematic contribution or withdrawal based on the data in the UMA Account Setup Maintenance Screen.</p> <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;"> <p>Note: If an account is due to trade a Systematic, it will be excluded from Nightly Drift or Anniversary rebalancing.</p> </div> |
| Trade Method | <p>Systematic trade method. If this is a single-sleeve MFA Account this displays one of</p> <ul style="list-style-type: none"> • PRO-RATE DOLLAR AMOUNT TO MODEL • SATISFY CASH TARGET FIRST <p>If not a Single Sleeve MFA Account then the following are displayed</p> <ul style="list-style-type: none"> • PRO-RATE DOLLAR AMOUNT TO MODEL • SUB MODEL ALLOCATION (SATISFY CASH FIRST) • SECURITY ALLOCATION (THOROUGH) |
| Min Trade | <p>Minimum dollar amount for systematic</p> <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;"> <p>Note: Systematics follow this Minimum only and not those on the Rebalance Rules Screen</p> </div> |

| Field label | Description |
|--------------------------------|---|
| Buy | Periodic contribution net amount. Up to two buy amounts can be entered |
| Start Date | Periodic contribution start date. Up to two start dates can be entered. |
| Day of the Month | Periodic contribution day of the month. Up to two buy days can be entered. This field must be black when frequency is weekly or bi-weekly. |
| Frequency | <p>Press F9 to cycle through all frequency options until you are at the one you wish to select.</p> <p>Frequency choices are:</p> <ul style="list-style-type: none"> • Weekly • Bi-Weekly • Monthly • Quarterly • Semi-Annual • Annual <p>There can be two separate frequencies set per category.</p> <p>If desired, set the start and stop dates for the frequencies using Start Date and Stop Date.</p> |
| Stop Date | Periodic contribution stop date. Up to two stop dates can be entered |
| Use cash sales first for sales | This field is used to determine the treatment of system Withdrawals. When this field is set to YES, then available cash will be used to satisfy the withdrawal. When this field is set to NO, then trades will be generated to fulfill the withdrawal. The option is either Yes or No. |
| Sell | Periodic withdrawal net amount. Up to two sell amounts can be entered. |
| Start Date | Start Date - Periodic Withdrawal Start Date. Up to two start dates can be entered. |
| Day of Month | Periodic Withdrawal Day of Month. Up to two sell days can be entered. This field must be Blank when frequency is WEEKLY or BI-WEEKLY |
| Frequency | Frequency - Periodic Withdrawal Frequency. Up to two frequencies can be entered. Options: monthly, quarterly, semi-annual, annual, bi-weekly, weekly |
| Stop date | Periodic Contribution Stop Date. Up to two days can be entered. |

3.4 Ad hoc Trading Screen

MFA provides users with the flexibility to perform a variety of manual functions, such as ad hoc rebalancing and fund swap. See the MFA User Guide for more information.

3.5 Block Settlement Report

Displays existing block reports. This options will generate a message “No Blocks Found in this Windows Universe - No Report Generated” if no blocks are currently available in the system.

3.6 Raising Cash for Fees

This functionality is available to clients by request.

The Raising Cash for Fees option allows clients to pay fees out-of-pocket or liquidate funds to cover the fee.

This function will be able to run in batch or on-line from master manager only.

- Processing is based on the Fee Option defined on the Account Option Maintenance screen.
 - The Fee Option for an account can be set to either SHARES (to liquidate shares to cover the fees) or MMKT (to pay the fees from funds in the Money Market account)
 - If there is not enough money in the Money Market Account, shares will be liquidated to cover the fees
 - Selling will be in sequence, beginning with the largest drifted positions, selling to target to raise cash. If all positions are at target and cash is still required, selling will initiate from the largest holdings
1. In the Mutual Fund Advisory Trading Tools window select the option to Raise Cash for Fees
 2. The screen displays a prompt labeled Enter Fee File
 3. Enter a name for the CSV file to be loaded containing Account Number and Fee Amount. Press Enter

3.7 Reports

MFA provides reports on its activities. Most important is the drift report, which is created after rebalancing. A drift report displays current and ending positions with proposed trades, and a trade block which is reviewed in the block order status screen.

Chapter 4: Super Manager Functions

Super manager functions allow clients to control viewership of UMA universes, models, and account information among master managers. While super manager capabilities determine which manager can view which universe, master manager defaults take precedence over super manager defaults. Therefore, only when no rules are defined by the master manager will the super manager's rules be adhered to. However, a master manager configuration is not required, unless it is different from the super manager.

Note: Please contact InvestCloud to request the set up of super manager access. Also, designate which users will become super managers.

WELCOME TO THE MSP SUPER MENU

SELECT DESIRED OPTION

ESC TO EXIT

SUPER MANAGER OPTIONS

ADMINISTRATION TOOLS

ACCOUNT MAINTENANCE

REPORTS

BROWSE REPORTS

HELP

To access the super manager's functionality, choose MSP Super Manager from the Window Menu. Using the MSP Super Manager Menu, super managers can access screens specific to their access level as well as screens accessible to the master managers

4.1 Super Manager Option Menu

WELCOME TO THE MSP SUPER MENU

SELECT DESIRED OPTION

ESC TO EXIT

```
LIST OF SUPER MANAGERS
MASTER MANAGER TO UNIVERSE TABLE
MASTER MANAGER TO MASTER MODELS
MASTER MANAGER TO SUB MANAGERS
EDIT USER ID/MANAGER MAPPING
EDIT STRATEGY LIST
```

The Super Manager Menu enables super managers to:

- Maintain the list of individuals allowed super manager access
- Map universes to master managers
- Assign master managers with access to specific universes access to specific models underlying those universes
- Assign master managers access to specified submanagers and their corresponding submodels
- Maintain submodel mappings to portfolio submanagers and trade and report on specific submodels. This is typically the role of the master manager
- View UMA strategies and performance sector numbers

4.2 Maintaining the list of Super Managers

Super managers can specify which individuals are allowed super manager access using the super manager list. To access this list, choose LIST OF SUPER MANAGERS from the Super Manager Option Menu.

```
Super                               F - 3 T o Q u i t
Managers                             F - 1 0 t o S a v e
-----
JSmith
SJones
Use F6 to add a line & Shift-F6 to delete a line.
```

Adding Super Managers

1. Press F6 to add a line
2. Type the individual's APL user ID in the Super Managers column
3. Press F10 to save the change. Alternatively, press F3 to exit without saving the change

Deleting Super Managers

1. Move the cursor to the line with the User ID that you want to revoke super manager status
2. Press SHIFT+F6. The user ID is deleted
3. Press F10 to save the change. Alternatively, press F3 to exit without saving the change

Modifying Super Managers

1. Move the cursor to the line containing the User ID that requires modification
2. Type the required change
3. Press F10 to save the change. Alternatively, press F3 to exit without saving the change

4.3 Mapping universes to master managers

The Master Manager Universe Table allows super managers to map universes to master managers. To access this list, choose MAP MASTER MANAGERS TO THEIR UNIVERSES from the Super Manager Option Menu.

```
Map Master Managers to their Universes      F - 3 T o Quit
F-10 to Save
Mgr Universe
-----
ASF MGR EQ MSP`*MSPUNIV1` `
Use F6 to add a line & Shift-F6 to delete a line. F9 will check your data.
```

Adding a manager to the Master Manager Universe Table

1. Press F6 to add a line
2. Type the master manager's acronym in the Mgr column. Press the TAB key to move the cursor to the Universe column
3. Type the name of the universe the manager is mapped to
4. Press F9 to verify that the universe information is correct

If not you will receive an error message and menu of correct universe choices.

5. Choose an item from this menu and press ENTER
6. Press F10 to save the addition. Alternatively, press F3 to exit without saving the change

Removing a manager from the Master Manager Universe Table

1. Move the cursor to the line containing the manager you want to remove from the table
2. Press SHIFT+F6. The manager is deleted
3. Press F10 to save the change. Alternatively, press F3 to exit without saving the change

Modifying a master manager's universe mappings

1. Move the cursor to the line containing the master manager whose information requires modification
2. Make the required change
3. Press F10 to save the change. Alternatively, press F3 to exit without saving the change

4.4 Mapping master managers to specific universes

The Master Manager To Master Models Table allows super managers to assign master managers access to underlying models of specific universes they are mapped to.

To use this table, choose MASTER MANAGER TO MASTER MODELS from the Super Manager Option Menu.

```
Master Model
F - 3 To Quit
F-10 to Save
Mgr
---
-----
XYZ  MSP1  MSP2  MSP3
```

Adding Master Models to the Master Models Table

1. Press F6 to add a line
2. Type the master manager's acronym. Tab to the next column
3. Type the name of the Master Models that you want to allow the manager access to
4. Press F10 to save the addition. You are prompted to confirm the addition
5. Choose YES and press ENTER. You are prompted to update the universe map

```
UPDATE MSP UNIVERSE MAP?
```

```
-----  
NO  
YES
```

6. Choose YES and press ENTER

Deleting Master Models from the Master Models Table

1. Move the cursor to the line containing the manager you want to delete
2. Press SHIFT+F6. The manager is deleted
3. Press F10 to save the change. Alternatively, press F3 to exit without saving the change

Modifying Master Models on the Master Models Table

1. Move the cursor to the line containing the master manager whose model information requires modification
2. Type the required change
3. Press F10 to save the change. You are prompted to confirm the change

```
-----  
Are You Sure You Want to Exit and Save ?  
-----  
NO  
YES  
-----
```

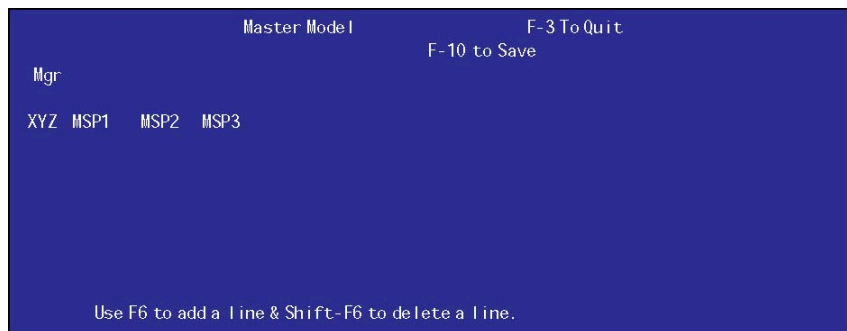
4. Choose YES and press ENTER. You are prompted to update the universe
5. Choose YES and press ENTER

```
-----  
UPDATE MSP UNIVERSE MAP?  
-----  
NO  
YES
```

4.5 Mapping master managers to specific universes

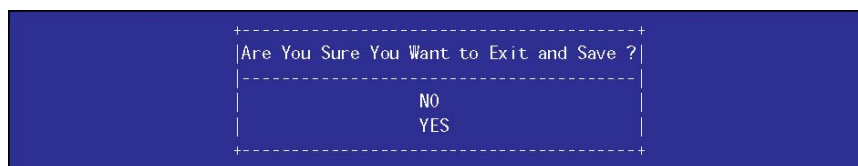
The Master Manager To Master Models Table allows super managers to assign master managers access to underlying models of specific universes they are mapped to.

To use this table, choose MASTER MANAGER TO MASTER MODELS from the Super Manager Option Menu.

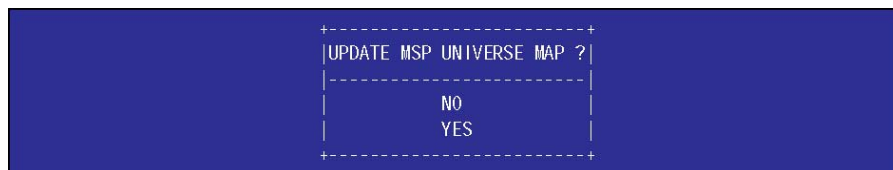


Adding Master Models to the Master Models Table

1. Press F6 to add a line
2. Type the master manager's acronym
3. Tab to the next column
4. Type the name of the Master Models that you want to allow the manager access to
5. Press F10 to save the addition. You are prompted to confirm the addition



6. Choose YES and press ENTER. You are then prompted to update the universe map
7. Choose YES and press ENTER

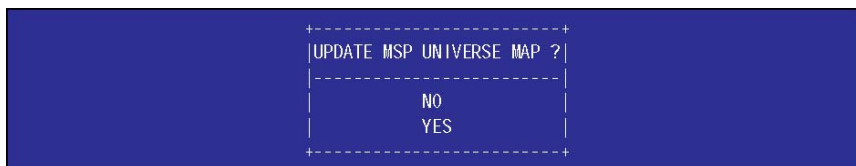
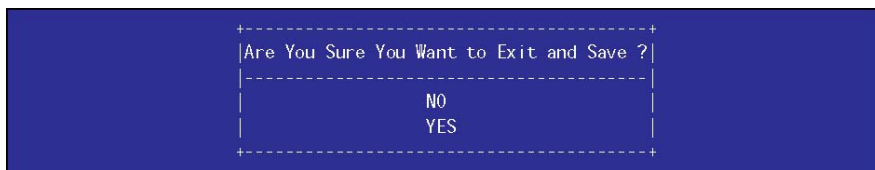


Deleting Master Models from the Master Models Table

1. Move the cursor to the line containing the manager you want to delete
2. Press SHIFT+F6. The manager is deleted
3. Press F10 to save the change. Alternatively, press F3 to exit without saving the change

Modifying Master Models on the Master Models Table

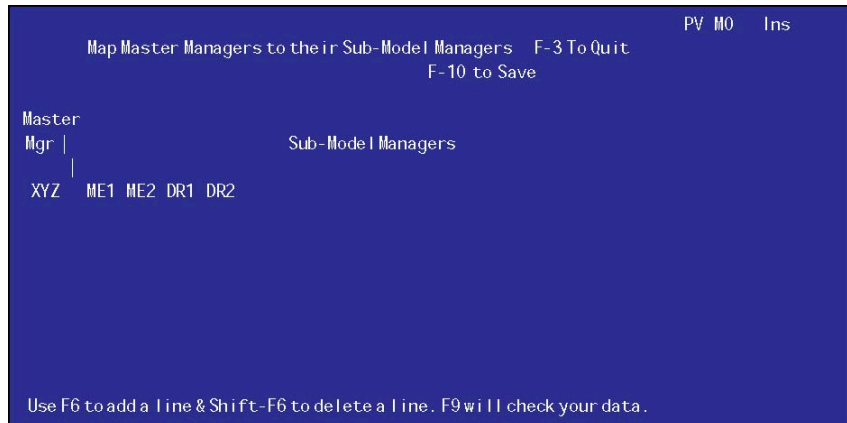
1. Move the cursor to the line containing the master manager whose model information requires modification
2. Type the required change
3. Press F10 to save the change. You are prompted to confirm the change
4. Choose YES and press ENTER. You are prompted to update the universe map
5. Choose YES and press ENTER



Mapping master managers to submanagers

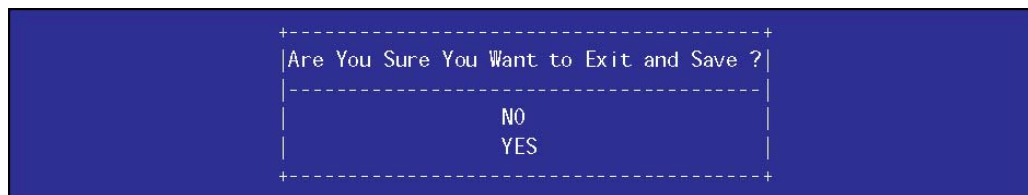
The Master Manager To Submanagers Table allows super managers to specify which submanagers, and their corresponding submodels, that master managers can access.

To access this table, choose MASTER MANAGER TO SUB MANAGERS from the Super Manager Option Menu.



Adding master managers to the Sub-Model Managers Table

1. Press F6 to add a line
2. Type the master manager's acronym in the Master Mgr column. Press the TAB key to move the cursor to the Sub-Model Managers columns
3. Type the acronym of the submodels that you wish to allow the manager access to. Add one submodel per column. Use the Tab key to move to the next column before adding another submodel
4. Press F9 to verify that the information is correct. If not, you will receive an error message and a menu listing correct choices. Choose an item from this menu and press ENTER
5. Press F10 to save the addition(s). You are prompted to confirm the addition
6. Choose YES and press ENTER

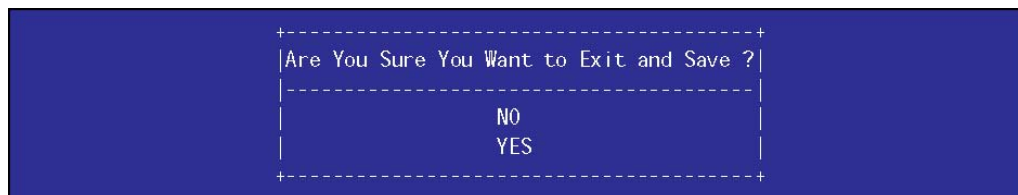


Deleting master managers from the Sub-Model Managers Table

1. To delete a master manager from the Sub-Model Managers Table:
2. Move the cursor to the line containing the manager you want to delete
3. Press SHIFT+F6. The manager is deleted
4. Press F10 to save the change. Or, press F3 to exit without saving the change

Modifying master managers on the Sub-Model Managers Table

1. Move the cursor to the line containing the master manager whose submodel information requires modification
2. Type the required change
3. Press F10 to save the change. You are prompted to confirm the change
4. Choose YES and press ENTER



4.6 Maintaining the User ID/Manager Mapping Table

The User ID/Manager Mapping Table allows submanagers to:

- Access submanager data
- Assign responsibility for the design of investment submodels to portfolio submanagers
- Trade and report on specific submodels. Submodels define which securities are to be traded in the account when cash is moved by the master manager

4.7 Maintaining the Strategy List Table

The Strategy List Table allows you to view and maintain UMA strategies and performance sector numbers associated with each strategy.

Note: While master managers can view this information, this table can only be edited by a super manager once super manager functionality is set up.

For more information on maintaining this table, please refer to “[Viewing or adding a strategy](#)”.

4.8 Using the Administration Tools Menu

The Administration Tools available from the MSP Super Manager Menu are the same as those accessible from the master manager’s menu. To learn more about this toolset, refer to “[Administration Tools menu](#)”.

4.9 Using the Account Maintenance Menu

The Account Maintenance Tools available from the MSP Super Manager Menu are the same as those accessible from the Master Manager's Drift/ Rebalancing Rules Menu. To learn more about this toolset, please refer to "Account Maintenance Functions".

- **SUBMODEL-LEVEL POSITION DRIFT TABLE:** Threshold values in this table evaluate drift for the submodels via the Two-Pass rebalance method. Submodels in the same directory as the table are evaluated. See "[Submodel Level Position Tolerance Table](#)"
- **EDIT DISCRETIONARY SUBMODELS TABLE:** Called with the Two-Pass rebalance method. Identifies discretionary submodels and sets the Cash Target for those submodels. The values in the discretionary table have priority over cash targets specified in the submodel. See "[Discretionary Submodels Table](#)"

Chapter 5: Master Manager Functions

Selecting the master manager menu from your main InvestCloud Windows prompt displays the following options:

```
WELCOME TO THE MSP CONTROL MENU
```

```
SELECT DESIRED OPTION
```

```
ESC TO EXIT
```

```
-----  
ADMINISTRATION TOOLS
```

```
ACCOUNT MAINTENANCE
```

```
MODEL MAINTENANCE
```

```
TRADING
```

```
REPORTS
```

```
BROWSE REPORTS
```

- ADMINISTRATION TOOLS enable you to establish and control submanagers' access to the system, set system parameters, and map master models to accounts. See "[Administration Tools menu](#)"
- ACCOUNT MAINTENANCE contains functions relating to drift and rebalancing parameters. Account maintenance functions deal with drift and rebalancing rules. To view and modify these rules, select ACCOUNT MAINTENANCE from the master manager menu to display its related menu. See "Account maintenance functions"
- MODEL MAINTENANCE enables you to create, maintain, or view a master model. See "[Model maintenance functions](#)"
- TRADING contains functions for rebalancing portfolios, displaying block status, and modifying individual accounts. See "[Trading functions](#)"
- REPORTS enables you to generate management reports. See "Report functions"
- BROWSE REPORTS enables you to view the most recent reports generated. Select the report, and it is displayed on the screen.

Note: You can use any APL system trading tool with your UMA accounts; however, this requires that you manually tag each UMA trade. To add a tag manually, edit the appropriate block and type the tag into the Broker Percent field. Contact InvestCloud for additional information.

5.1 Managing mutual fund trades at the master manager level

Managing mutual fund trades at the master manager level requires that you use functions associated with the UMA/MSP-specific menus as well as APL functions that have been modified for use with UMA accounts. A general procedure for managing mutual fund trades at this level require:

- First, you will need to access the WHATIFTABLE used by all APL users and establish settings for rounding and minimums. The table's use is triggered when no minimum or rounding criteria is set by the sub-manager for the What-If and Multi-What-If tables

You may access the appropriate columns for this information by pressing F9 and toggling to it from the initial screen. The items you will need to input are listed in the following table:

| Field | Description |
|---------------------------|--|
| (Rounding)MF_Sell (Sh) | Increment to which mutual funds securities are rounded, in shares, for sells. |
| (Rounding)MF_Buy (\$) | Increment to which mutual funds securities are rounded, in dollars, for buys. |
| (Minimums)MF_Sell (Sh) | Minimum number of shares to trade when mutual funds are traded. |
| (Minimums)MF_Buy (\$) | Minimum amount, in dollars and cents, that a mutual fund lot must before it is added to the trading block. |

- Next, establish mutual fund parameters on the Standard Rounding Table. Please refer to “Editing the Standard Rounding Table” for additional information
- Update the UNIFIED MANAGED ACCOUNT REBALANCER as necessary
- Use the FIXGLDES function to search for, and delete, UMA-related general ledger entries when necessary. Please refer to “Automatically selling untagged lots” for additional information
- Finally, if you use Gain Loss Trade Modeling, please set the parameters for the rounding and trade minimums. Please refer to the chart in step 1 for input descriptions

5.2 Administration Tools menu

```
=====
SELECT DESIRED OPTION
ESC TO EXIT
=====
```

```
EDIT USER ID/MANAGER MAPPING
EDIT STANDARD ROUNDING TABLE
EDIT ISSUE TYPE ROUNDING TABLE
EDIT TAX TABLE
MAP MASTER MODELS TO ACCOUNT
MAP SUBMODELS TO ACCOUNT
UPDATE MASTER MODELS MAPPED TO AN ACCOUNT
MODEL AUDIT TRAILS
ACCOUNT MODEL AUDIT TRAIL
EDIT STRATEGY LIST
EDIT ISSUE TYPE VP DATE TABLE
EDIT GLTM REPLACEMENT SECURITY TABLE
EDIT ASSET CLASS DEFINITIONS
SUBMODEL-LEVEL POSITION DRIFT TABLE
EDIT DISCRETIONARY SUBMODELS TABLE
=====
```

This section describes the functions associated with the first selection in the menu, Administration Tools. When you select this item, the Administration Tools menu displays:

- EDITUSER ID/MANAGER MAPPING controls access to submodels
- ESTABLISH ASSET CLASSES allows the master manager to define asset and sub asset classes and assign them to submodels for drift reporting purposes
- EDIT STANDARD ROUNDING TABLE sets the rounding and minimum trade parameters used by the Master Manager
- EDIT THE ISSUE TYPE ROUNDING TABLE applies rounding and minimum lot criteria based on portfolio market values, specific issue types, and general asset classes. The rounding table also establishes different rounding methods for various issue types
- EDIT TAX TABLE allows for securities to trade across an entire account while remaining tax aware. Only securities held across more than one sleeve are considered for ‘swapping’
- MAP MASTER MODELS TO ACCOUNT associates master models with specific accounts, enabling them to reflect changes in asset weightings
- MAP SUBMODELS TO ACCOUNT allows users to link a submodel to an account, enabling the submodel to track the asset weightings of the portfolio
- UPDATE MASTER MODELS MAPPED TO AN ACCOUNT allows you to physically update weightings in the master model, enabling the master model to track the portfolio. See “Manually updating models to mapped accounts”

- MODEL AUDIT TRAILS documents the dates when changes were made to the proportions allocated to submodels and the dates when changes were made to unaffiliated cash allocations to submodels. See “Viewing the Audit Trail Report”
- ACCOUNT MODEL AUDIT TRAIL provides the ability to view the Master Model change history or the cash change history for the selected account. See “Viewing the Account Model Audit Trail Report”
- EDIT STRATEGY LIST lists the codes and performance sectors associated with the core strategies used at your firm. See “Maintaining the strategy list”
- EDIT ISSUE TYPE VP DATE TABLE allows the master manager to exclude VP dates for transactions that do not meet the specified criteria. See “Edit Issue Type VP Date Table”
- EDIT GLTM REPLACEMENT SECURITY TABLE allows the master manager to establish default replacement securities for each submodel listed in the UMA Master Manager Table. See “Establish default replacement securities for one or more submodels”
- EDIT ASSET CLASS DEFINITIONS allows the master manager to define asset and sub asset classes and assign them to submodels for drift reporting purposes. See “Establish Asset Classes”
- SUBMODEL-LEVEL POSITION DRIFT TABLE allows threshold values in this table to evaluate drift for the submodels via the Two-Pass rebalance method. Submodels in the same directory as the table are evaluated. See “Submodel Level Position Tolerance Table”
- EDIT DISCRETIONARY SUBMODELS TABLE is called with the Two-Pass rebalance method. Identifies discretionary submodels and sets the Cash Target for those submodels. The values in the discretionary table have priority over cash targets specified in the submodel. See “Discretionary Submodels Table”

5.3 Associating submanagers with submodels

Master managers assign responsibility for the design of investment submodels to portfolio submanagers. Submodels define the securities to trade in the account when cash is moved by the master manager.

Note: Users with master manager privileges can see one set of submodels at a time. Users with super manager privileges can see all sets of submodels at a time. If a super manager exists, a master manager can only browse the User ID/Manager Map.

To assign access to a submanager, the master manager uses the following steps:

1. Select EDITING USER ID / MANAGER MAPPING from the Administration Tools menu

XYZ INVESTMENT MANAGEMENT

F-3 To Quit

11/07/08 10:30 A.M.

F-9 Refresh

F-10 To Save

MGR

MANAGER NAME

USER IDS

```

MG1      ABC53

MG2              ABC RESEARCH
ABC01 ABC11 ABC12 ABC22 ABC09

MG2              ABC RESEARCH
ABC20 ABC33 ABC34 ABC37 ABC38

MG3
ABC20 ABC37 ABC38 ABC40 ABC43

MG3
ABC53

F-6 Insert Line           Shift F-6 Delete Line           F-7 Add Ids
F-8 Delete Ids
    
```

| Field | Description |
|--------------|--|
| MGR | A three-character code identifying a specific submanager. This code is assigned by the master manager. |
| MANAGER NAME | The full name of the asset management firm associated with the persons who have access. The name can contain up to 40 characters. |
| USER IDS | A code of up to eight characters that identifies each individual who has access. If more than one person has access, separate each code with a space. (Do not separate codes with commas.) |

2. Press F7. You are prompted to add master manager user IDs

```

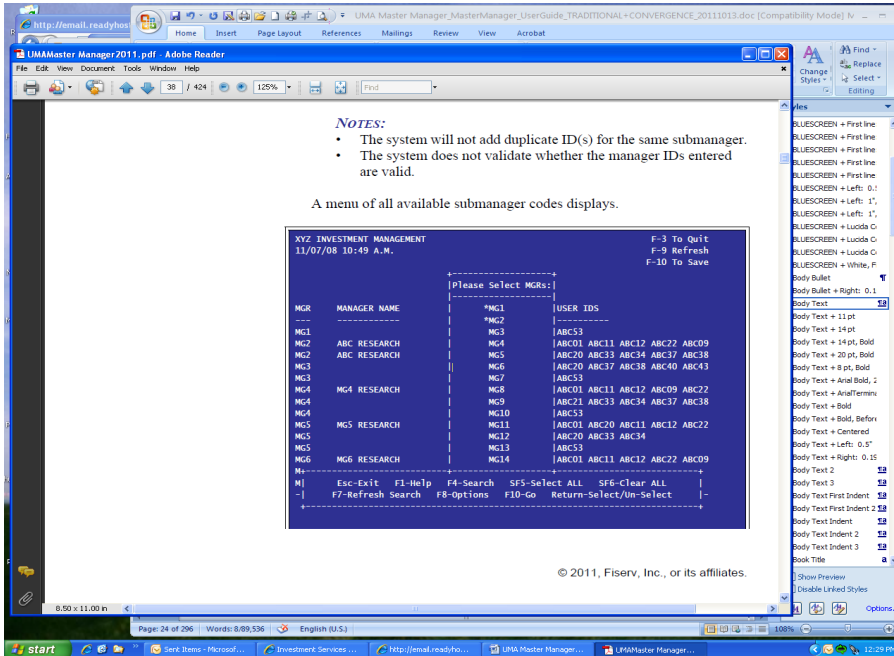
XYZ INVESTMENT MANAGEMENT                               F-3 To Quit
11/07/08 10:49 A.M.                                   F-9 Refresh
                                                         F-10 To Save

+-----+
|Please Enter Ids:|
+-----+
MGR  MANAGER NAME  |  USER IDS
---  -
MG1  ABC RESEARCH  |  ABC53
MG2  ABC RESEARCH  |  ABC01 ABC11 ABC12 ABC22 ABC09
MG2  ABC RESEARCH  |  ABC20 ABC33 ABC34 ABC37 ABC38
MG3  ABC RESEARCH  |  ABC20 ABC37 ABC38 ABC40 ABC43
MG3  ABC RESEARCH  |  ABC53
MG4  MG4 RESEARCH  |  ABC01 ABC11 ABC12 ABC09 ABC22
MG4  MG4 RESEARCH  |  ABC21 ABC33 ABC34 ABC37 ABC38
MG4  MG4 RESEARCH  |  ABC53
MG5  MG5 RESEARCH  |  F3-Quit F10-Go | ABC01 ABC20 ABC11 ABC12 ABC22
MG5  MG5 RESEARCH  |  ABC20 ABC33 ABC34
+-----+

F-6 Insert Line  Shift F-6 Delete Line  F-7 Add Ids  F-8 Delete Ids
    
```

3. Add master manager user IDs of up to eight characters. After entering an ID, press ENTER to add another. Press F10 to choose the submanager(s) codes you wish to add the ID(s) to. A menu of all available submanager codes displays

Note: The system will not add duplicate ID(s) for the same submanager. The system does not validate whether the manager IDs entered are valid.



- Use the tab key to move the cursor to a submanager you wish to select
- Press ENTER. Repeat this until all submanagers you wish to add IDs to are selected. To select all submanagers, press SHIFT + F5. To clear the submanager selection, press SHIFT + F6
- Press F10 to save your selection or press F3 to discard the changes
- From the main screen, press F10

The following changes are ready to be saved:
Add User Id XYZ33 to Manager Id MG1
Add User Id XYZ34 to All Submanagers

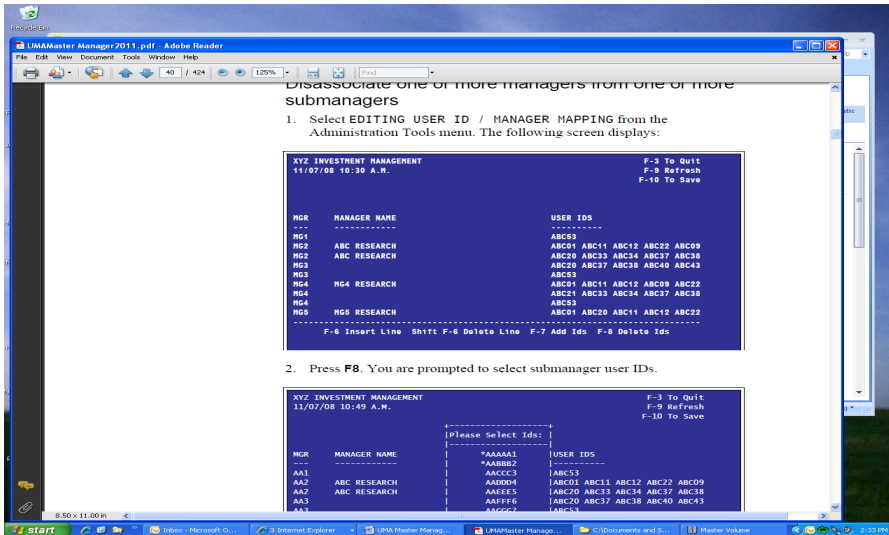
Are You Sure You Want to Exit and Save ?

NO
YES

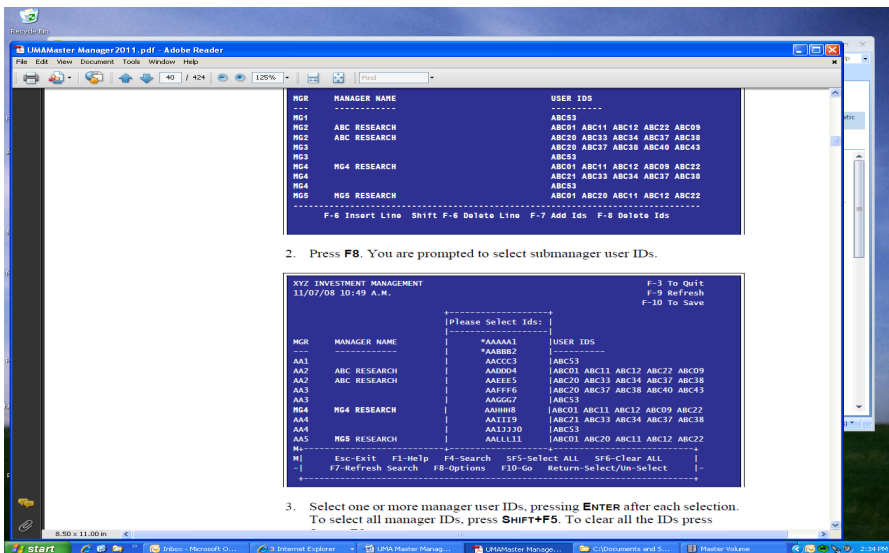
4. To discard the changes, select NO. To save the changes to the Manager Mapping Table, select YES and press ENTER. The USERMAPS.Lxx report file that lists the changes made is created (where the xx is a number from 00 to 99). The change report is saved to the user's directory and can be browsed later with the BROWSE command

5.4 Disassociate one or more managers from one or more submanagers

1. Select EDITING USER ID / MANAGER MAPPING from the Administration Tools menu. The following screen displays:



2. Press F8. You are prompted to select submanager user IDs



3. Select one or more manager user IDs, pressing ENTER after each selection. To select all manager IDs, press SHIFT+F5. To clear all the IDs press SHIFT+F6
4. Press F10 to choose the submanager's code and remove IDs. A menu of submanager codes displays

```

XYZ INVESTMENT MANAGEMENT                                F-3 To Quit
11/07/08 10:49 A.M.                                    F-9 Refresh
                                                         F-10 To Save
                                                         +-----+
                                                         |Please Select MGRs:|
                                                         +-----+
MGR  MANAGER NAME      *MGR1  USER IDS
      *MGR2  -----
MG1   ABC RESEARCH     MG3     ABC53
MG2   ABC RESEARCH     MG4     ABC01 ABC11 ABC12 ABC22 ABC09
MG2   ABC RESEARCH     MG5     ABC20 ABC33 ABC34 ABC37 ABC38
MG3   ABC RESEARCH     MG6     ABC20 ABC37 ABC38 ABC40 ABC43
MG3   ABC RESEARCH     MG7     ABC53
MG4   MG4 RESEARCH     MG8     ABC01 ABC11 ABC12 ABC09 ABC22
MG4   MG4 RESEARCH     MG9     ABC21 ABC33 ABC34 ABC37 ABC38
MG4   MG4 RESEARCH     MG10    ABC53
MG5   MG5 RESEARCH     MG11    ABC01 ABC20 ABC11 ABC12 ABC22
MG5   MG5 RESEARCH     MG12    ABC20 ABC33 ABC34
MG5   MG5 RESEARCH     MG13    ABC53
MG6   MG6 RESEARCH     MG14    ABC01 ABC11 ABC12 ABC22 ABC09
M+-----+
M|  Esc-Exit  F1-Help  F4-Search  SF5-Select ALL  SF6-Clear ALL  |
-|  F7-Refresh Search  F8-Options  F10-Go  Return-Select/Un-Select  |-
+-----+
    
```

- Use the tab key to move the cursor to a submanager ID you want to disassociate. Press ENTER. Repeat this until all submanagers you wish to choose are selected. To select all submanagers, press SHIFT+F5. To clear the selection, press SHIFT+F6
- Press F10 to save your selection or press F3 to discard the changes
- From the main screen, press F10. A summary of changes displays

```

The following changes are ready to be saved:
Delete User Id AAAAA1 from Manager Id MG1
Delete User Id ABBBB2 from All Submanagers
    
```

If no changes were made, a message conveys this. You are prompted to save all changes.

```

Are You Sure You Want to Exit and Save ?

NO
YES
    
```

- To discard the changes, select NO. To save the changes to the Manager Mapping Table select YES and press ENTER. The USERMAPS.Lxx report file that lists the changes made is created (where the xx is a number from 00 to 99). The change report is saved to the user's directory and can be browsed later with the BROWSE command

5.5 Editing the Standard Rounding Table

When the rebalancing function adjusts the security holdings in a portfolio, the master manager may find it advantageous to control the minimum lot size. In addition, they may want to set the thresholds for rounding transactions to the nearest lot increment.

The parameters used by APL system trading tools, except for UNIFIED MANAGED ACCOUNT REBALANCER, are stored in the MSP Standard Rounding table. The table is designed to enable tiered values for rounding based on the market value of the portfolio. This allows you to specify smaller lots for smaller portfolios.

Note: The master manager can specify the rounding method (i.e., round up, round down, or round to the nearest unit). However, the rounding method is set up by InvestCloud. Contact InvestCloud to make any changes.

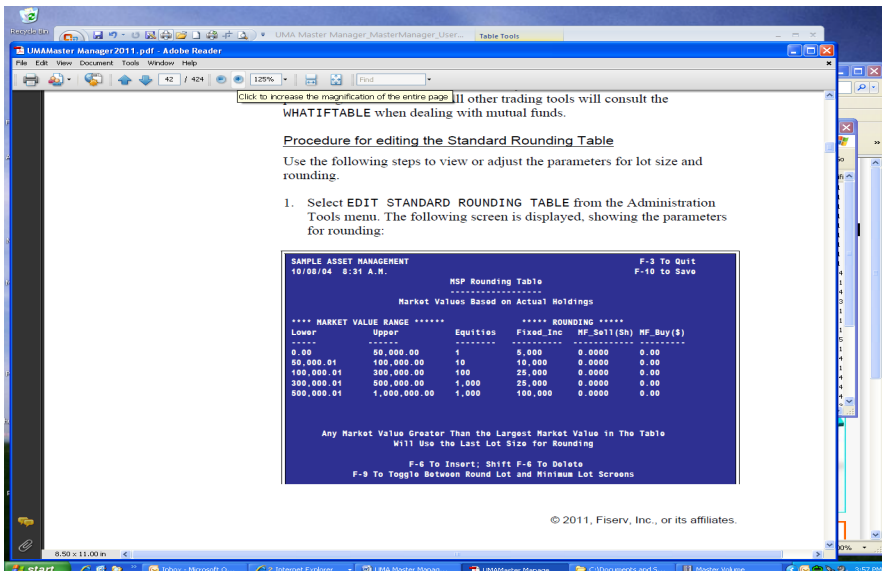
Mutual fund rebalancing

The Standard Rounding Table is used by the various rebalancers when pertaining to mutual funds. All other trading tools will consult the WHATIFTABLE when dealing with mutual funds.

Procedure for editing the Standard Rounding Table

Use the following steps to view or adjust the parameters for lot size and rounding.

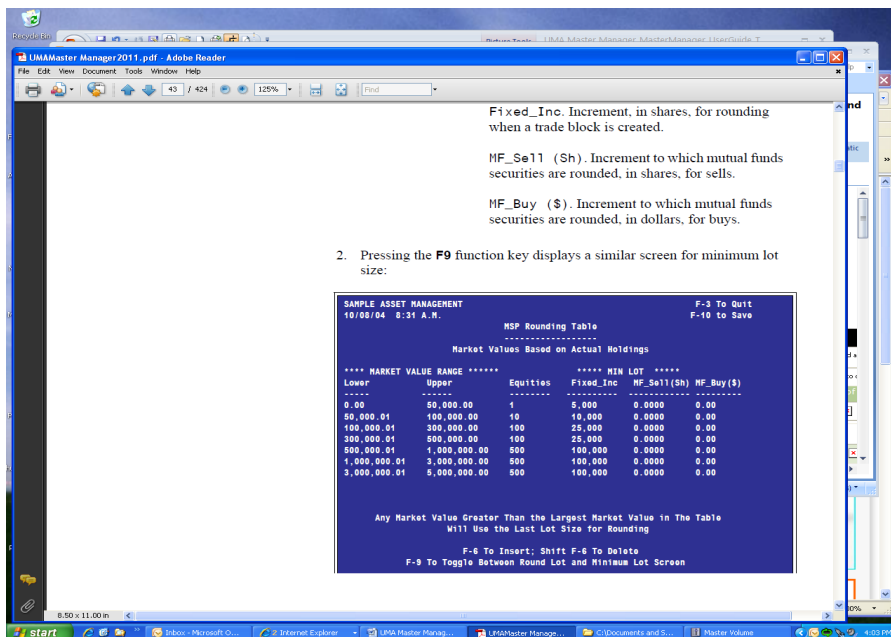
1. Select EDIT STANDARD ROUNDING TABLE from the Administration Tools menu. The following screen is displayed, showing the parameters for rounding:



| Field | Description |
|--------------------------------|---|
| MARKET VALUE RANGE Lower/Upper | Portfolio value lower and upper thresholds. The rounding and minimum lot values in the two right columns apply to this range. |
| ROUNDING Equities/FixedIncome | The size of the increment to which equity, fixed income, and mutual funds are rounded. |

| Field | Description |
|-------|---|
| | Equities. Increment, in shares, for rounding when a trade block is created. |
| | Fixed_Inc. Increment, in shares, for rounding when a trade block is created. |
| | MF_Buy (\$). Increment to which mutual funds securities are rounded, in dollars, for buys. |
| | MF_Sell (Sh). Increment to which mutual funds securities are rounded, in shares, for sells. |

2. Pressing the F9 function key displays a similar screen for minimum lot size:



| Field | Description |
|--------------------------------|---|
| MARKET VALUE RANGE Lower/Upper | Portfolio value lower and upper thresholds. The rounding and minimum lot values in the two right columns apply to this range. |
| MIN LOT Equities/FixedIncome | The minimum lot size of trades, in number of shares, except for mutual fund buys which are reflected in dollars and cents. Equities. Minimum number of shares to trade when equities are traded. Fixed_Inc. Minimum original face value amount that a fixed income lot must be before it is added to the trading block. |
| | MF_Sell (Sh). Minimum number of shares to trade when mutual funds are traded. |

| Field | Description |
|-------|-------------|
|-------|-------------|

| | |
|--|---|
| | MF_Buy (\$). Minimum amount, in dollars and cents, that a mutual fund lot must be added to the trading block. |
|--|---|

5.6 Editing the Issue Type Rounding Table

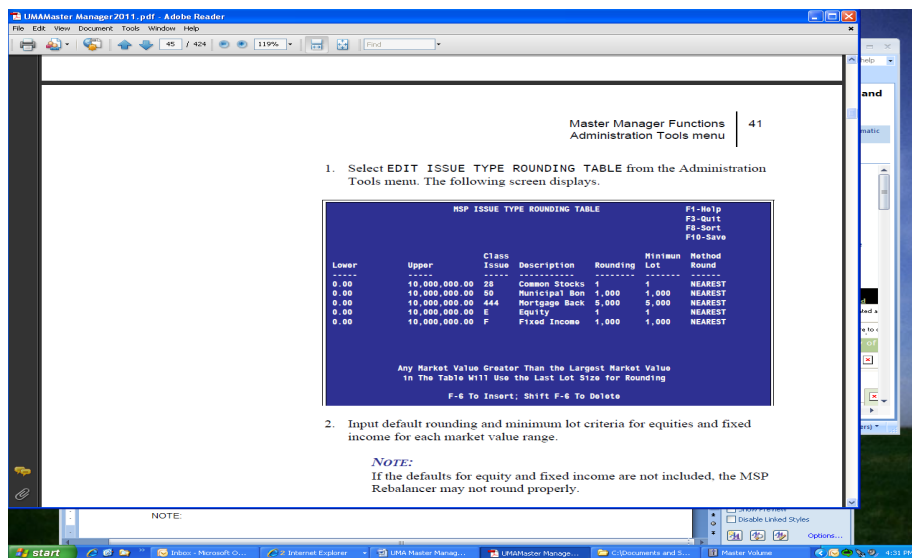
The Issue Type Rounding Table allows you to:

- Apply rounding and minimum lot criteria based on portfolio market values, specific issue types, and general asset classes
- Set the rounding method (UP, DOWN, NEAREST) to establish different rounding methods for equities, fixed income instruments, and other specific issue types

This rounding table applies only to the UNIFIED MANAGED ACCOUNT REBALANCER as other tools pull rounding and minimum lot criteria from the Standard Rounding Table. The initial rounding method for each item on the table will match the original rounding method used by the UNIFIED MANAGED ACCOUNT REBALANCER until it is changed in the Issue Type Rounding Table.

To view or adjust the parameters for lot size and rounding,

1. Select EDIT ISSUE TYPE ROUNDING TABLE from the Administration Tools menu. The following screen displays



2. Input default rounding and minimum lot criteria for equities and fixed income for each market value range

Note: If the defaults for equity and fixed income are not included, the UNIFIED MANAGED ACCOUNT REBALANCER may not round properly.

3. Input rounding and minimum lot criteria for specific issue types for each market value range

Issue-type specific rounding and minimum lot criteria will always override the fixed income and equity defaults.

| Field | Description |
|--------------|--|
| Lower/Upper | Portfolio value lower and upper thresholds. The rounding and minimum lot values in the two right columns apply to this range. |
| Class/Issue | <p>Code for the class/issue in respect to income rounding/minimum lots:</p> <ul style="list-style-type: none"> • F = Fixed income • E = Equity • n = Issue type-specific criteria is coded using the appropriate issue type code from the Security Master database. For instance, input 50 to indicate a municipal bond <p>To view a list of issue types, press F1.</p> |
| Description | Brief description of the issue type. This field is automatically filled in by the system upon saving data. |
| Rounding | The size of the increment to which stock trades are rounded, in number of shares. |
| Minimum Lot | The minimum lot size of trades, in number of shares. |
| Method Round | <p>NEAREST - Uses 5/4 rounding.</p> <p>DOWN - Rounds down to the nearest increment.</p> <p>UP - Rounds up to the nearest increment.</p> |

4. Press F10 to save and exit

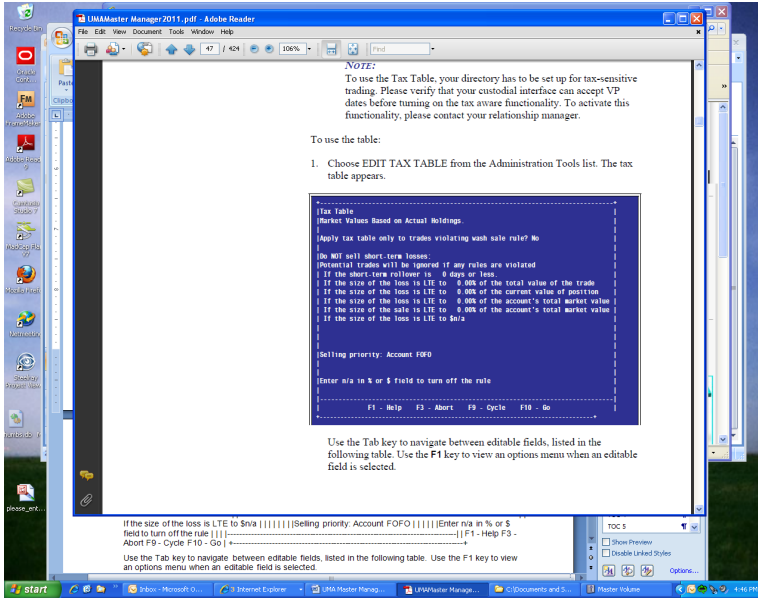
5.7 Establishing a gain/loss filter for trades across all sleeves of an account

UMA trading logic allows for securities to trade across an entire account while remaining tax aware. Thus, the master manager can set the limit on the amount of gain or loss per trade in the Tax Table.

Note: To use the Tax Table, your directory has to be set up for tax-sensitive trading. Please verify that your custodial interface can accept VP dates before turning on the tax aware functionality. To activate this functionality, please contact your relationship manager.

To use the table:

1. Choose EDIT TAX TABLE from the Administration Tools list. The tax table opens



Use the Tab key to navigate between editable fields, listed in the following table. Use the F1 key to view an options menu when an editable field is selected.

| Option | Description |
|---|---|
| <p>No. Applies the table to all trades created.</p> <p>Apply tax table only to trades violating wash sale rule?</p> | <p>Yes. Only considers the additional rules for transactions created that violate a standard wash sale rule. See Appendix A for parameter combinations and their results.</p> |
| <p>Potential trades will be ignored if...</p> | <p>Choose Any or All to indicate whether any or all rules should be violated to remove the trade.</p> |
| <p>If the short-term rollover is...</p> | <p>Number of days for a sale to roll over to long term versus short term gain/loss.</p> <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;"> <p>Note: This rule will not be applied when the Edit Tax Table is used as a wash sale filter.</p> </div> |
| <p>loss/gain:</p> | <p>Specifies whether the filter is loss or gain related.</p> |
| <p>If the size of the loss/ gain is NNN to N.NN% of the total value of the trade</p> | <p>When the table is used as a wash sale filter, only 'loss' can be selected.</p> <ul style="list-style-type: none"> • NNN • LTE = less than or equal to • LT = less than • GTE = greater than or equal to |

| Option | Description |
|--|---|
| | <ul style="list-style-type: none"> • GT = greater than • N.NN% <p>This is a percentage between 0.00 and 100.</p> <p>The default is 0.00</p> |
| <p>If the size of the loss/ gain is NNN to N.NN% of the current value of position</p> | <p>loss/gain</p> <p>Specifies whether the filter is loss or gain related.</p> <p>When the table is used as a wash sale filter, only 'loss' can be selected.</p> <ul style="list-style-type: none"> • NNN • LTE = less than or equal to • LT = less than • GTE = greater than or equal to • GT = greater than • N.NN% <p>This is a percentage between 0.00 and 100.</p> <p>The default is 0.00</p> |
| <p>If the size of the loss/ gain is LTE to 0.00% of the account's total market value</p> | <p>loss/gain</p> <p>Specifies whether the filter is loss or gain related.</p> <p>When the table is used as a wash sale filter, only 'loss' can be selected.</p> <ul style="list-style-type: none"> • NNN • LTE = less than or equal to • LT = less than • GTE = greater than or equal to • GT = greater than • N.NN% <p>This is a percentage between 0.00 and 100.</p> <p>The default is 0.00</p> |
| <p>If the size of the loss is LTE/LT/GTE/GT to \$...</p> | <p>Dollar value of the loss.</p> |
| <p>Selling priority</p> | <p>The selling priority to assign to the trade(s).</p> <p>Account FOFO - From account master field</p> <ul style="list-style-type: none"> • FIFO - First in, First out |

| Option | Description |
|--------|--|
| | <ul style="list-style-type: none"> • LIFO - Last in, First out • MINTAX - Minimum tax • HICOST - High cost • AVCOST - Average cost • MAXTAX - Maximum taxable amount • HCOSTST - High Cost, Short-Term • HCOSTLT - High Cost, Long-Term |

2. Press F10 to save the changes

REGARDING USING THE TABLE WITH THE TRADING TOOLS: To apply the rules, the following fields must also be set on the trading tools screen:

- Create Tax Sensitive Trades- Set this field to YES on the UNIFIED MANAGED ACCOUNT REBALANCER, or the Security Rebalancer/Multi WhatIf Tool
- Apply Tax Table - Set this field to YES on the trading tool screen

Do not use the gain/loss filters and the Gain Loss Trade Modeling Tool on the same day

When tax-lot swapping functionality is turned on, the Gain Loss Trade Modeling (GLTM) and Account Adjuster tools on the Master Manager Trading Menu and the Account Adjuster on the Submanager Menu will not reflect intraday swaps between sleeves. This means that you could potentially oversell a position within a sleeve without intending to.

Please note the following points in respect to using both gain/loss filters and the GLTM functionality.

- You should not create transactions with the GLTM tools on the same day that tax sensitive trades are created. Resulting trades may generate unintended results, such as overselling tax lots
- GLTM tools do not support tax-sensitive lot swapping between sleeves
- Currently, the reports reflecting VP (verses purchase) dates have not been enhanced to reflect intraday swaps, i.e. tax lot and gain/ loss reporting. However, reports that do not display the VP dates will reflect the current information correctly. Only available lots within a sleeve will be reflected on the reports

A default settlement date of 1 will be applied to all transactions, unless specified in the table. The default settlement date can also be adjusted.

Note: Please contact InvestCloud to activate this functionality.

Examples of instances where a VP date may not be applicable:

- Fixed income securities
- Unsettled securities. If a security has not settled on the custodial system, a transaction sent with a VP date may cause a reconciliation break since the custodial system does not show that purchase date available for sale

Important: IT IS HIGHLY RECOMMENDED THAT THE USER NOT CREATE TRANSACTIONS WITH THE GLTMTTOOLS ON SAME DAY AS TAX SENSITIVE TRADES ARE CREATEDR. RESULTING TRADES GENERATED MAY BE UNEXPECTED, POTENTIALLY OVERSELLING TAX LOTS. ALSO, GLTM TOOLS DO NOT SUPPORT TAX-SENSITIVE LOT SWAPPING BETWEEN SLEEVES.

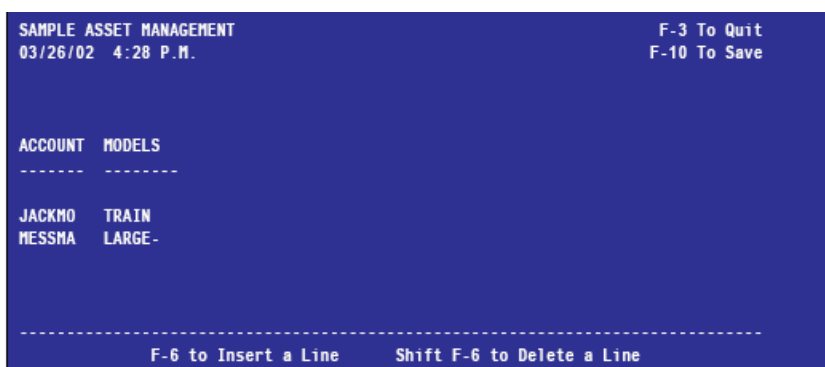
Mapping master models to accounts

Master models are normally static. In other words, their composition remains the same regardless of the value of the securities they contain. However, the master manager can create a master model that changes dynamically, based on the value of its associated submodels. Do this by mapping the master model to a live UMA account. This enables the allocations model to track the live account's submodel allocations.

Note: Only the submodel weights update. The security allocation in the submodels themselves are not to be affected by this mapping.

To map a master model to a live account:

1. Select MAP MASTER MODELS TO ACCOUNT from the Administration Tools menu. The following screen will open:



| Field | Description |
|---------|---|
| ACCOUNT | The live account that the model tracks. This must be a UMA account. |
| MODELS | The model tracking the live account. If more than one model is tracking the account, each model code is separated by a single space. (Do not separate with commas.) |

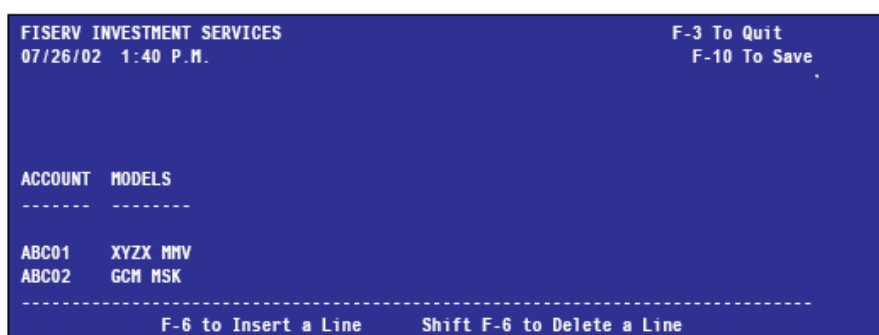
2. Add, change, or delete mappings as required; then press F10 to save and exit
3. To update the master model with the allocations in the live account, from the Administration Tools menu, select UPDATE MASTER MODELS MAPPED TO AN ACCOUNT

Mapping submodels to accounts

Just as a master manager can map a master model to an account (“Mapping master models to accounts”), it is also possible to map a submodel to an account, so that the security allocation of the submodel changes dynamically as the portfolio value and composition changes.

To map a submodel to an account:

Select MAP SUBMODELS TO ACCOUNT from the Administration Tools menu. The following screen will open:



| Field | Description |
|---------|--|
| ACCOUNT | The live account that the model tracks. This can be a UMA or a non-UMA account. |
| MODELS | The submodel tracking the live account. If more than one model is tracking the account, each model code is separated by a single space. (Do not separate with commas.) |

2. Add, change, or delete mappings as required; then press F10 to save and exit

Note: UMA dynamically updates these submodels.

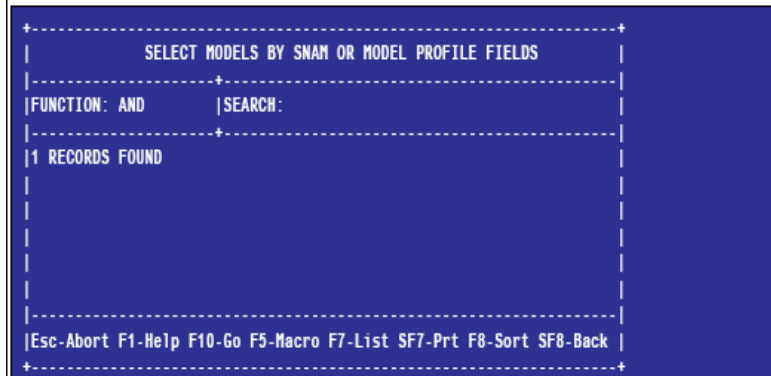
Manually updating models to mapped accounts

This function re-adjusts the composition of the master models based on the composition of the accounts to which they are mapped.

This function is not performed automatically. The master manager must run this function each time the master models need updating. This design protects the master models from radical changes due to market swings.

To manually update master models based on the composition of the accounts to which they are mapped:

1. Select UPDATE MASTER MODELS MAPPED TO AN ACCOUNT from the Administration Tools menu. The following screen will open:



2. Select the model or models you want to update. To display a list of models, press the F7 key
3. To rebalance the master models, press the F10 key. The Administration Tools menu displays

Submodel-Level Position Tolerance Table

Access this table from either the Expert or the MSP Super Manager menu

If values are specified in this default table, it automatically provides absolute or relative drift tolerance thresholds for all submodels in the same directory as the table. This table is used only when determining drifted sleeves/securities during the second step of the Two-Pass Rebalancer option.

After selecting Submodel-Level Position Drift Table, the Position Tolerance Table displays. It lists all submodels. Master Managers can specify the Lower Drift Tolerance and Upper Drift Tolerance as a percent, and set the Tolerance Type to absolute or relative. These values are applied at the submodel level and set drift tolerances for all securities in the submodel.

The default Position Tolerance Table configured at the submodel-level initially populates the drift tolerance thresholds in the universe table. Managers can customize values in the universe table to meet firm requirements. The values in a universe table take priority over the threshold values in the default submodel table.

Note: Position tolerance is defined on the submodel level.

The example below illustrates how the Position Tolerance Table looks when it is opened for the first time.

| Position Tolerance Table | | | | F1 - List |
|--------------------------|---------------------------|-----------------------------|-----------------------------|-------------------|
| | | | | F3/Esc - Exit |
| | | | | F8 - Sort |
| | | | | F10 - Save |
| Sub-model | | Lower Drift Tolerance | Upper Drift Tolerance | Tolerance Type |
| XYZ11 | US LARGE CAP SMA | 0 | 0 | ABSOLUTE |
| XYZ110 | US HIGH YIELD BONDS | 0 | 0 | ABSOLUTE |
| XYZ111 | US HIGH YIELD BOND SMA | 0 | 0 | ABSOLUTE |
| XYZ112 | EMERGING MARKETS FIXED IN | 0 | 0 | ABSOLUTE |
| XYZ113 | DIRECT REAL ESTATE | 0 | 0 | ABSOLUTE |
| XYZ114 | CASH & EQUIVALENTS | 0 | 0 | ABSOLUTE |
| XYZ115 | US LONG DURATION | 0 | 0 | ABSOLUTE |
| XYZ12 | US LARGE CAP | 0 | 0 | ABSOLUTE |
| XYZ13 | US MULTI CAP | 0 | 0 | ABSOLUTE |
| XYZ14 | US SMALL/MID CAP | 0 | 0 | ABSOLUTE |

F1 - List Available Values
F4 - Search

To edit the Position Tolerance table at the universe-level, navigate to the MSP MASTER MANAGER > ADMINISTRATION TOOLS menu. Select the SUBMODEL-LEVEL POSITION DRIFT TABLE option in the list. The Position Tolerance Table opens, as illustrated above.

| Field | Format | Description |
|-----------------------|---|---|
| Sub-model | 6 character sub-model SNAM | Enter the sub-model code or select it from the list by pressing F1. |
| Lower drift tolerance | Percent, 0 (zero) or greater, up to 3 decimals, may exceed 100% | Drift tolerance for underweighted securities |
| Upper drift tolerance | Percent, 0 (zero) or greater, up to 3 decimals, may exceed 100% | Drift tolerance for overweighed securities |
| Tolerance type | Absolute (default) Relative | Select it from the list by pressing F1 |

Discretionary Sub-models Table

This table can be accessed from either the Expert or the MSP Super Manager menu

This table is used only to identify discretionary submodels that should be excluded from trade generation via the Two-Pass Rebalancer option.

This table designates which submodels are discretionary/nonmodeled and sets the Cash Target for these submodels. The values in the discretionary table have priority over cash targets specified in the submodel.

By default, there is a table set up on the directory level. The submodel must exist on the client directory. A universe-level table can also be configured for each UMA universe. If the default Discretionary Submodel table is configured, its values initially populate the universe table. The Master Manager can customize the values in the universe table to meet program requirements. The values specified in the universe table take priority over the values in the default Discretionary Sub-models Table.

To edit a Discretionary Submodel table at the universe-level, navigate to the MSP MASTER MANAGER > ADMINISTRATION TOOLS menu. Select the EDIT DISCRETIONARY SUBMODELS TABLE option in the list. The Discretionary Sub-Models Table opens, as illustrated in the following example.

| Sub-model | Cash Target% |
|-----------|--------------|
| SubOne | 5.000 |
| SubTwo | 3.000 |
| SubSix | 1.00 |

F1 - List
 F3/Esc - Exit
 F8 - Sort
 F10 - Save

1 - List Available Values
 4 - Search
 6 - Add Line S-F6 - Delete Line

| Field | Format | Description |
|---------------|--|---|
| Sub-model | 6 character sub-model SNAM | Enter the sub-model code or select it from the list by pressing F1. |
| Cash Target % | Cash target must be in percent from 0.000 to 100.000 with up to 3 decimals. If not specified, 0 will be assumed. | Cash Target %. Enter valid value. Blank will be converted to 0.000. |

Note: When MSPPOSTGLFLOWS options that use cash targets, such as Cash Target and Prorate, are used as the calculation method, the function will use the cash target from the Discretionary Sub-model Table, instead of the cash target specified in the submodel.

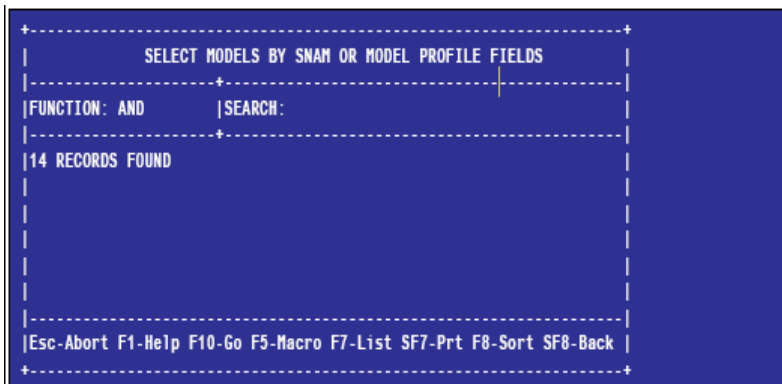
Viewing the Audit Trail Report

UMA keeps track of the changes in submodel allocations over time. It also keeps track of unaffiliated cash allocations within a master model. The Audit Trail Report indicates the dates that the submodel and cash allocations were added and deleted.

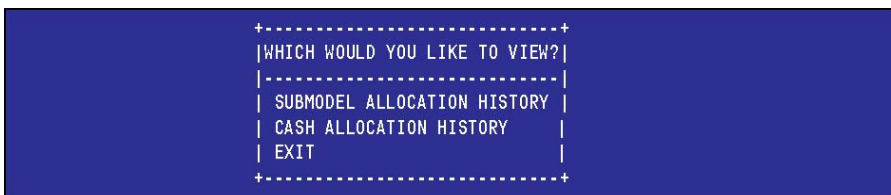
Note: This audit trail functionality does not include dynamic master models which are mapped to live accounts, since the allocations in these master models can change daily.

To access this function, use the following steps:

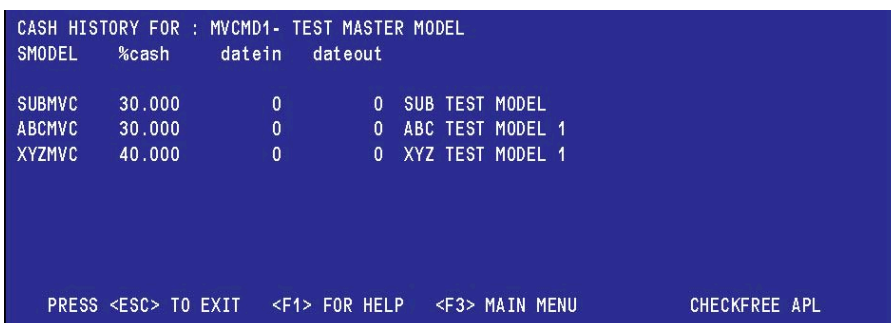
1. Select MODEL AUDIT TRAILS from the Administration Tools menu. The following screen will open:



2. Select the model or models you want to update. (You can display a list of models by pressing the F7 key.) Then, press the F10 key. You are prompted to choose either SUBMODEL ALLOCATION HISTORY or CASH ALLOCATION HISTORY



3. Choose the proper allocation. The Model Audit Trail screen will open:



| Column | Description |
|------------------|--|
| CASH HISTORY FOR | Name of the master model. |
| SMODEL | Name of the associated submodel. |
| %cash | Percent of cash allocated to the submodel. |
| Datein | The date that the submodel allocation was added. |
| Dateout | The date the submodel allocation was removed. |

Viewing the Account Model Audit Trail Report

The Account Model Audit Trail Report indicates the dates that the submodel and cash allocations were added, changed or deleted. It stores unlimited master model changes for each account. When an account has untagged cash transactions, the application allocates these transactions based on the master model effective to the transaction date. When the master model code changes, new cash transactions allocate based on the new model.

The report is accessed by selecting Account Model Audit Trail from the Administration Tools Menu, selecting an account and then selecting either Submodel Allocation or Cash Allocation.

Sample report:

SUBMODEL HISTORY FOR : SAMPLE ACCOUNT 123

| MMODEL | SMODEL | %aloca | datein | dateout | Desc | UserID | Date |
|--------|--------|--------|----------|----------|---------|----------|------|
| MODEL1 | SUB001 | 30.000 | 20110518 | 0 | SLEEVE1 | XYZ12345 | 05/1 |
| MODEL1 | SUB002 | 70.000 | 20110518 | 0 | SLEEVE2 | XYZ12345 | 05/1 |
| MODEL2 | SUB003 | 50.000 | 20110501 | 20110518 | SLEEVE3 | XYZ12345 | 05/1 |
| MODEL2 | SUB004 | 50.000 | 20110501 | 20110518 | SLEEVE4 | XYZ12345 | 05/1 |

5.8 Maintaining the strategy list

The Edit Strategy List function enables you to create and maintain the table of standard strategies used by your firm. Each new strategy is automatically mapped to a separate performance sector, to enable performance reporting by submodel or strategy.

Thus, when a submanager creates and saves a new model, the system presents a list of strategy codes from which to select. The standard methodology is for the system to then create a name for the submodel, using the following convention:

- First three characters: submanager ID
- Last three characters: Strategy code

Note: If the strategy list is maintained by the super manager, then the master manager will have view-only access. Thus, the master manager will not be able to make any changes.

Viewing or adding a strategy

To view or add to the strategy code table:

1. Select EDIT STRATEGY LIST from the Administration Tools menu. The UMA Strategies Editor screen will open:

```

FISERV INVESTMENT SERVICES                                F1 - Help
07/18/02  1:43 P.M.                                    F3 - Exit
                                                       F9 - Add Strategy
                                                       F10 - Save
    +-----+
    | MSP Strategies Editor |
    +-----+

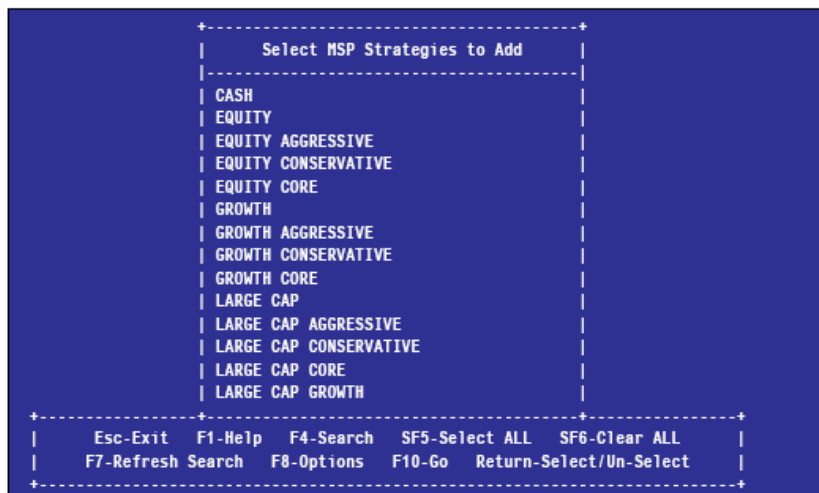
STRATEGY          PERFORMANCE
CODE  DESCRIPTION  SECTOR
-----
CAS   CASH          5
EA    EQUITY AGGRESSIVE 6
EC    EQUITY CONSERVATIVE 7
G     GROWTH          8
LG    LARGE CAP GROWTH  9
LV    LARGE CAP VALUE  10
V     VALUE          11
FX    FIXED INCOME    12
WB    WORLD BALANCED  13
WFX   WORLD FIXED INCOME 14
MC    MID CAP         15
S     SMALL CAP       16
    
```

This screen displays a list of strategies used at the master manager’s firm.

- To view the list of strategies you can add, press F9. The following screen will open:

| Code | Strategy |
|------|------------------------|
| E | Equity |
| EA | Equity Aggressive |
| EC | Equity Conservative |
| ER | Equity Core |
| G | Growth |
| GA | Growth Aggressive |
| GC | Growth Conservative |
| GR | Growth Core |
| L | Large Cap |
| LA | Large Cap Aggressive |
| LC | Large Cap Conservative |
| LR | Large Cap Core |
| LG | Large Cap Growth |

| Code | Strategy |
|------|-------------------------------|
| LGA | Large Cap Growth Aggressive |
| LGC | Large Cap Growth Conservative |
| LGR | Large Cap Growth Core |
| LV | Large Cap Value |
| LVA | Large Cap Value Aggressive |
| LVC | Large Cap Value Conservative |
| LVR | Large Cap Value Core |
| S | Small Cap |
| SA | Small Cap Aggressive |
| SC | Small Cap Conservative |
| SR | Small Cap Core |
| SG | Small Cap Growth |
| SGA | Small Cap Growth Aggressive |
| SGC | Small Cap Growth Conservative |
| SGR | Small Cap Growth Core |



- Highlight the strategy type you want to add, and press ENTER. An asterisk will appear next to the strategy. Highlight as many strategies as you like

To add a strategy that is not listed:

- Scroll to the bottom of the list and select CREATE NEW STRATEGY. Press ENTER to select it, then, press F10. The following prompt opens:

```
+-----+
|Enter new strategy code (no more than 3 characters): |
+-----+
```

- Type a unique code of one to three characters, and press ENTER. The following prompt will appear:

```
+-----+
|Enter new strategy description: |
+-----+
```

- Type the name of the new strategy, and press ENTER. The name of the strategy will appear at the bottom of the UMA Strategies Editor window
- Press F10 to save your changes. When saving, the system assigns the strategy code to the next available performance sector

The following is a list of standard strategies and their associated codes.

| Code | Strategy |
|------|------------------------------|
| SV | Small Cap Value |
| SVA | Small Cap Value Aggressive |
| SVC | Small Cap Value Conservative |
| SVR | Small Cap Value Core |
| V | Value |
| VA | Value Aggressive |
| VC | Value Conservative |
| VR | Value Core |
| M | Mid Cap |
| MG | Mid Cap Growth |
| MV | Mid Cap Value |

| Code | Strategy |
|------|--|
| FX | Fixed |
| IFX | Intermediate Fixed |
| RES | Real Estate |
| REI | Real Estate Investment Trust (REIT) |
| B | Balanced |
| AB | Aggressive Balanced |
| CB | Conservative Balanced |
| MB | Moderate Balanced |
| WB | World Balanced |
| WED | World Equity: Developed |
| WEE | World Equity: Emerging |
| WEG | World Equity: Global |
| WEI | World Equity: International |
| WEL | World Equity: International Developed |
| WEM | World Equity: International Emerging |
| WEN | World Equity: International and Global |
| WFX | World Fixed |
| OTH | Other |

Note: Please contact InvestCloud to delete strategies or change sector numbers.

Editing strategy descriptions

To maintain the strategy code table:

1. Select EDIT STRATEGY LIST from the Administration Tools menu. The MSP Strategies Editor screen will open:

```

FISERV INVESTMENT SERVICES                                F1 - Help
07/18/02 1:43 P.M.                                     F3 - Exit
                                                         F9 - Add Strategy
                                                         F10 - Save
    +-----+
    | MSP Strategies Editor |
    +-----+

STRATEGY          PERFORMANCE
CODE DESCRIPTION  SECTOR
-----
CAS  CASH          5
EA   EQUITY AGGRESSIVE 6
EC   EQUITY CONSERVATIVE 7
G    GROWTH         8
LG   LARGE CAP GROWTH  9
LV   LARGE CAP VALUE  10
V    VALUE          11
FX   FIXED INCOME    12
WB   WORLD BALANCED  13
WFX  WORLD FIXED INCOME 14
MC   MID CAP         15
S    SMALL CAP       16
    
```

This screen displays a list of strategies used at the master manager’s firm.

2. Move the cursor to the strategy description you wish to rename and type over the existing description. Press F10 to save the change

Edit Issue Type VP Date Table

The EDIT ISSUE TYPE VP DATE TABLE allows the master manager to specify issue types for which versus purchase (VP) trades will be generated. The master manager can choose not to create VP trades for tax lots purchased within specified number of days. This value can be set separately for each issue type.

To maintain the strategy code table:

1. Select EDIT ISSUE TYPE VP DATE TABLE from the Administration Tools menu. The table displays:

```

Enter the number of settlement days                      F-3 To Quit
-----                                                F-10 to Save

IssTy  #days Issue Type Description
-----
  71    1  ADJUSTABLE RATE PREFERRED
 220    1  ALT. INVESTMENT - EQUITY
 225    1  ALT. INVESTMENT - FIXED
  38    1  ANNUITIES
  60    1  ASSET BACKED SECURITIES
  85    1  BOND FUTURES CONTRACTS
  86    1  BOND FUTURES RESERVES
   1    1  CASH AND CASH EQUIVALENTS
  36    1  CERT OF DEPOSITS / COMM PAPER
  93    1  COLLATERALIZED MORTGAGE OBLIGATIONS
  28    3  COMMON STOCKS
  31    1  CONVERTIBLE BONDS
  46    1  CONVERTIBLE PREFERRED STOCKS
   5    1  CORPORATE BOND FUNDS
  34    1  CORPORATE BONDS
  33    1  CORPORATE STOCK FUND
  87    1  EQUITY FUTURES CONTRACT
Enter NOVPD in #days field to create trades without VP date
    
```

2. Modify the #days field as appropriate. Press F10 to save the changes

| Field | Description |
|------------------------|--|
| Issty | These are the standard ISSTY's on APL listed in alphabetical order based on the description |
| #days | <p>This is an editable field. Enter the number of days a lot must have been purchased prior to consideration of populating a VP date.</p> <p>For example, if today was January 7 and an equity had been purchased on January 5 the lot would not have a VP date populated in the block because this table defines ISSTY 28 as #days = 3 (t+3).</p> <p>The default value defined in the configuration will be populated within the table, unless specified.</p> |
| Issue Type Description | Displays the description based on the Issue Type Description Table. |

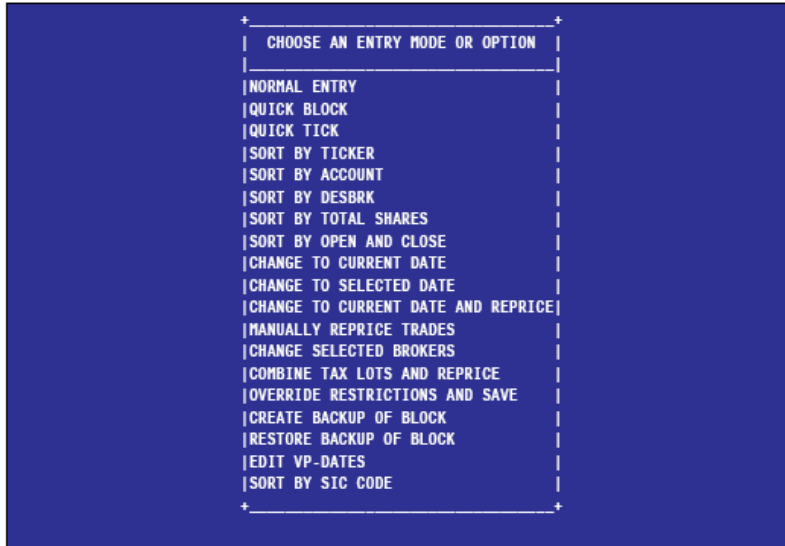
Editing and reviewing Versus Purchase Dates in trade blocks

The tax sensitive trading options populate VP dates within the trade block, if necessary.

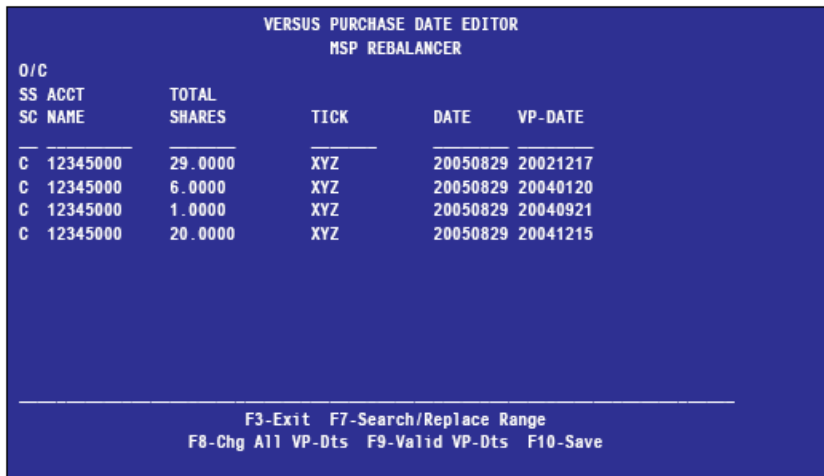
Note: This functionality relies on the Block Status functionality. To learn more about this feature, please refer to the InvestCloud APL Trading System User Guide.

To view/edit the VP dates:

1. Within BLOCK STATUS, go to EDIT when selecting a block
2. In the EDIT screen, press F8. A drop down will appear
3. Select EDIT VP DATES. You may need to scroll down to view the option



The Versus Purchase Date Editor Screen opens.



4. Make the necessary changes and press F10 to save

Establish default replacement securities for one or more submodels

The GLTM Replacement Security Table allows a master manager to specify default replacement securities for each submodel to be used when running the GLTM Tool. Thus, as proceeds come available in a sleeve, users of the Gain Loss Trade Modeling tool can opt to purchase the default replacement securities supplied in the GLTM Replacement Security Table for a given submodel.

To maintain this table:

1. Select EDIT GLTM REPLACEMENT SECURITY TABLE from the Administration Tools menu. The table opens

```
MXZ ACCOUNT ADVISORS                                F1 - Help
04/07/09  1:39 P.M.                                F3 - Exit
                                                    F9 - Refresh
                                                    F10 - Save
+-----+
|GLTM REPLACEMENT SECURITY TABLE|
+-----+

SUBMODEL  GLTM REPLACEMENT SECURITIES (TICK) AND TARGET %
-----
BLANK
AABBCC    XYZ 40
AABBDD    XYZ 60
AABBFF
AABBGG
AABBHH
AABBII
```

2. Use the TAB key to locate a model for which you want to specify default replacement securities or search for them by pressing F4

```
MXZ ACCOUNT ADVISORS                                F1 - Help
04/07/09  1:39 P.M.                                F3 - Exit
                                                    F9 - Refresh
                                                    F10 - Save
+-----+
|GLTM REPLACEMENT SECURITY TABLE|
+-----+

SUBMODEL  GLTM REPLACEMENT SECURITIES (TICK) AND TARGET %
-----
BLANK
AABBCC    XYZ 40
AABBDD    XYZ 60
AABBFF
AABBGG
AABBHH
AABBII
```

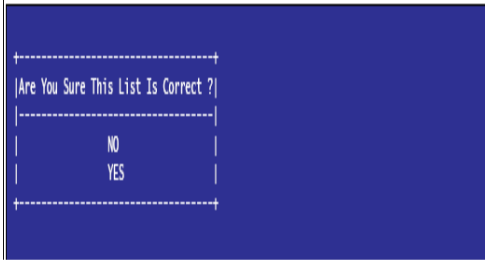
Associating securities with the BLANK submodel will cause proceeds from untagged lots to be reinvested in the specified securities.

3. In the GLTM REPLACEMENT SECURITIES AND TARGET %column, type the ticker for the replacement security followed by a space and then the target percentage of 100 or less. Percentages are allowed but not mandatory. Decimals are allowed with no limit to the number of decimal places

Note: A best practice is to add five or fewer replacement securities using the format: TICK PERCENT TICK PERCENT TICK PERCENT.

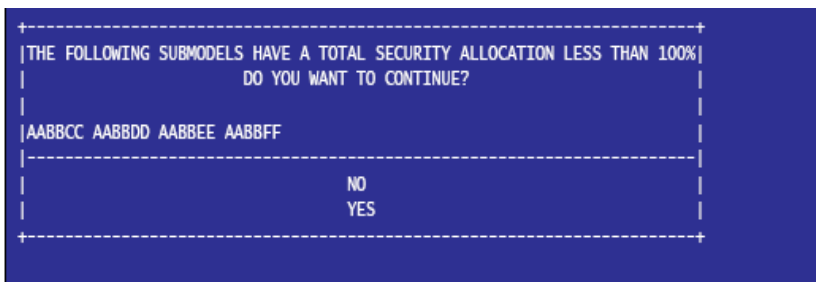
4. Press F10 to save the changes. Or, to refresh the screen, press F9. To exit without saving, press F3. If you receive an error message after pressing F10, you must resolve the error and attempt to save the changes again

If you save the changes, the system asks you to confirm the update.



5. Select YES to confirm the update. Choose NO to exit without saving. Press ENTER

If you choose YES, the format is checked and an error message informs you of the format error along with the sleeve containing the error. You must correct the error before proceeding. Once the format is correct, the system checks the sum of all percentages in each sleeve. An advisory message displays indicating which submodels have a sum less than 100. You can continue or fix the error.



The difference between 100 and the sum of percentages specified for a sleeve will remain in cash during the reinvestment process.

If sum of the percentages for the sleeve is greater than 100, an error message will display with the sleeve name and you cannot continue without correcting it. Once corrected, the tool will check all TICKs against the Security Master database to verify that the securities exist. If not, an error message will display with the problematic sleeve name and you cannot continue without correcting the issue.

CASH-1 is a TICK that can be successfully validated against the Security Master Database. But the proceeds for the percent specified for CASH-1 remain in cash during the reinvestment process.

A report file using the GLTMSEC.Lxx naming convention is created as shown below. If no changes were made to the table, you are advised as well and the report is not created.

| Report | | |
|---------------------|----------------|----------------|
| XYZ INVESTMENT FIRM | | |
| 04/07/09 | | |
| SUBMODEL | OLD SECURITIES | NEW SECURITIES |
| ----- | ----- | ----- |
| AABBCC | | KO XXX |
| AABBDD | | KO 5% |

Every time you press F10 to save changes to the security table, a report is generated if changes were made. Because there is no audit report associated with the Replacement Security Table, a best practice would be to store the report from each save so that you have a record of what occurred.

Establish Asset Classes

The asset class definition table enables clients to define asset and sub asset classes and assign them to sub models. Asset classes defined in this table are used in the Asset Class Drift report to view account drift based on a selected asset class level.

To set up asset class definitions and submodel mapping, select the EDIT ASSET CLASS DEFINITIONS option from the Master Manager Administration Tools menu.

The Asset Class Editor screen will appear. When the screen is accessed for the first time, it will not have any data.

| LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 |
|--------------|--------------|--------------|--------------|
| FIXED INCOME | FI DOMESTIC | TAXABLE | CORP BONDS |
| FIXED INCOME | FI DOMESTIC | NON-TAXABLE | MUNI BONDS |
| FIXED INCOME | FI DOMESTIC | TAXABLE | TOTAL RETURN |
| EQUITY | EQ DOMESTIC | LARGE CAP | LCV |
| EQUITY | EQ DOMESTIC | LARGE CAP | LCG |
| EQUITY | EQ DOMESTIC | LARGE CAP | LCC |
| EQUITY | EQ DOMESTIC | SMALL CAP | SCC |
| EQUITY | EQ DOMESTIC | SMALL CAP | SCG |
| EQUITY | EQ DOMESTIC | MID CAP | MCC |
| EQUITY | EQ DOMESTIC | MID CAP | MCV |
| EQUITY | EQ DOMESTIC | BALANCED | BALANCED |
| EQUITY | EQ INTERNATL | EQ INTERNATL | EQ INTERNATL |
| FIXED INCOME | FI INTERNATL | FI INTERNATL | FI FOREIGN |
| FIXED INCOME | FI INTERNATL | FI INTERNATL | FI GLOBAL |
| CASH | CASH | CASH | CASH |

.....

Esc/F3-Exit F2-Sort F4-Set Drift Tolerances
F6-Add Line SF6-Delete Line F8-Assign to Submodels F10-Save

- Four asset class levels can be defined
- Enter the name of each asset class. Each name can be up to 12 characters
- If an asset class has less than four levels, users can enter the same name on two or more levels. All four levels must be defined
- Values on each level can be linked to only one value on the higher level

Assigning Asset Classes to Submodels

1. After asset classes are defined, press F8 to map submodels to asset classes

```

ASSIGN SUBMODELS TO ASSET CLASSES
.....
SUBMODEL DESCRIPTION      LEVEL4      LEVEL3      LEVEL2      LEVEL1
.....
AAABAL BALANCED SUB MODEL  BALANCED    BALANCED    EQ DOMESTIC  EQUITY
AAAAA DYNAMIC TEST        BALANCED    BALANCED    EQ DOMESTIC  EQUITY
AAAFIX FIXED INCOME SUB MOD  TOTAL RETURN  TAXABLE     FI DOMESTIC  FIXED INCOME
AAAGRO GROWTH SUB MODEL     LCG         LARGE CAP   EQ DOMESTIC  EQUITY
AAAIINT INTERNATIONAL SUB MO EQ INTERNATL  EQ INTERNATL  EQ INTERNATL  EQUITY
AAALA AAA LARGE CAP AGG     LCC         LARGE CAP   EQ DOMESTIC  EQUITY
AAAVL VALUE SUB MODEL       LCV         LARGE CAP   EQ DOMESTIC  EQUITY
ABCFIX FIXED INCOME CORE FU  TOTAL RETURN  TAXABLE     FI DOMESTIC  FIXED INCOME
ABCFX ABC FIXED STRATEGY     TOTAL RETURN  TAXABLE     FI DOMESTIC  FIXED INCOME
ABCG  TEST2                LCG         LARGE CAP   EQ DOMESTIC  EQUITY
ABCLV MODEL 2               LCV         LARGE CAP   EQ DOMESTIC  EQUITY
ABCLVX LCV FUND             LCV         LARGE CAP   EQ DOMESTIC  EQUITY
ABCXUX MUNI BOND FUND       MUNI BONDS   NON-TAXABLE  FI DOMESTIC  FIXED INCOME
ABCSCX SMALL CAP CORE FUND  SCC         SMALL CAP   EQ DOMESTIC  EQUITY
ABCUSE TEST1                MCV         MID CAP     EQ DOMESTIC  EQUITY
ABCV  MODEL 1               MCV         MID CAP     EQ DOMESTIC  EQUITY
BBB123 TEST MODEL           BALANCED    BALANCED    EQ DOMESTIC  EQUITY
BBBAG AGGRESSIVE            SCG         SMALL CAP   EQ DOMESTIC  EQUITY
.....
Esc/F3-Exit F1-List F4-Search F10-Save
    
```

2. ASSIGN SUBMODELS TO ASSET CLASSES screen will open. To map a submodel to an asset class, type in the Level 4 asset class name. The higher levels will be populated automatically

Alternatively, pressing F1 will display all available asset classes and allow users to choose their desired value from the list.

Defining Drift Tolerance

To set drift tolerance, press F4 on the Asset Class Editor screen. Drift tolerance can be defined on any Asset Class level or at the submodel level. Select your desired level.

```

SELECT A LEVEL
-----
LEVEL1
LEVEL2
LEVEL3
LEVEL4
SUBMODEL LEVEL
-----
    
```

- Enter upper and lower tolerance for each level or submodel
- Press F9 to toggle between relative and absolute
- Press F10 to save all of your changes

```

DRIFT TOLERANCE
LEVEL 1
-----
LOWER, %  UPPER, %  TYPE
-----
CASH      10.000    10.000    RELATIVE
EQUITY    20.000    20.000    RELATIVE
FIXED INCOME 20.000    20.000    RELATIVE
    
```

Account Maintenance Functions

Account maintenance functions deal with drift and rebalancing rules. To view and modify these rules, select ACCOUNT MAINTENANCE from the master manager menu to display its related menu:

```

SELECT DESIRED OPTION
ESC TO EXIT
-----
DRIFT/REBALANCING RULES
ACCOUNT SETUP
HELP
    
```

Account Setup

Sample UMA Account Setup Maintenance Screen:

```

UMA ACCOUNT MAINT SCREEN
                                Account Option / Maintenance Screen           Act   1 of   1
                                =====
Account Number : 12341234          Systematics:
Account Name   : UMA TEST ACCOUNT  Trade Method  : SECURITY ALLOCATION (T
Account Short Name : RMUMA3        Min. Trade   :      5.00
                                           Buy          : 1500.00      0.00
                                           Start Date  : 10/01/2012
                                           Day of Month :
                                           Frequency   : WEEKLY      ANNUAL
                                           Stop Date   :
                                           Sell        : 2000.00      2500.00
Other Options:
Fee Option     : SHARES            Start Date   : 01/01/2011  01/01/2012
                                           Day of Month : 11          11
                                           Frequency   : ANNUAL      MONTHLY
    
```

Stop Date : 01/01/2012

F-3 Exit F-7 Previous Account F-8 Next Account
F-9 Cycle F-10 Save

Single Sleeve MFA and standard UMA accounts are maintained from this screen.

- For Single Sleeve MFA, the model data is displayed
- For standard UMA, no model data is presented

Fields and Valid Values

Note: If systematic are not configured, those fields will be blank.

| Field Name | Definition | MFA Only | Default Value | Valid Values |
|--------------------|---|----------|-----------------|-------------------------------|
| Account Number | The Account Number | | | |
| Account Short Name | The Account SNAM | | | |
| Account Name | The Account Name | | | |
| Model | The Model Code followed by the description. INFODEX: Model | YES | | |
| Frequency | Auto-Rebalancing Frequency INFODEX: RBLFRQ | YES | | |
| Start Date | Auto-Rebalancing Start Date INFODEX: RBLDT | YES | | |
| Auto Rebalance | Auto-Rebalancing Flag. INFODEX: RBLAUT | YES | | Displays one of: YES or NO |
| Fee Option | Auto-Rebalancing Fee Flag INFODEX: RBLFEE | | MONEY MARKET | Displays one of: M |

| Field Name | Definition | MFA Only | Default Value | Valid Values |
|--------------------|---|----------|---------------------------------|--------------|
| | | | | S |
| Min Block Trade | <p>This field contains a numeric value that represents the Type Minimum to apply.</p> <p>INFODEX: MINTYP</p> <p>NFODEX: MINDOL - Min dollar amount for the Type selected</p> | YES | | |
| Min Percent Change | <p>The minimum percent change is stored in this field if a trade minimum value is designated when rebalancing.</p> <p>INFODEX: MINPCT</p> | YES | | |
| Trade Method | <p>The Systematic Trade Method</p> <p>INFODEX: SYSTRD</p> <p>If Single Sleeve MFA Account Then Displays one of:</p> <ul style="list-style-type: none"> - PRO-RATE DOLLAR AMOUNT TO MODEL - SATISFY CASH TARGET FIRST <p>If NOT a Single Sleeve MFA Account Then Displays one of:</p> <ul style="list-style-type: none"> - PRO-RATE DOLLAR AMOUNT TO MODEL - SUB MODEL ALLOCATION (SATISFY CASH FIRST) - SECURITY ALLOCATION (THOROUGH) | | PRO-RATE DOLLAR AMOUNT TO MODEL | |
| MIN. Trade | <p>Min. Trade - Minimum dollar amount for Systematic</p> <p>INFODEX: SYSMIN</p> | | 0 | |
| BUY | <p>Buy - Periodic Contribution Net Amount. Up to two Buy amounts can be entered.</p> | | 0 | |

| Field Name | Definition | MFA Only | Default Value | Valid Values |
|--------------------------|--|----------|---------------|--|
| | INFODEX: BUYAMT INFODEX: BYAMT2 | | | |
| Start Date | Start Date - Periodic Contribution Start Date Up to two start dates can be entered. INFODEX: BUYDT INFODEX: BUYDT2 | | | |
| Day of Month | Day of Month - Periodic Contribution Day of Month. Up to two buy days can be entered: INFODEX: BUYDAY INFODEX: BYDAY2 | | | This field must be Blank when frequency is WEEKLY or BI-WEEKLY |
| Frequency | Frequency - Periodic Contribution Frequency. Up to two frequencies can be entered: INFODEX: BUYFRQ INFODEX: BYFRQ2 | | ANNUAL | Displays one of: MONTHLY QUARTERLY SEMI-ANNUAL ANNUAL BI-WEEKLY WEEKLY |
| Stop date | Stop Date - Periodic Contribution Stop Date Up to two stop dates can be entered. INFODEX: BUYSTP INFODEX: BYSTP2 | | | |
| Use Cash First for Sales | Use Cash First for Sales - This field determines the treatment of system Withdrawals. When this field is set to YES, then available cash will be used to satisfy the withdrawal. When this field is set to NO, then trades will be generated to fulfill the withdrawal. INFODEX: CSHFST | YES | NO | Displays one of:NOYES |

| Field Name | Definition | MFA Only | Default Value | Valid Values |
|--------------|--|----------|---------------|--|
| Sell | Sell - Periodic Withdrawal Net Amount. Up to two sell amounts can be entered, INFODEX: SELAMT INFODEX: SLAMT2 | | 0 | |
| Start Date | Start Date - Periodic Withdrawal Start Date Up to two start dates can be entered. INFODEX: SELDT INFODEX: SELDT2 | | | |
| Day of Month | Day of Month - Periodic Withdrawal Day of Month. Up to two sell days can be entered. INFODEX: SELDAY INFODEX: SLDAY2 | | | This field must be Blank when frequency is WEEKLY or BI-WEEKLY |
| Frequency | Frequency - Periodic Withdrawal Frequency. Up to two frequencies can be entered. INFODEX: SELFRQ INFODEX: SLFRQ2 | | ANNUAL | Displays one of: MONTHLY QUARTERLY SEMI-ANNUAL ANNUAL BI-WEEKLY WEEKLY |
| Stop Date | Stop Date - Periodic Withdrawal Stop Date Up to two stop dates can be entered. INFODEX: SELSTP INFODEX: SLSTP2 | | | |

Drift/Rebalancing Rules

Select DRIFT/REBALANCING RULES from this menu to access the various drift and rebalancing rules screens where you can..

```

+-----+
|           Select Desired Option           |
|           Esc to Exit                     |
+-----+
|CHANGE DEFAULT REBALANCING RULES          |
|EDIT ACCOUNT REBALANCING RULES           |
|ASSIGN REBALANCING RULES TO MULTIPLE ACCOUNTS|
|HELP                                      |
+-----+
    
```

- CHANGE DEFAULT REBALANCING RULES enables you to view or edit the rebalancing rules that apply when no other rules are specified for an account. See “Changing the default rebalancing rules”
- EDIT ACCOUNT REBALANCING RULES enables you to edit the rules for a single account. See “Editing the account rebalancing rules for one account”
- ASSIGN REBALANCING RULES TO MULTIPLE ACCOUNTS enables you to create a set of account balancing rules, then assign them to multiple selected accounts. See “Assigning rebalancing rules to multiple accounts”
- When any of these menu items are selected, the UNIFIED MANAGED ACCOUNT REBALANCER Rules screen (sample below) is displayed

```

UMA REBALANCER RULES                                F-3 to Exit
=====                                             F-10 to Save

>> Out-of-Balance Submodels <<

    A submodel is out of balance when the actual allocation differs from
    the initial target allocation by 1.00 percentage point(s) for submodels with
    an initial allocation greater than 1% or larger and 1.00 percentage
    point(s) for all other submodels.

>> Overcompensating <<

    When rebalancing an over- or under-weighted submodel, overcompensate or
    undercompensate by 1.00 percentage point(s). When rebalancing a new account
    overcompensate or undercompensate by 1.00 percentage point(s).

>> Additional Rules <<

    Rebalance when cash is 1.00 percentage point(s) above target.
    Rebalance when cash is 1.00 percentage point(s) below target.
    Rebalance exactly to the model when cash is greater than or equal to
    100.00 % of the total market value.

    The cash floor is 2.00 % and the cash ceiling is 5.00 %

    Minimum trade is the greater of $ 0 or 0.00% of the market value
    
```

of the account, except for full liquidation.

Minimum trade is 0.000% of security model target.

Rebalance frequency: 12 MONTHS . Start Rebalancing on 20120315

Navigation conventions:

- Underlined fields show the places where you type values
- Press the TAB key to move from field to field
- Press the ESC or F3 key to exit the screen without saving
- Press the F10 key to save the values and exit the screen

The screen is divided into three sections:

- Out-of-Balance Submodels. These rules determine the percent that holdings in a portfolio can deviate from submodel targets before being considered out of balance and requiring rebalancing

Only referenced for STANDARD rebalance methods.

- Overcompensating. These rules determine the percent tolerance range within which the rebalancer meets the targets for specific securities. The lower the number, the tighter the rebalancing and the more likely that the submodel weights are close to their intended targets
- Additional Rules. These are additional rebalancing rules regarding tolerance of actual cash from target cash, minimum trades, and frequency of automatic rebalancing.
 - Cash floor and ceiling values are specified as a percent, between 0.00 and 100.00 with up to two decimal places

Note: Minimum trade rules are referenced for both STANDARD and THOROUGH rebalances.

Minimum trade rules here are not referenced for Systematic trading.

Note: Rebalance rules are only referenced for STANDARD rebalance methods.

Note: Cash floor and ceiling are used only with the Two-Pass rebalance method.

Cash floor and cash ceiling are defined in percent, between 0.00 and 100.00.

For discretionary sleeves, cash target specified in the DISCRETIONARY SUBMODELS table will be used instead of model cash target.

Minimum acceptable cash = Total model cash target - cash floor. If cash floor is greater than the total model cash target, then the minimum acceptable cash is 0 (zero).

Maximum acceptable cash = total model cash target + cash ceiling. If this value is greater than 100%, maximum acceptable cash is 100%.

- To ignore the cash floor parameter, enter NONE. In this case, the existing Can Cash Go Negative rebalancing parameter is taken into account during rebalancing
- To save the cash floor and cash ceiling values, press F10

- Start Rebalancing on

Near the bottom of the Rules screen, there is the field name, “Start Rebalancing on”. The default value is OPEdT, which is the Account Master database date field that contains the date when the account was first managed. (This may be different from the opening date of the account.) You may also enter a specific date in YYYYMMDD format, as shown in the above sample screen.

- Rebalance Frequency

Valid options are:

- 1 MONTH
 - 2 MONTHS
 - 3 MONTHS
 - 4 MONTHS
 - 6 MONTHS
 - 12 MONTHS (This is the default value.)
 - 13 MONTHS, ROLLING
 - 1 YEAR + 3 DAYS, ROLLING
- Position Tolerance
 - This drift tolerance, set at the position level, can be used in the Nightly Rebalancing and Reporting either on an account’s anniversary or nightly basis
 - The Position tolerance can be used to trigger STANDARD or THOROUGH rebalancing
 - The range of the position tolerance is 0.00 to 100.00
 - The position value tolerance cannot be negative
 - This value also applies to both upper and lower drifts
 - ETF Buy Adjustment Factor
 - ETF purchases are discounted by the percentage set to protect against over-buying in volatile markets, e.g., if the market moves against you
 - The valid range of values is greater than zero and less than or equal to 100.00. NOTES:
 - The UMA Rebalancer and the Strategy Rebalancer account for the “ETF Buy Tolerance” option that can be set on the Rebalancer Rules Screen for configured universes.
 - ETF purchases are discounted by the percentage set by the user to protect against over-buying in volatile markets, e.g., if the market moves against you
 - Rebalance exactly to the model when cash is greater than or equal to 100.00 % of the total market value
 - The valid range is 0.00% to 100.00%. The default is 100.00% Setting the Excess Cash to zero (0) will always trigger a rebalance

Notes:

- The UMA Nightly Batch Rebalancing process identifies and processes accounts that are due for a systematic contribution or withdrawal based on the systematic data in the UMA Account Setup Maintenance Screen

- The UMA Nightly Batch Rebalancing process is able to automatically check the consecutive number of days for drift to trigger a rebalance
- If the rules are set on account level, they will apply to the specified account where this account exists

Changing the default rebalancing rules

These changes apply only to accounts opened after the change is saved.

Use the following steps to change the default balancing rules:

1. Select CHANGE DEFAULT REBALANCING RULE from the Account Maintenance menu. The Rules screen displays
2. Change the values as required
3. Press the F10 key to save your changes, or press the F3 or ESC key to discard your changes. The system asks you to confirm your choice
4. Select YES or NO. You are returned to the Account Maintenance menu

Editing the account rebalancing rules for one account

To change the account rebalancing rules for a single account, use the following steps:

1. Select EDIT ACCOUNT REBALANCING RULES from the Account Maintenance menu. The account selection window is displayed



2. Select the account. The Rules screen displays
3. Change only one account at a time. Selecting more than one account displays an error message

4. Change the values as required
5. Press the F10 key to save your changes, or press the F3 or ESC key to discard your changes. The system asks you to confirm your choice
6. Select YES or NO. You are returned to the Account Maintenance menu

Assigning rebalancing rules to multiple accounts

This selection enables you to define account balancing rules, and then apply them to more than one account. Use the following steps to change the rebalancing rules:

1. Select ASSIGN REBALANCING RULES TO MULTIPLE ACCOUNTS from the Account Maintenance menu. The UNIFIED MANAGED ACCOUNT REBALANCER Rules screen displays
2. Change the values as required
3. Press the F10 key to save your changes, or press the F3 or ESC key to discard your changes. The system asks you to confirm your choice
4. If you save your changes, the Account Selection window opens:

The screenshot shows a terminal-style interface with a dark purple background and white text. The text is as follows:

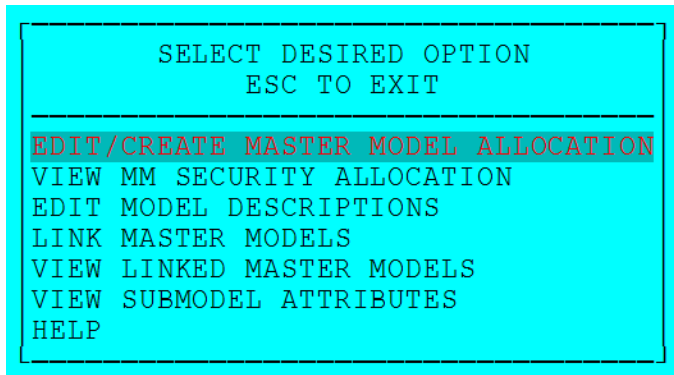
```
-----  
-----  
SELECT ACCOUNTS BY SNAM, BNUM OR ACCOUNT PROFILE FIELDS  
-----  
-----  
FUNCTION: AND | SEARCH:  
-----+-----  
-----  
21 RECORDS FOUND  
-----  
-----  
Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back
```

Select the accounts to apply the changes to, and press F10. The changes are saved to the accounts.

5.9 Model maintenance functions

Master models define which submodels are contained in a client's portfolio, and in what proportion. UMA compares client portfolios to these master models. If the portfolio is out of balance, the system buys or sells securities in the submodels to bring the client portfolio into conformity with the master model.

When you select MODEL MAINTENANCE from the master manager menu, the following menu displays:



- EDIT/CREATE MASTER MODEL ALLOCATION enables the master manager to create a new master model, or edit an existing one. See “Creating or editing a master model portfolio”
- VIEW MM SECURITY ALLOCATION displays the securities that comprise an existing model. See “Viewing security allocations in the master model”
- EDIT MODEL DESCRIPTIONS allows the master manager to change the long name associated with the master model short name. See “Editing model descriptions”
- LINK MASTER MODELS allows the master manager to link various master models. See “Linking master models”
- VIEW LINKED MASTER MODELS allows the master manager to view a list of linked master models. See “Viewing linked master models”
- VIEW SUBMODEL ATTRIBUTES allows the master manager to view attributes for selected submodels. See “View Submodel Attributes”

To prevent a submanager user from accessing Model Maintenance functions, contact InvestCloud and provide the user’s APL ID. This will prevent them from accessing the Model Maintenance menu.

This “line-item” blocking ability for submanagers is also available for the Report and Trading menus.

Creating or editing a master model portfolio

This function enables the master manager to edit an existing master model portfolio, or create a new one.

1. Select EDIT/CREATE MASTER MODEL ALLOCATION from the Model Maintenance menu

The Model Selection box opens:



```

-----
-----
FUNCTION: AND          | SEARCH:
-----
-----
2 RECORDS FOUND
-----
-----
Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back
    
```

2. Press F7 to display a list of available master models

```

+-----+
| HIT RETURN TO CHOOSE OR ESCAPE TO CONTINUE SEARCH |
|-----|
| MODEL DESCRIPTION |
|-----|
| GENMDM USE THIS MD MODEL TO CREATE A NEW ONE |
| GROVAL GROWTH AND VALUE MASTER MODEL |
| GROINT GROWTH AND INTERNATIONAL MASTER MODEL |
| FIXINT FIXED INCOME AND INTERNATIONAL MASTER MO |
| ALLMOD GRO/BAL/INT/FIX/VAL MASTER MODEL |
| RISK3 VAL/FIX/BAL MASTER MODEL |
| RISK4 INT/BAL/GRO/FIX MASTER MODEL |
| CONS3 CONSERVATIVE BAL/VAL/FIX |
| CONS4 CONSERVATIVE BAL/VAL/FIX/GRO |
| BALFIX BALANCED AND FIXED INCOME MASTER MODEL |
| BALVAL BALANCED AND VALUE MASTER MODEL |
+-----+
    
```

3. To create a new master model, select GENMDM USE THIS MD MODEL TO CREATE A NEW ONE. Otherwise, select the model you want to edit. The Master Model editing screen will open:

```

SAMPLE ASSET MANAGEMENT
06/03/03 3:16 P.M.
MSTR04- MASTER TEST - RISK 4
F-3 To Quit
F-9 Refresh
F-10 To Save

```

| SUBMOD CODE | SUBMODEL DESCRIPTION | % | % CASH | % LOWER | % UPPER |
|-------------|----------------------|--------|--------|---------|---------|
| SUBVAL | VALUE PORTFOLIO | 20.000 | 20.0 | -3.000 | 3.0 |
| SUBGRO | LARGE CAP GROWTH | 20.000 | 20.0 | -1.000 | 1.0 |
| SUBMCV | MID CAP VALUE | 5.000 | 5.0 | -3.000 | 2.0 |
| SUBINT | INTERNATIONAL | 5.000 | 5.0 | -3.000 | 3.0 |
| SUBFIX | FIXED INCOME | 50.000 | 50.0 | -3.000 | 3.0 |
| SUBCHA | CASH (100%) | 0.000 | 0.0 | -2.000 | 1.0 |

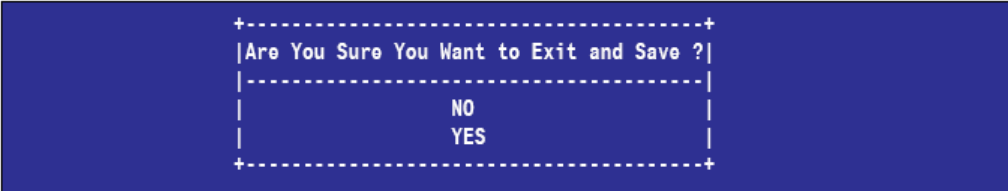
```

-----
F-6 to Insert a Line      Shift F-6 to Delete a Line
    
```

| Field | Description |
|----------------------|---|
| SUMBOD CODE | Submodel short name. |
| SUBMODEL DESCRIPTION | Submodel description |
| % | Percent of the master model that is represented by the submodel. |
| % CASH | Percent of unaffiliated cash allocated to the submodel. |
| % LOWER | Lower limit, expressed in percentages, for the master model's tolerance of single submodel's drift. The lower limit must be zero or a negative number. This is an Absolute value with respect to drift. |
| % UPPER | Upper limit, expressed in percentages, for the master model's tolerance of single submodel's drift. The upper limit must be zero or a positive number. This is an Absolute value with respect to drift. |

Note: The RULES field on the UNIFIED MANAGED ACCOUNT REBALANCER Screen must be set to APPLY SUBMODEL-SPECIFIC DRIFT if the drift rules established by the submanager are to apply. For more information about how UMA handles cash, see "Cash Management". Drift is calculated on an Absolute basis.

4. Make changes as necessary, then press F10 to save. A prompt will appear asking you to confirm the changes



When you select YES, the UMA system verifies your changes. In doing so, one of the following prompts may appear:

If the system finds duplicate securities in the submodels you've selected, the following prompt displays:

```

+-----+
|Duplicate Securities detected across Sub-Models:|
|AB   SUBMVC  SUB TEST MODEL 1|
|XYZ  SUBMVC  SUB TEST MODEL 1|
|CD   SUBMVC  SUB TEST MODEL 1|
|EF   SUBMVC  SUB TEST MODEL 1|
|C    SUBMVC  SUB TEST MODEL 1|
|DCX  SUBMVC  SUB TEST MODEL 1|
|F    SUBMVC  SUB TEST MODEL 1|
|CKF  SUBMVC  SUB TEST MODEL 1|
|AB   XYZMVC  XYZ TEST MODEL 1|
|XYZ  XYZMVC  XYZ TEST MODEL 1|
|ABC  XYZMVC  XYZ TEST MODEL 1|
|CE   XYZMVC  XYZ TEST MODEL 1|
|C    XYZMVC  XYZ TEST MODEL 1|
|DX   XYZMVC  XYZ TEST MODEL 1|
|Do You want to Allow this?|
|-----|
|                NO|
|                YES|
+-----+
    
```

- If this situation is allowed, select YES. The screen displays the following prompt:

```

+-----+
|Save As DEMXXX Pick 3 Letters -(RETURN for GROVAL)|
+-----+
    
```

You can either save the master model under its current name, or save it under a new name.

- If this situation is not allowed, select NO. The following prompt will appear:

```

+----- HIT ESCAPE TO EXIT -----+
|
| Please contact the Managers concerned to resolve these Duplicates.
|
| KO   SUBMVC  SUB TEST MODEL 1|
| XYZ  SUBMVC  SUB TEST MODEL 1|
| WM   SUBMVC  SUB TEST MODEL 1|
| CE   SUBMVC  SUB TEST MODEL 1|
| C    SUBMVC  SUB TEST MODEL 1|
| DX   SUBMVC  SUB TEST MODEL 1|
| F    SUBMVC  SUB TEST MODEL 1|
| CK   SUBMVC  SUB TEST MODEL 1|
| BO   XYZMVC  XYZ TEST MODEL 1|
| XYZ  XYZMVC  XYZ TEST MODEL 1|
| MT   XYZMVC  XYZ TEST MODEL 1|
| CE   XYZMVC  XYZ TEST MODEL 1|
+-----+
    
```

The master manager then resolves the conflicts with the submanagers before editing the master model.

Pressing the ESC key returns you to the editing screen.

If your allocations do not equal 100%, the following prompt displays:

```
+----- HIT ESCAPE TO EXIT -----+
|                                     |
| Allocation Does Not Total 100% |
|                                     |
+-----+-----+-----+-----+
```

Press ESC to return to the editing screen.

Note: Please contact InvestCloud to automate the nightly running of the drift rebalancer in respect to individual submodels.

Viewing security allocations in the master model

The master manager may view the securities in a master model portfolio, along with the percent of the portfolio they represent, and the submodel to which each security belongs.

Note: If a security is contained in more than one submodel, it will be listed more than once. This means that the percent value shown for each security applies only to the quantity in the associated submodels. Percent values are not aggregated with other portfolios.

Portfolio information shown in this screen is generated at the submodel level. For more information on sub-model management functions, see “Submanager Functions”.

To access this functionality:

1. Select VIEW MM SECURITY ALLOCATION, from the Model Maintenance menu. The Model Selection box opens:

```
+-----+-----+-----+-----+
|                                     |
|          SELECT MODELS BY SNAM OR MODEL PROFILE FIELDS          |
|-----+-----+-----+-----+
| FUNCTION: AND          | SEARCH:                               |
|-----+-----+-----+-----+
| 2 RECORDS FOUND                                             |
|                                     |
|-----+-----+-----+-----+
| Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back |
|-----+-----+-----+-----+
```

2. Press F7 to display a list of available master models

```
+-----+-----+-----+-----+
| HIT RETURN TO CHOOSE OR ESCAPE TO CONTINUE SEARCH |
|                                     |
|          MODEL DESCRIPTION          |
|-----+-----+-----+-----+
| GENMDM USE THIS MD MODEL TO CREATE A NEW ONE |
| MVCMDM MDM TEST MODEL 1 |
| MOEMIK MM |
|-----+-----+-----+-----+
```

3. Select the model you want to view. A screen similar to the following opens:

```

SAMPLE ASSET MANAGEMENT                                F-3 To Quit
01/23/03  2:34 P.M.                                Shift F-7 To Print

PRODUCT  :MANMVC - MI MASTER MODEL
Edit corresponding Sub-Models to Change Security Allocation

SECURITY      %      DATE OUT  RELATED SECURITY  ACTION  DATE IN  SUB
-----      -      -      -      -      -      -
LH            12.500      0              CR              HOLD    0        ABCHVC
MR            6.250      0              XYZ              HOLD    0        ABCHVC
PU            6.250      0              XYZ              HOLD    0        ABCHVC
CR            12.500      0              CR              HOLD    0        SUBABC
XYZ            12.500      0              XYZ              HOLD    0        SUBABC
-----
                                F-2 to Sort
    
```

| Field | Description |
|------------------|--|
| PRODUCT | The name of the master model |
| SECURITY | The ticker of the security held in the portfolio |
| % | The target percent holdings for this security |
| DATE OUT | If the security is scheduled to be sold, held, or swapped, the scheduled date is shown here |
| RELATED SECURITY | If a transaction is taking place that involves another security in the portfolio (such as a hold or swap), the ticker symbol of security is shown here |
| ACTION | <p>HOLD - Do not buy or sell any shares of this security. If the number of shares falls below the percent value, buy additional shares of the security indicated in the RELATED TICKER column. In the above example, if the percent holdings of IBM falls below 10%, buy additional shares of CKFR instead.</p> <p>SWAP - Sell one block of securities and replace it with another. Swaps can be one-to-one, one-to-many, or many-to-one.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note: Swaps are not automatically processed as part of rebalancing. The sub-manager must specifically request swaps to be processed by the master manager, and the swap can only be processed by the master manager on the specific date placed in the DATE OUT field.</p> </div> |
| DATE IN | The date that the security replaced the original “on hold” or “swapped out” security |
| SUB MODEL | The submodel to which this security belongs |

4. To change the sorting according to either security or submodel, select F2

Note: Changes cannot be made to security allocations on this screen. This can only occur at the sub-model level.

Editing model descriptions

The Edit Model Descriptions function enables you to change the long name associated with a master model short name.

To make this change:

1. Select EDIT MODEL DESCRIPTIONS from the Model Maintenance menu. The following screen will open:

```

SAMPLE ASSET MANAGEMENT
12/02/02  2:15 P.M.
F-10 To Save
Shift F-7 to Print
F-3 To Quit

SUB
MODEL  SUBMODEL DESCRIPTION
-----
MVCMCH NDM TEST MODEL 1
MOEMIK MM
KMMAST KAREN TRAINING
QUAD   QUAD
MANMVC MIKE'S MASTER MODEL
MANMOE MOES MASTER MODEL
-----
    
```

| Column | Description |
|-------------|---|
| SUB MODEL | The six-character short name (from the SNAM field in the Account Master) for the account used as a submodel. This field cannot be edited. |
| SUBMODEL | The submodel description (account long name). |
| DESCRIPTION | Tab to the field you want to edit. When you are finished editing, press F10 to save or F3 to quit without saving. |

Linking master models

This function allows you to switch an account's master model and thereby retain the master model allocation history from the original model but allow the account to use new allocations and updates from the new master model.

In effect, a third master model is created. Any updates to the new master model are automatically carried through to the linked master model. Meanwhile, the original master model allocation history is maintained for performance and cash allocation purposes.

To link master models:

1. Select LINK MASTER MODELS from the Model Maintenance menu. A screen will appear asking you select a model that will begin the link. Typically, this will be the original master model:

```
+-----+
|WHICH MASTER MODEL STARTS YOUR LINK|
+-----+
|
| MVCHDM- MDM TEST MODEL
| MOEMIK- MM
| KMMAST- KAREN TRAINING
| QUAD - QUAD
| MANMVC- MIKE'S MASTER MODEL
| MVCHDT- DYNAMIC TEST
| MVCTS2- MVC TEST 2
| SFMAST- SHARON TRAINING
| TEST - TEST
| KNIMST- TRAINING MASTER MODEL
| MVC123- TEST MASTER MODEL
| REGTST- REG TEST
|
+-----+
```

2. Use the up and down arrows to select the beginning (or original) master model and press ENTER. A screen will open asking you to select the model that will end the link. This is the new master model whose allocations will be used for future rebalancing and drift reporting:

```
+-----+
|WHICH MASTER MODEL ENDS YOUR LINK|
+-----+
|
| MOEMIK- MM
| KMMAST- KAREN TRAINING
| QUAD - QUAD
| MANMVC- MIKE'S MASTER MODEL
| MVCTS2- MVC TEST 2
| SFMAST- SHARON TRAINING
| TEST - TEST
| KNIMST- TRAINING MASTER MODEL
| MVC123- TEST MASTER MODEL
| REGTST- REG TEST
|
+-----+
```

3. Use the up and down arrows to select the ending master model and press ENTER

A screen will open asking you to specify a name, using the LNKXXX format, for the linked model. The linked model contains the allocation of the original model but receives new allocation updates from the new model.

```
+-----+
|Save As LNKXXX Pick 3 Letters |
+-----+
```

4. Type three characters to specify a name for the linked model. A screen will open asking you to enter a description for the linked model. The linked model contains the allocation of the original model but receives future allocation updates from the new model

```
+-----+
|Enter Description for LNK123 |
+-----+
```


Note: This screen requires market value calculations per sleeve for all accounts invested. The time it takes to generate and display the screen increases as the number of sleeves increase. If not configured for Restriction at Sleeve and Account Level the Method and Replacement Security fields are not displayed.

The following columns are displayed (if configured) in the View Submodel Attributes screen:

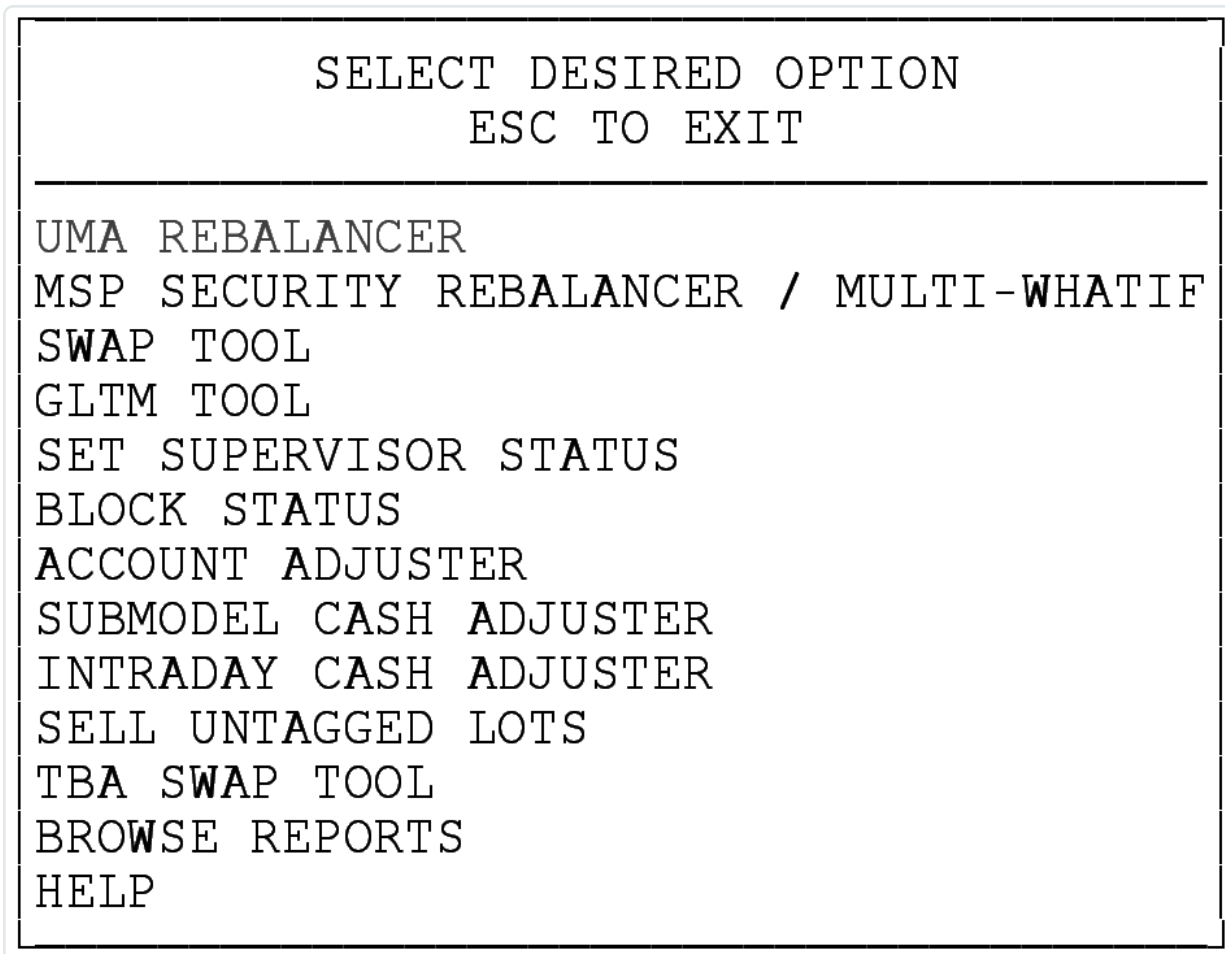
- Sleeve - Submodel short name
- Style - Performance Strategy
- Number of Accounts - number of accounts that have the submodel in their master model
- Assets Under Management - Total market value of assets in the submodel across all linked accounts
- Method - Restriction replacement method
- Replacement Security - Security ID (CUSIP for bonds, or Tick). This column will appear only when Method is "SECURITY"
- Disc Model - Discretionary model indicator
- Dynamic Model - Dynamic model indicator
- Description - Submodel Description

| Sleeve | Style | NumberOf Accounts | Assets Under Management | Method | Disc Model | Dynamic Model | Description |
|--------|-------|----------------------|----------------------------|---------|---------------|------------------|-------------|
| AAA01 | A01 | 0 | | 0 BLANK | No | No | TST001 |
| AAA02 | A02 | 0 | | 0 | No | No | TST002 |
| AAA03 | A03 | 0 | | 0 CASH | No | No | TST14 |
| AAA04 | A04 | 0 | | 0 BLANK | No | No | TSTELP |

Chapter 6: Trading Functions

The UMA application is an extension of the InvestCloud Trading system. Refer to the InvestCloud Trading System User Guide for details on account-related functions.

When you select TRADING from the master manager menu, a secondary selection menu displays:



Menu items, and their related functionality, include:

- UNIFIED MANAGED ACCOUNT REBALANCER enables the master manager to rebalance portfolios against specific master models
- MSP Security Rebalancer/Multi-WhatIf. The Master Manager Security Rebalancer / Multi What-If tool allows the master manager to run a What-If scenario using a group of securities to increase trading efficiency. See “Master Manager Security Rebalancer / Multi What-If trading tool”
- SWAP TOOL processes the swaps contained in the submodels. See “Swapping equities”
- GLTM TOOL enables the master manager to access the Gain and Loss Trade Modeling tools from within the UMA system. See “GLTM (Gain/ Loss Trade Modeling)”

- SET SUPERVISOR STATUS. This menu item indicates whether you have supervisor status. See “Setting Supervisor Status”
- BLOCK STATUS shows the processing status of trading blocks generated during rebalancing or performing swaps. See “Block Status screen”
- ACCOUNT ADJUSTER enables adjustment of cash or other positions manually at the tax lot level for individual accounts. See “Master Manager Account Adjuster trading tool”
- SUBMODEL CASH ADJUSTER enables a master manager to move cash between submodels. See “Adjusting cash between submodels”
- INTRADAY CASH ADJUSTER. Add real-time cash deposits and withdrawals to sleeves. See “Adding real-time cash deposits and withdrawals to sleeves”
- SELL UNTAGGED LOTS allows the master manager to sell all untagged lots in an account. See “Selling untagged lots”
- TBA SWAP TOOL allows a user to exchange currently held TBA security positions for actual bonds. See “Trading Tool”
- BROWSE REPORTS enables the master manager to display or print the latest report generated by the system.

6.1 System limits on master manager and submanager intraday trading

When either the master manager or the submanager creates and commits trades using the Strategy Rebalancer and cash is affected, the default setting is for APL to prohibit the other manager or managers from using the tool to make changes to the affected accounts for the remainder of the day. Once trades are made, the Strategy Rebalancer erases the “virtual” cash balance. Cash “buckets” are rebuilt the following morning and the Strategy Rebalancer is again ready for use.

Note: The master manager can override this limit by allowing access to, and trading accounts at, the submanager level. Do this by accessing the proper Manager line in the USER ID/MANAGER MAPPING screen found under ADMINISTRATION TOOLS. To allow submanagers to override this limitation, contact InvestCloud.

6.2 Trade Netting

Using the Trade Netting capability, master managers can transfer a security being sold in one sleeve to a sleeve purchasing that same security as long as the sleeves are in the same account. This prevents generating realized gains/ losses by unnecessary sales. Untagged tax lots are also considered to eliminate unnecessary buys and sells, and lots can transfer in and out of a BLANK sleeve into an actual sleeve.

Transactions post to the general ledger to compensate the submanager for any tax lots that were delivered out into another submanagers sleeve. In addition, if any tax lot is delivered out of a BLANK sleeve into an actual sleeve, the corresponding general ledger MSPRCV is not posted to the BLANK sleeve. Instead, this cash is allocated to all the other sleeves based on the master model sleeve targets. This is similar to the process that would occur with cash generated from the actual sale of BLANK tax lots.

For example, if the LCG sleeve is selling 50 shares of XYZ stock, but the LCV sleeve is buying 100 shares of XYZ stock within the same trading block, the trade netting capability will:

- Net the two trades into one BUY of 50 shares of XYZ
- Create a file that will post at the end of the day that will deliver the 50 shares out of LCG and receive them into LCV at the closing price for that business day. Thus, only a net buy of 50 shares for LCV is necessary

This process occurs when the master manager commits the block. The client then receives a message indicating that certain trades will be netted for certain accounts during the commit process.

Notes:

- If your firm utilizes the Galaxy functionality to send trades to a sponsor firm, and you would like to use trade netting, the sponsor must also be set up with this functionality. The same is true of sponsor clients; any sponsor that wants to use this functionality must require all of their manager clients to use Trade Netting
- Splitting Blocks during Commit Process

A feature is available on request to separate (split) blocks by mutual fund, non-mutual fund (e.g., ETF/equity) orders, and fixed income orders during the commit process. Fixed income mutual fund orders will be included in the mutual fund block.

- If the block has trades of the opposite sides for the same security in different sleeves, the trades committed from the Submanager Menu will trigger netting

Mutual Fund Trade Netting

Trade netting is applicable to mutual fund trades created in dollars. Proposed trades are calculated based on previous day's NAV and rounded based on the rules defined in the mutual fund configuration table. Once the NAV is updated and available, trades are recalculated and posted. The details of the netted trades and any corresponding receives and delivers that need to occur are posted with the same receive and deliver dates as well as the cost basis.

Pending Mutual Fund Orders and Trade Netting

If configured for both Pending Mutual Fund Orders and Trade Netting, special handling of netted trades that are also identified as pending orders occurs. This is to ensure the accurate reflection of netted pending mutual fund trades within the trading environment.

Contact your InvestCloud representative for comprehensive details and configuration options for Pending Mutual Fund Order feature.

Netted Trades as Pending Orders

Once a netted trade is identified as a pending mutual fund order, the netted order information is stored as follows in the trading system:

1. The netted trade is stored as a pending mutual fund order in the pending mutual fund order (MFPENDING) file

2. The original, un-netted orders and the corresponding RCV/DLV transactions between sleeves are stored in allocation files (MF_PENDING and UMA)

In the allocation files, the price of the original, un-netted orders and the value of the RCV/DLV transactions are based on the closing NAV (price used when the order was created, previous business day's NAV)

3. If activated, the original, un-netted orders are also included in the pending orders block to ensure that the account and sleeves reflect accurate cash and positions

In the pending orders block the price used for the original orders is the current NAV (the NAV the order would have been executed).

Netted Trades in the Pending Order Block with share and dollar trades

In order to accurately account for netted trades in cases where one or both of the original orders are based in dollars the original order(s) in dollars is adjusted based on the current NAV and the value of the RCV/DLV transactions corresponding to it.

The following scenario illustrates how the original orders are reflected in the pending orders block.

Scenario: Buy in dollars and sell in shares which result in a netted buy in dollars.

The buy in the pending orders block is equal to the netted buy in dollars at the current NAV plus the value of the RCV/DLV at current NAV.

The sell is the value of the shares from the RCV/DLV transaction at current NAV.

| SCENARIO 1 | Original Orders | BUY is adjusted up to \$1,900 (using current NAV) |
|--------------------------------|---------------------|---|
| Buy in dollars, Sell in shares | SELL 100 at \$10 | SELL 100 at \$12 |
| NETTED BUY in \$ = \$700 | BUY \$1,700 at \$10 | BUY \$1,900 at \$12 |

Original and Netted Orders: Closing NAV = \$10; Current NAV = \$12

BUY \$1,700 (170 shares at \$10)

SELL 100 units at \$10(\$1,000)

NETTED TRADE BUY = \$700(\$1,700 - \$1,000)

Resulting orders in pending orders block:

Adjusted Buy in dollars = Netted Trade Amount + receive/deliver value at current NAV

= \$700 + \$1200

= \$1,900

Sell in shares= 100 with price at \$12 (current NAV)

In this scenario, a buy for \$700 is sent for execution and an execution for \$700 at \$12/share is received. The receive/deliver transactions between sleeves are posted based on 100 shares at \$12.

Posting Netted Pending Trades when Matched

When pending mutual fund orders which are netted trades are finally matched with incoming executions and posted, a trade batch for the security receive and deliver transactions is generated and posted to EDPORT. The cash receive and deliver transactions are posted to the General Ledger.

Expiration and Deletion of Netted Pending Trades

If the pending netted trade expires the corresponding original, un-netted orders and RCV/DLV transactions expire also.

If pending netted order is deleted permanently the corresponding original orders and RCV/DLV transactions are also deleted.

Fixed Income Trade Netting

Trade netting is applicable to trades of fixed income assets. The netted trade is calculated based on the original face and the netting function transfers the original face of the delivered tax lot to the receiving tax lot.

Note: Contact InvestCloud to activate or modify any trade netting capabilities.

6.3 Trade Netting and the trading process

When a trade is submitted for an account where Trade Netting is activated, a message will indicate whether or not the block is eligible for Trade Netting.

Thus, when Trade Netting is not on, the following message will displays:

```
+----- HIT ESCAPE TO EXIT -----+
|
| The Following Trades are Eligible for NETTING:
| C MSP1      50.00 IBM  SUBABC
| O MSP1      100.00 IBM  SUBMVC
|
+-----+
```

When Trade Netting is on, the following confirmation displays:

```
+----- HIT ESCAPE TO EXIT -----+
|
| The Following Trades will be NETTED:
| C MSP1      50.00 IBM  SUBABC
| O MSP1      100.00 IBM  SUBMVC
| NETTED Trades:
| O MSP1      50.00 IBM  SUBMVC
|
+-----+
```

UNIFIED MANAGED ACCOUNT REBALANCER Drift Report

The UNIFIED MANAGED ACCOUNT master manager rebalancer generates a Drift Report with a file name of DRIFT.LXX, where XX is a number. Each time the report is produced, the number in the extension is different, preventing an earlier Drift Report from being overwritten by the most recent version. Each version of this report will remain in the holdings queue for up to 3 days.

An example of an edited Drift report follows:

| Multi Strategy Product Drift Report SAMPLE ASSET MANAGEMENT As of March 24, 2004 | | | | | | | | | | | | | 03/24/04 9:38 A.M. | |
|---|--|---------------|----------------|----------------|---------|----------------------------------|-------|-------------------|---------------------------|---------|--------|---------|--------------------|--------|
| ADELOACH Thorough Security Allocation Account-Level Drift | | | | | | | | | | | | | | |
| Master Model | | | Total Accounts | | | Accounts with Rebalancing Trades | | | % of Accounts with Trades | | | | | |
| LNKMM-LINK TEST | | | 20 | | | 20 | | | 100.0 | | | | | |
| LNKTSI-TEST LINK | | | 1 | | | 1 | | | 100.0 | | | | | |
| MVCMDT-DYNAMIC TEST | | | 1 | | | 1 | | | 100.0 | | | | | |
| MVCTS2-MVC TEST 2 | | | 1 | | | 1 | | | 100.0 | | | | | |
| | | | ----- | | | ----- | | | ----- | | | | | |
| | | | 23 | | | 23 | | | 100.0 | | | | | |
| <p style="text-align: right;">Multi Strategy Product Drift Report SAMPLE ASSET MANAGEMENT As of March 24, 2004</p> <p style="text-align: right;">PAGE 34 03/24/04 9:38 A.M.</p> | | | | | | | | | | | | | | |
| ADELOACH Thorough Security Allocation Account-Level Drift | | | | | | | | | | | | | | |
| Sub Model Tick | | *** Model *** | | *** Actual *** | | *** Drift *** | | *** Resulting *** | | | | | | |
| | | % | Value | Units | % | Value | Units | % | Value | Units | Trades | % | Value | Units |
| XYZMVC CASH-1 | | 4.61 | 65,111 | 65,111 | 0.00 | 0 | 0 | -4.61 | -65,111 | -65,111 | 65,351 | 4.62 | 65,351 | 65,351 |
| XYZMVC CKFR | | 5.92 | 83,732 | 3,098 | 5.74 | 81,090 | 3,000 | -0.19 | -2,642 | -98 | 2,595 | 5.92 | 83,685 | 3,096 |
| XYZMVC DCX | | 0.68 | 9,572 | 235 | 0.00 | 0 | 0 | -0.68 | -9,572 | -235 | 9,562 | 0.68 | 9,562 | 235 |
| XYZMVC F | | 0.56 | 7,975 | 619 | 0.91 | 12,890 | 1,000 | 0.35 | 4,915 | 381 | -4,911 | 0.56 | 7,979 | 619 |
| XYZMVC GUC | | 0.51 | 7,211 | 84 | 0.00 | 0 | 0 | -0.51 | -7,211 | -84 | 7,177 | 0.51 | 7,177 | 84 |
| XYZMVC HON | | 0.47 | 6,702 | 210 | 0.00 | 0 | 0 | -0.47 | -6,702 | -210 | 6,701 | 0.47 | 6,701 | 210 |
| XYZMVC IBM | | 6.19 | 87,451 | 958 | 6.46 | 91,320 | 1,000 | 0.27 | 3,869 | 42 | -3,835 | 6.19 | 87,485 | 958 |
| XYZMVC KO | | 0.20 | 2,800 | 58 | 0.00 | 0 | 0 | -0.20 | -2,800 | -58 | 2,792 | 0.20 | 2,792 | 58 |
| XYZMVC LIZ | | 0.50 | 7,070 | 199 | 0.00 | 0 | 0 | -0.50 | -7,070 | -199 | 7,084 | 0.50 | 7,084 | 199 |
| XYZMVC MSFT | | 0.59 | 8,342 | 345 | 0.00 | 0 | 0 | -0.59 | -8,342 | -345 | 8,332 | 0.59 | 8,332 | 345 |
| XYZMVC T | | 0.42 | 5,868 | 303 | 0.00 | 0 | 0 | -0.42 | -5,868 | -303 | 5,869 | 0.42 | 5,869 | 303 |
| XYZMVC TIF | | 0.52 | 7,381 | 280 | 0.00 | 0 | 0 | -0.52 | -7,381 | -280 | 7,385 | 0.52 | 7,385 | 280 |
| XYZMVC WMT | | 1.99 | 28,123 | 483 | 0.00 | 0 | 0 | -1.99 | -28,123 | -483 | 28,115 | 1.99 | 28,115 | 483 |
| Total | | 100.001 | 413,923 | | 100.001 | 413,923 | | 0.00 | 0 | 0 | 0 | 100.001 | 413,922 | |
| SECTOR WEIGHTINGS | | | | | | | | | | | | | | |
| CASH | | 7.36% | | | | | | | | | | | | |
| EQUITY | | 75.17% | | | | | | | | | | | | |
| FIXED | | 17.47% | | | | | | | | | | | | |
| SUB MODEL WEIGHTINGS MSPTS2 | | | | | | | | | | | | | | |
| SUBMVC | | SUBM2 | | XYZMVC | | CASH | | TOTAL | | | | | | |
| 24.75 | | 47.50 | | 20.39 | | 7.36 | | 100.00 | | | | | | |

Unified Managed Account Trade Drift Report

If UMA Rebalancer is selected, a Trade Drift report is generated showing security-level drift and proposed trades (UMATRADEDRIFFT)

Note: The Trade Drift Report is sorted by submodel, then by ticker. There are five additional options that InvestCloud can set up for you:

- Sort alphabetically by ticker, then by submodel
- Sort by Buy/Sell, then alphabetically by ticker, then by submodel
- Sort by Buy/Sell, then by submodel, then alphabetically by ticker
- Sort by Buy/Sell from largest drift to smallest drift
- Sort by Sell/Buy from largest drift to smallest drift

| Unified Managed Accounts | | | |
|--------------------------|---------------|----------------|--------|
| Drift Report | | | |
| 04/11/12 10:21 A.M. | | | |
| XYZ INVESTMENT DIVISION | | | |
| JOHN | | | |
| As of April 11, 2012 | | | |
| Accounts with | % of Accounts | | |
| Master Model | | Total Accounts | Rebal- |
| ancing Trades | with Trades | | |
| ----- | ----- | ----- | ----- |
| ----- | ----- | | |
| QWERTY MASTER MODEL | | 4 | |
| 4 100.0 | | | |
| ASDFGH MODEL | | 1 | |
| 1 100.0 | | | |
| | | ===== | |
| ===== | ===== | | |
| | | 5 | |
| 5 100.0 | | | |

PAGE 1

Unified Managed Accounts

Drift Report

04/11/12 10:21 A.M.

XYZ INVESTMENT DIVISION

JOHN

As of April 11, 2012

| *** Drift *** | | | *** Model *** | | | *** Actual *** | | | |
|--|-------------|-------------|---------------|-------|-------|----------------|--------|--------|-------|
| *** Resulting *** | | | | | | | | | |
| Sub Value | Model Units | Tick Trades | % | Value | Units | % | Value | Units | % |
| Value | Units | Trades | % | Value | Units | | Value | Units | % |
| ----- | ----- | ----- | -- | ----- | ----- | -- | ----- | ----- | -- |
| ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| XY004 - JOHN ACCOUNT 4 | | | | | | | | | |
| ----- | | | | | | | | | |
| Rebalancing Model Used : ASDFGH MODEL | | | | | | | | | |
| Systematic - Rebalance Thorough | | | | | | | | | |
| Rebalancing Rules Ignored | | | | | | | | | |
| Next Scheduled Rebalancing Date : March 15, 2012 | | | | | | | | | |
| BLANK | CASH-1 | 0.00 | | 0 | 0 | 38.66 | 18,964 | 18,964 | 38.66 |
| 18,964 | 18,964 | -18,964 | 0.00 | 0 | 0 | 0 | | | |
| ASDFGH | ABCDX | 5.41 | | 2,654 | 166 | 0.00 | 0 | 0 | -5.41 |
| -2,654 | -166 | 553 | 1.13 | 553 | 35 | | | | |
| ASDFGH | BCDEX | 5.40 | | 2,649 | 68 | 3.47 | 1,700 | 44 | -1.93 |
| -949 | -24 | 552 | 4.59 | 2,252 | 58 | | | | |
| ASDFGH | CDEFX | 4.82 | | 2,364 | 424 | 3.05 | 1,496 | 269 | -1.77 |
| -868 | -156 | 492 | 4.05 | 1,988 | 357 | | | | |
| ASDFGH | EFGHX | 5.75 | | 2,820 | 302 | 3.52 | 1,729 | 185 | -2.23 |
| -1,092 | -117 | 587 | 4.72 | 2,316 | 248 | | | | |
| ASDFGH | CASH-1 | 2.00 | | 981 | 981 | 0.00 | 0 | 0 | -2.00 |
| -981 | -981 | 9,337 | 19.04 | 9,337 | 9,337 | | | | |
| ASDFGH | FGHIX | 0.63 | | 309 | 35 | 0.39 | 193 | 22 | -0.24 |
| -116 | -13 | 65 | 0.53 | 258 | 29 | | | | |
| ASDFGH | GHIJX | 4.82 | | 2,364 | 79 | 3.01 | 1,477 | 49 | -1.81 |
| -887 | -30 | 492 | 4.01 | 1,969 | 66 | | | | |

| | | | | | | | | |
|--------|-------|-------|-------|-------|-------|-------|-----|--------|
| ASDFGH | IJKLX | 5.75 | 2,820 | 293 | 3.54 | 1,734 | 180 | -2.21 |
| -1,086 | -113 | 587 | 4.73 | 2,321 | 241 | | | |
| ASDFGH | MNO | 11.49 | 5,636 | 260 | 0.00 | 0 | 0 | -11.49 |
| -5,636 | -260 | 953 | 1.94 | 953 | 44 | | | |
| ASDFGH | PQRSX | 5.94 | 2,913 | 265 | 1.41 | 693 | 63 | -4.53 |
| -2,220 | -202 | 607 | 2.65 | 1,300 | 118 | | | |
| ASDFGH | TUVWX | 0.00 | 0 | 0 | 2.42 | 1,189 | 57 | 2.42 |
| 1,189 | 57 | 0 | 2.42 | 1,189 | 57 | | | |
| ASDFGH | XYZ | 9.00 | 4,414 | 327 | 0.00 | 0 | 0 | -9.00 |
| -4,414 | -327 | 756 | 1.54 | 756 | 56 | | | |
| ASDFGH | ZYXWX | 5.75 | 2,820 | 262 | 3.54 | 1,735 | 161 | -2.21 |
| -1,086 | -101 | 587 | 4.73 | 2,322 | 215 | | | |
| ASDFGH | DEFGX | 2.18 | 1,069 | 86 | 1.37 | 673 | 54 | -0.81 |
| -396 | -32 | 223 | 1.83 | 896 | 72 | | | |
| ASDFGH | HIJKX | 4.82 | 2,364 | 176 | 3.08 | 1,509 | 112 | -1.74 |
| -855 | -63 | 492 | 4.08 | 2,001 | 149 | | | |
| ASDFGH | JKLMX | 4.82 | 2,364 | 70 | 3.09 | 1,514 | 45 | -1.73 |
| -850 | -25 | 492 | 4.09 | 2,006 | 59 | | | |
| ASDFGH | KLMNX | 7.00 | 3,433 | 424 | 4.40 | 2,156 | 266 | -2.60 |
| -1,277 | -158 | 715 | 5.85 | 2,871 | 354 | | | |
| ASDFGH | NOPQX | 5.75 | 2,820 | 218 | 3.51 | 1,722 | 133 | -2.24 |
| -1,098 | -85 | 587 | 4.71 | 2,309 | 178 | | | |
| ASDFGH | OPQRX | 1.88 | 922 | 22 | 1.19 | 585 | 14 | -0.69 |
| -337 | -8 | 192 | 1.58 | 777 | 19 | | | |
| ASDFGH | QRSTX | 2.00 | 981 | 97 | 1.26 | 618 | 61 | -0.74 |
| -363 | -36 | 205 | 1.68 | 823 | 81 | | | |
| ASDFGH | RSTUB | 0.00 | 0 | 0 | 7.04 | 3,451 | 378 | 7.04 |
| 3,451 | 378 | 0 | 7.04 | 3,451 | 378 | | | |
| ASDFGH | STUVX | 0.00 | 0 | 0 | 5.65 | 2,770 | 233 | 5.65 |
| 2,770 | 233 | 0 | 5.65 | 2,770 | 233 | | | |
| ASDFGH | UVWXX | 4.79 | 2,349 | 126 | 2.91 | 1,428 | 77 | -1.88 |
| -921 | -50 | 489 | 3.91 | 1,917 | 103 | | | |
| UHNLC | VWXYX | 0.00 | 0 | 0 | 3.49 | 1,714 | 107 | 3.49 |
| 1,714 | 107 | 0 | 3.49 | 1,714 | 107 | | | |
| ----- | | ----- | ----- | | ----- | ----- | | ----- |
| -- | -- | ----- | ----- | | | | | |

| | | | | | | |
|----------------------------|--------|--------|--------|--------|--------|------|
| | Total | 100.00 | 49,048 | 100.00 | 49,048 | 0.00 |
| 0 | 0 | 100.00 | 49,048 | | | |
| ----- | | | | | | |
| ----- | | | | | | |
| SECTOR WEIGHTINGS | | | | | | |
| CASH | | 19.04% | | | | |
| EQUITY | | 80.96% | | | | |
| | | | | | | |
| SUB MODEL WEIGHTINGS RM004 | | | | | | |
| ASDFGH | QWERTY | CASH | TOTAL | | | |
| ----- | ----- | ----- | ----- | | | |
| 77.47 | 3.49 | 19.04 | 100.00 | | | |
| ----- | | | | | | |
| ----- | | | | | | |

Note: The Target % on the UMA Trade Output report (REBAL) is not the Model Target %. It represents the Model Target adjusted for restricted holdings taking into account the method for restricted cash at run-time.

6.4 Master Manager Security Rebalancer / Multi What-If trading tool

The Master Manager Security Rebalancer / Multi What-If tool allows the master manager to run a What-If scenario using a group of securities. When the same security is found in multiple sleeves, the tool increases trading efficiency by leveraging existing trade netting functionality to meet the selected target by moving the selected security from other sleeves overweighted in that security.

For example, the user sets a target of 2% of XYZ security for the SUBABC sleeve. To meet this target, the user must buy 10 shares into the SUBABC sleeve. The tool will first search for the security in other sleeves. If the security is in the SUB123 and it is overweighted, the tool will use the overweighted shares in the SUB123 sleeve first before buying more shares in SUBABC.

- The netting component of the tool requires the MSP Trade Netting functionality, which InvestCloud must activate. See “Trade Netting”

- Create your own 6-character block name when this functionality is used. Please contact InvestCloud for activation.
 - Please note that for firms with custom block naming, this does not apply.
 - If this function is available:
 - To ensure that trades are not discarded when a block name is not specified, the following question is presented:
 - Are you sure you want to discard all trades? No/Yes?
 - Yes (All trades are discarded)
- No

Focus returns to the block naming prompt.

- Enter the block name. If the block name already exists, a message is displayed
- DO YOU WANT TO APPEND TO EXISTING BLOCK XXX?" Yes/No
- Either append the trades to the selected block, or enter a new name

To use the Master Manager Security Rebalancer / Multi What-if tool:

1. Select TRADING from the master manager menu. The trading menu will open
2. Select the MSP SECURITY REBALANCER / MULTI-WHATIF function. The MSP Security Rebalancer screen will open:



| Field | Description |
|----------|--|
| Accounts | <p>Defines which accounts are affected. Press F1 to view a list of following items:</p> <p>SELECT ACCOUNTS - Affects only the accounts you select. If this option is chosen, the Account Selection window is displayed in the next step.</p> <p>ALL ACCOUNTS - Affects all accounts associated with the selected submodel.</p> |

| Field | Description |
|-------------------------------------|--|
| | The submodel (“sleeve”) that is affected by this multi what-if transaction. Press F1 to view a list of following items: |
| Models | <p>SELECT MSP MODELS - Affects only the accounts you select. If this option is chosen, the Model Selection window is displayed in the next step.</p> <p>ALL MODELS - Affects all models.</p> |
| Tax Sensitive Trades | <p>YES. If selected, the UMA TAX FILTERING screen is displayed later in the workflow.</p> <p>No. If selected, the tax table is ignored and the selling priority is applied on an account level. No (verses purchase) VP dates will be populated in the block. If necessary, swapping of tax lots between sleeves will occur during the nightly process.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note: Clients with tax sensitive UMA trading enabled, i.e. tax lot swapping, who also use GLTM tools should be aware that GLTM tools do not support tax lot swapping and some tax lots may be oversold. Such trades will fail during posting. Hence, it is not recommended to use GLTM tools on the same day as trading tools that support tax lot swapping.</p> </div> |
| Create Netting Trades | <p>Determines if the tool will leverage existing trade netting functionality to meet the selected target by moving the selected security from other sleeves where possible.</p> <p>YES - Use the tool to leverage existing trade netting functionality to meet the selected target by moving the selected security from other sleeves where possible.</p> <p>NO - The tool simply generates trades for the specific sleeve regardless of other sleeves.</p> |
| Desired % of Portfolio Master Model | <p>The percent of the portfolio that will be rebalanced according to the master model. For example, you can leave 10% of the market value of the account in cash by rebalancing to only 90% of the model.</p> <p>This feature is useful when there is no cash in the submodels since it lets the master manager prevent the overspending of cash by maintaining a certain percentage of cash to allow for fluctuations in execution prices.</p> <p>The master manager may also rebalance more than 100 percent of an account to use additional cash.</p> |
| Apply Wash Sale | <p>Determines whether wash sale rules set in the Tax Rule Table should apply.</p> <p>YES. Checks trades for Wash Sale violations. If the master manager set up wash sale filters in the Tax Table, these filters will be used in addition to the standard wash sale rule.</p> <p>NO. Ignores wash sale rule violations.</p> |
| Can Cash Go Negative? | <p>Determines whether or not cash amounts can go negative.</p> <p>YES - Allow cash amounts to go negative.</p> |

| Field | Description |
|-------------------------|--|
| | NO - Do not allow cash amounts to go negative. |
| Target Basis | Determines if the master model allocation or the submodel allocation is used for rebalancing. TARGET: Generates trades based on the target submodel allocation in the master model tied to each account. TOTAL: Generates trades based on the current submodel allocation within each account. |
| Freeze Option | Ability to unfreeze all restricted lots. RESTRC allows restrictions to override the purchase or selling of securities UNFREEZE ALL allows the rebalancer to override restrictions |
| Sort Rebalancing Report | The sort order of the Rebalancing Report. SUB-MODEL sorts the report according to submodel code TICKER sorts the report according to each security's TICK |

3. Type the information necessary for processing, and press F10. Various selection screens will appear, depending on your choices
4. If Tax Sensitive Trades is YES the UMA TAX FILTERING screen is displayed. Enter and select values as needed then select F10-Go to continue

```

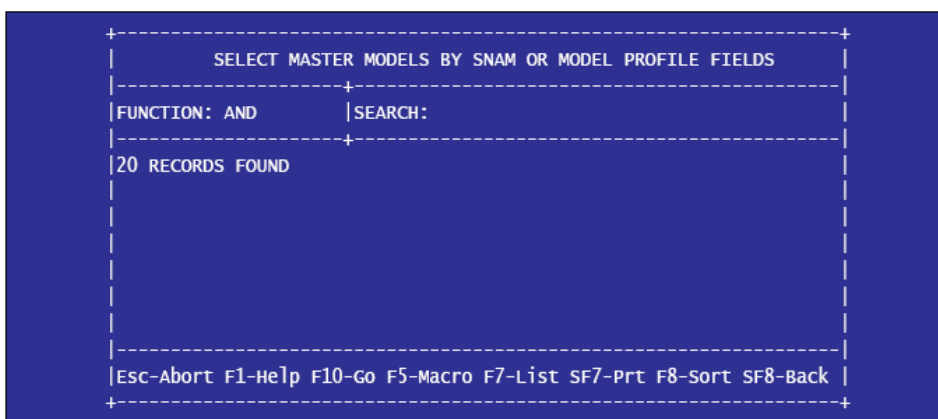
UMA TAX FILTERING

Sells-tax term: Any tax term
and Sells-gains or losses: Gains & Loss and
Purchase date is between 19000101 and 20160510 inclusive
Do not sell short-term losses that rollover in 0 days Do not
sell short-term gains that rollover in 0 days
Apply tax table : Yes
*****
Cost is between 0.00 and 0.00 inclusive
Or tax liability is greater than or equal to 0.00 as a % of Cost
Sell Priority: Account FOFO
*****
F1 - Help F3 - Abort F9 - Cycle F10 - Go
    
```

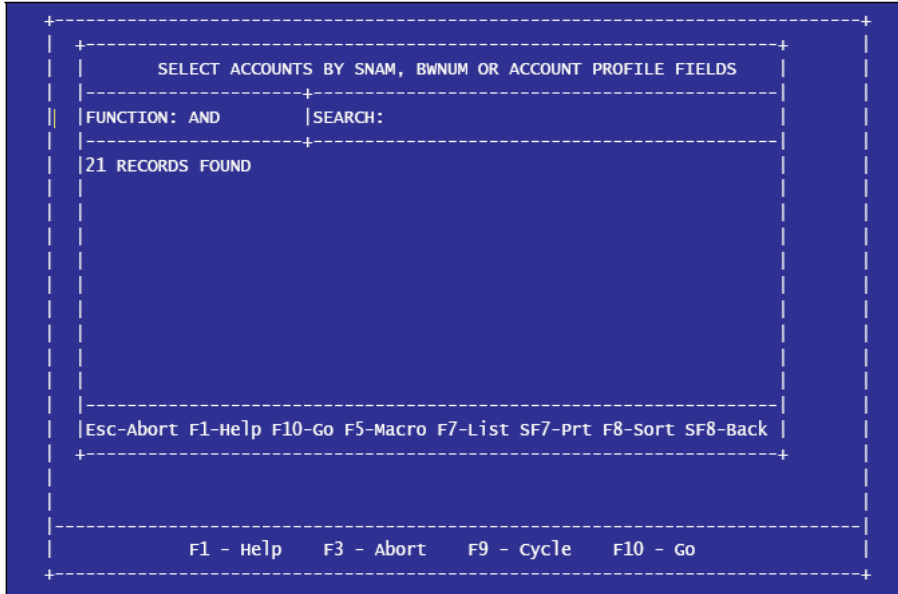
| Field | Description |
|---|---|
| Sells-tax term | Any tax term |
| | Short term only |
| | Long term only |
| Sells-gains or Losses | Gains & losses |
| | Losses only |
| | Gains only |
| And/Or | And - inclusive of |
| | Or - exclusive of |
| Date range | Input dates in YYYYMMDD format. |
| Short-term losses and gains rollover days | Number of days until a short term gain will roll over to a long term gain. |
| Apply Tax Table | Yes- This will activate the settings within the Tax Table. See “Establishing a gain/loss filter for trades across all sleeves of an account”. |
| | No - Selling priority method (FOFO) is applied on the account level, with no other tax sensitive inputs, unless defined on this screen. |
| Cost or %Gain/ Loss is between X and Y amounts | Specify a cost or a gain or loss percentage range for selling a tax lot. |
| And/Or | And - inclusive of |
| | Or - exclusive of |
| And tax liability is greater than or greater than or equal to or less | Select the tax liability range. |
| | First, select if the tax liability will be equal to / less than or equal to than Or Equal To a specified value. |
| | This value may be a percentage or dollar value. Press <F1> to view the possible choices for determining this value: |
| | % of Cost |
| | % of MV |
| | \$ Value |
| | \$ Value/Unit |

| Field | Description |
|---------------|---|
| | None |
| Sell priority | <p>Specifies the priority for the selling of tax lots. Setting the selling priority on the tool screen will override the setting within the tax table.</p> <p>Account FOFO - From account master field.</p> <p>FIFO - First in, first out.</p> <p>LIFO - Last in, first out.</p> <p>MINTAX - Minimum tax.</p> <p>HICOST - High cost.</p> <p>AVCOST - Average cost.</p> <p>MAXTAX - Maximum taxable amount.</p> <p>HCOSTST - High cost, short-term.</p> <p>HCOSTLT - High cost, long-term.</p> <p>If Apply Tax Table is set to YES:</p> <p>The Sell Priority defined in the Tax Table is used by default (the initial setting in the UMA Tax Filtering screen is ignored).</p> <p>If the Tax Table setting for Sell Priority needs to be overridden at run time, select the Sell Priority option in the UMA Tax Filtering screen (even if the desired option is displayed by default).</p> |

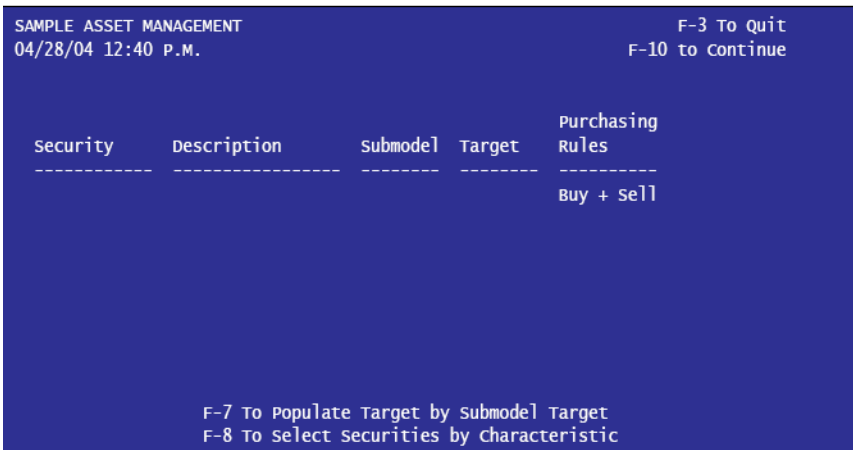
5. If you chose SELECT MSP MODELS in the Models field, the model selection screen will open:



6. Input the model selection or press F7 to view a list of models. Press F10 once you've made your final selection. If Select Accounts was chosen the Account Selection Screen opens:



- Input your account selection or press F7 to view a list of accounts and make your selection from the list. Press F10 once you've made your final selection. To select all accounts, leave the Search field empty and press F10. The Security List of Multiple What-If screen will open



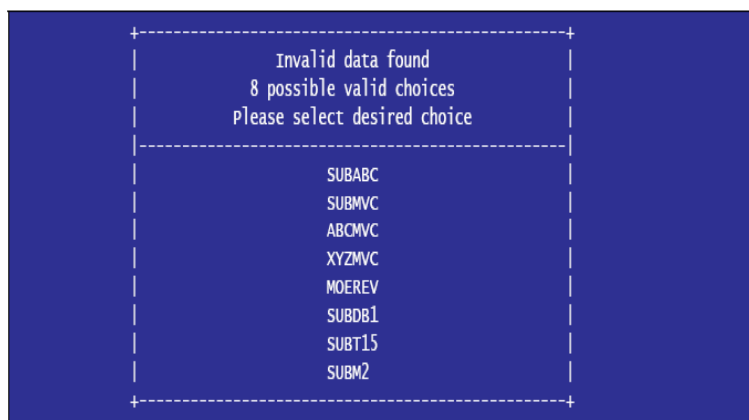
- Populate the screen using the two major options:
 - F7. Populate Target by Submodel Target. Use this option to enter security target in the submodel
 - F8. Select Securities by Characteristic. Use this option when you don't know which security or securities you want to include in rebalancing. See "(F8) Select Securities by Characteristic method for rebalancing"

(F7) Using the Populate Target by Submodel Target option

| Field/Column | Description |
|------------------|--|
| Security | The TICK, CUSIP, or SACUS number for each security in the group. |
| Description | The long description of the security. (The system automatically updates this field.) |
| Submodel | The submodel whose targets are used to rebalance the security. |
| Target | Target percent of the selected security to be contained in the submodel. |
| | Defines the permissible ways to attain the target percent. Once you select a rule, it becomes the default. |
| Purchasing Rules | You can see a list of available options by pressing F1. Buy & Sell - Both buy and sell trades can be created. Buy Only - Only buy trades can be created. Sell Only - Only sell trades can be created. |

To include the security or securities in rebalancing:

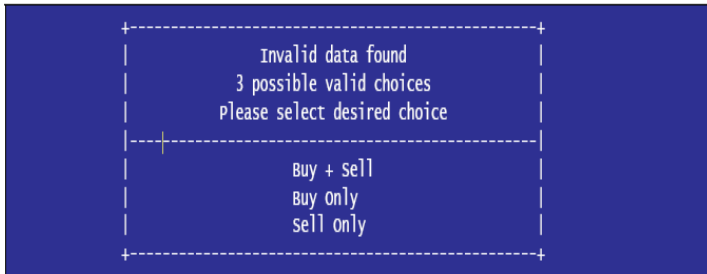
1. Type the TICK, CUSIP, or SACUS of the security you wish to use when rebalancing in the Security column
2. Tab the cursor to the Submodel column and press F7. The description field is automatically filled in. Add other securities as needed, repeating steps one and two. When all securities are added, proceed to the next step
3. Press F10. A menu of models containing the security will appear:



4. Choose the appropriate model and press ENTER. All fields, other than the Security field are automatically populated

| Security | Description | Submodel | Target | Purchasing Rules |
|----------|-------------|----------|---------|------------------|
| ABC | ABCCORP NE | SUBABC | 40.0000 | Buy + Sell |

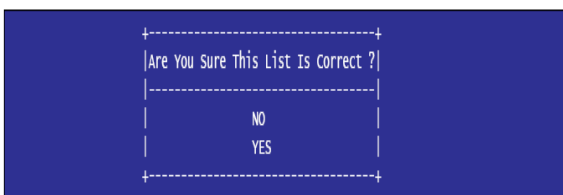
- If this is the first time you chose the Populate Target by Submodel Target function, you are prompted to choose a transaction option



- Buy + Sell. Buy and sell the security
- Buy Only. Only purchase the security
- Sell Only. Only sell the security

Once you establish the transaction type, the system will use that selection as the default.

- To add a new line and add another security, press ENTER. You can also enter securities using the F8 key to Select Securities by Characteristic
 - When finished adding all securities, press F10
 - To quit without executing, press F3
- Press F10 to execute the selection and rebalance. You are prompted to confirm the action



- Press YES to rebalance or NO to return to the list and make edits before rebalancing. If you choose yes, a status bar will appear confirming that the rebalancing process is occurring

(F8) Select Securities by Characteristic method for rebalancing

The Select Securities by Characteristic is similar to the \SELECTSEC utility function used in APL that it enables you to select multiple securities based on the criteria that you specify. You can use \SELECTSEC anywhere a SECURITY, TICK, CUSIP or SACUS is called for.

To use this capability from the Master Manager Security Rebalancer / Multi What-If tool:

1. Press F8 from the security list rebalance screen. The Security Selection Screen opens:

```

+-----+
|                                     |
|                               Security selection screen                       |
|-----|
| Search which Files : Private SMF  Number of Securities Found :                |
|                                     |
| Select Securities that are : Either Owned or Unowned                        |
| Issue Type : All securities                                                  |
| Industry :                                                                    |
| Model :                                                                        |
|                                     |
| Common Range Selections:           Low           High                       |
| Yield                             0.000%        0.000%                     |
| Duration                           0.00         0.00                       |
| Moody's Rating                                                                |
| S & P Rating                                                                  |
| Coupon                             0.000        0.000                     |
| Maturity (Dates)                    0           0                           |
| Maturity (Years)                    0           0                           |
|                                     |
| Additional search criteria (eg: AND ISSTY EQ 34 50)                          |
|-----|
| F-3 to Exit  F-6 to Refresh  F-7 to Search  F-10 to view or Use securities |
|-----+
  
```

All selection items are set to include every security in the models you utilize. Your goal is to narrow that selection by filling in the fields on the screen. Any field that is irrelevant to your search may be left unchanged.

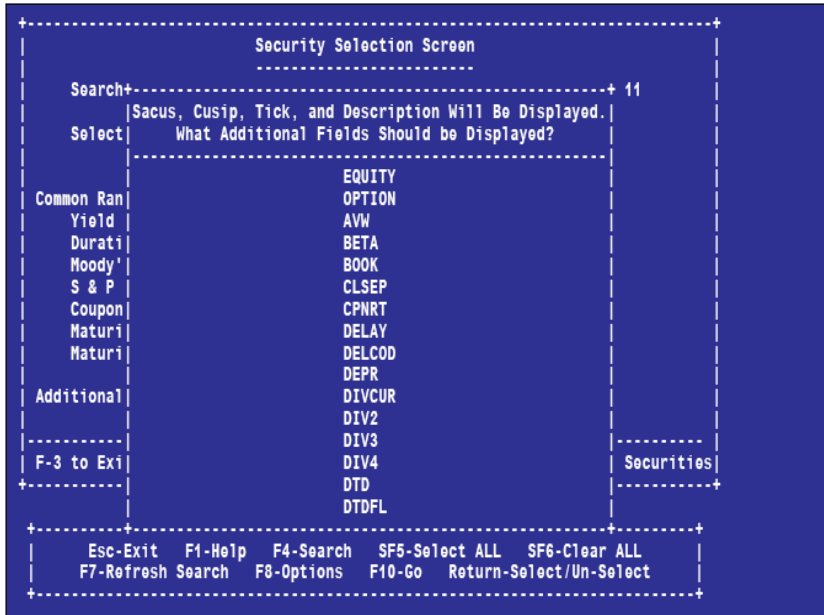
2. Use the TAB key to move to the fields and type the requested data

As with other screens, pressing F1 displays the options for the field you are in, and pressing F9 enables you to cycle through them. The system identifies your choice if you type in the first few characters and press TAB.

| Field | Description |
|--------------------|--|
| Search Which Files | Pick the databases you want to search. |
| | A11 SMF searches all five databases: HOT, SEC, BW:SECSA, BW:SECOPT, and BW:SECMISC |
| | Private SMF searches your SEC and HOT files only |
| | Public SMF searches the BW:SECSA, BW:SECOPT, and BW:SECMISC files only. |
| Select Securities | Specify whether you want owned or unowned securities. |
| | Either Owned or Unowned selects all securities. |
| | Owned selects only those securities held in any of your accounts. |
| | Unowned selects only those securities not held in any accounts |
| Issue Types | Specify the types of securities you want. |
| | All Securities selects all securities |

| Field | Description |
|----------------------------|--|
| | <p>Fixed Income Securities selects only those securities categorized as fixed income securities according to issue type (ISSTY)</p> <p>Equity Securities selects only those securities categorized as equity securities according to issue type (ISSTY)</p> |
| Industry Code | Specify the industry classification of the securities. This finds your private industry table (EDINDNM) and enables you to select any one of those industries. Press F1 to see the table if you do not remember the numerical code for the industry. |
| Model | Specify the model whose securities you want to include. |
| Common Range Selections | The high end and low end for each item. The ranges are inclusive, therefore if you specify a coupon rate between 5.000% and 6.000%, you will receive the 5.000% and 6.000% bonds as well as everything in between. If you wanted to only receive bonds in between, you would use a range of 5.001 to 5.999. |
| Rating, Yield and Duration | <p>The Yield and Duration fields are available only to clients using the fixed-income module. These fields are read from the YTM and DURAT fields on the security master file.</p> <p>The Rating ranges can be accessed by pressing F1. Type the appropriate range</p> |
| Additional Search Criteria | This field is used to specify any selection that is not available on the screen based on any security master field. You can input one or several lines of additional criteria. Each criterion must begin on a separate line. Multiple criteria should be joined with “AND” or “OR” at the beginning of each subsequent line. |

- Once you have entered your selection criteria, press F7 to see if any records are found. The number of securities found will appear in the upper right corner of the screen
- Press F10 to continue. The following menu of additional fields you can add opens:



- To select additional fields, use the arrow keys to move to the field and press ENTER to select. After selecting all the fields to view, press F10 to continue. The following Security Viewing Screen opens:



When the system lists the selected accounts, it displays the SACUS, CUSIP, and TICK.

- Press F9 to view the additional fields. The following screen will open:

Security Viewing Screen Screen 2 of 4

| SACUS | CUSIP | FILE | CLSEP | INDIV | ISSTY | MRATNG |
|-----------|-----------|--------|------------|-------|-------|--------|
| * 202 | 002824100 | MANHOT | 43.900000 | 1.040 | 28 | B2 |
| * 3619 | 254687106 | MANHOT | 24.650000 | 0.210 | 28 | B2 |
| * 50184 | 437076102 | MANHOT | 36.490000 | 0.280 | 28 | B1 |
| * 2328931 | 549463107 | MANHOT | 3.850000 | 0.000 | 28 | NA |
| * 1624 | 091797100 | MANHOT | 59.520000 | 0.840 | 28 | BLANK |
| * 2045248 | 401566104 | MANHOT | 85.450000 | 0.000 | 28 | NA |
| * 10670 | 835699307 | MANHOT | 42.990000 | 0.215 | 37 | NA |
| * 1199805 | 163072101 | MANHOT | 43.460000 | 0.000 | 28 | BLANK |
| * 6169459 | 162813109 | MANHOT | 30.580000 | 0.000 | 28 | BAA |
| * 13321 | CASHCASH | MANSEC | 100.000000 | 3.150 | 1 | 0 |
| * 351752 | 0 0 | MANSEC | 26.375000 | 0.120 | 28 | NA |

Any Character Before the SACUS Will Select the Security
<F-9> and <SHIFT F-9> To View Additional Fields
<F-3> To Exit <F-8> For Options <F-10> To Use Selection

7. Press F8 for additional options. The following screen will open:

```

+-----+
|           Please Select an Option           |
+-----+
| Include All Securities                       |
| Exclude All Securities                      |
| Include All Securities Matching a String Pattern |
| Exclude All Securities Matching a String Pattern |
| Sort By Field                              |
+-----+
    
```

8. Use the arrow keys to select an option

- If you select Include All Securities, an asterisk mark will appear in front of the SACUS
- If you select Exclude All Securities, the asterisk mark does not appear in front of the SACUS, and none of the securities are selected
- If you select Include All Securities Matching a String Pattern OR Exclude All Securities Matching a String Pattern, a screen will open, prompting you for the string. Type the string by which the securities should be selected or deselected
- If you select Sort By Field, a screen will open, prompting you for the fields to sort by. The fields available are those that appear with this screen and any additional fields you selected

9. Press F10 to use the selected accounts. The following screen will open:

```

+-----+
| 11 Securities Selected                      |
| Do You Want to Use this Selection?        |
+-----+
|           NO                               |
|           YES                             |
+-----+
    
```

10. Using the arrow keys, select NO if do not want to use the selection, or YES if you want to use the selection and press ENTER
 - If you select NO, you are returned to the Security Selection screen. You need to select some securities in order to exit the function and return the prompts for the report or function you were running
 - If you select YES, you return to the prompts for the report or function you were running
11. Press F10 to add the selection to the Security List of the Security Rebalance screen

```

SAMPLE ASSET MANAGEMENT                                F-3 To Quit
04/26/04 12:29 P.M.                                F-10 to Continue

                security List of the security rebalance
                -----

Security      Description      submodel  Target      Purchasing
-----
202           ABBOTT LABS
3619          WALT DISNEY PRODT
50184         HOME DEPOT INC
2328931      LUCENT TECHNOLOGI
1624          BLACK & DECKER CO
2045248      GUCCI GROUP N V
10670         SONY CORP
1199805      CHEESECAKE FACTOR
6169459      CHECKFREE CORP NE
13321         CASH
351752        TIFFANY & CO NEW
                Buy + sell
                Buy + sell
                Buy + sell
                Buy + sell
                Buy + sell
                Buy + sell
                Buy + sell
                Buy + sell
                Buy + sell
                Buy + sell
                Buy + sell

                F-7 To Populate Target by submodel Target
                F-8 To select securities by characteristic
    
```

12. Press F10 to execute the selection and rebalance. You are prompted to confirm the action.

```

2328931      LUCENT TECHNOLOGI  XYZMVC      Buy + sell
1624          BLAC+-----+y + sell
2045248      GUCC|Are You Sure This List Is Correct ?|y + sell
10670         SONY|-----|y + sell
1199805      CHEE|              NO          |y + sell
6169459      CHEC|              YES         |y + sell
13321         CASH+-----+y + sell
    
```

13. Press YES to rebalance or NO to return to the list and make changes before rebalancing. If you choose yes, a status bar opens confirming the rebalancing process is occurring.

6.5 Swapping equities

When swaps are specified in submodels, the associated trades are not processed until the master manager chooses to do so. The Swap Tool identifies swaps, and enables the master manager to select which ones to execute.

Note: If one of the securities being swapped is restricted, the security being swapped out will be held, and the security being swapped in will not be bought.

Use the following steps:

- Select SWAP TOOL from the Trading menu. You are prompted to select either a TARGET SWAP or DOLLAR SWAP



- Select either Target Swap or Dollar Swap as appropriate. A Target Swap attempts to ensure that whatever security you are swapping into is purchased at the proper target weight, while a Dollar Swap takes the proceeds from your sale and purchases an equal dollar amount of the security you are purchasing

You are prompted to accept or decline use of the MSP Standard Rounding Table.



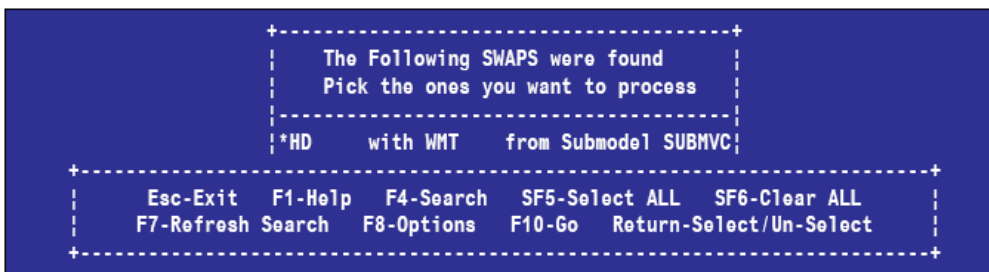
Select either YES or NO in respect to the use of the MSP Rounding Table during rebalancing.

- You are prompted to either accept or decline use of standard wash sale rules during rebalancing



- If no swaps are found, the message NO SWAPS found flashes on the screen, and you are returned to the Trading menu
- If UMA finds swaps, they are displayed in a screen similar to the one below

Note: Only swaps with today's date are displayed.



- Select the swaps for which you wish to execute trades, and press F10. The Account Selection window opens

Note: Only the accounts that are related to the specific submodels being updated or swapped are displayed.



- You can further narrow the range of accounts for which to execute trades, or you can simply press F10 to execute the trades for all accounts. A series of messages flash on the screen, indicating which accounts are affected

6.6 How to swap securities without using the Swap tool

There are a couple of strategies to use to swap out of a security without having the Master run the Swap Tool.

- Use the Strategy Rebalancer to swap securities. Make the necessary changes to your model after you add tickers and adjust percentages. The Strategy Rebalancer will rebalance that portion of the account to the Submodel in question but it will rebalance the entire sleeve. If you do not want to trade the entire sleeve, just extract the tickers that were involved with the swap into another trading block. Use this new block to trade, and discard the old block
- Use the What-If tool to perform your swap by selling the security you want to sell and buying the security you wish to purchase. Make sure you change your model to match the trades you created
- You can create your own 6-character block name when this functionality is used. Please contact InvestCloud for activation
- Please note that for firms with custom block naming, this does not apply
- If this function is available:
- To ensure that trades are not discarded when a block name is not specified, the following question is presented:

- Are you sure you want to discard all trades? No/Yes?
- Yes
- All trades are discarded
- No
- Focus returns to the block naming prompt. Enter the block name.If the block name already exists, a message is displayed
- DO YOU WANT TO APPEND TO EXISTING BLOCK XXX?" Yes/No
- Either append the trades to the selected block, or enter a new name

6.7 GLTM (Gain/Loss Trade Modeling)

The Gain/Loss Trade Modeling (GLTM) Tool is a collection of related functions that enable you to evaluate the potential tax implications of trades. This includes providing net gain and loss data based on short and long-term tax rates. You can access this tool by selecting GLTM TOOL from the Trading menu.

Refer to the InvestCloud APL Gain Loss Trade Modeling (GLTM) Guide for a complete description of this tool.

There are several differences between the standard GLTM capability and the UMA-related GLTM capability:

- The UMA GLTM tool displays sleeve-related tags on several screens. For instance, on the What-If Input Worksheet screen the Ignore MSP Sleeve Code? : and Sub-Model Code : fields display

```

+-----+
|          Beta GLTM whatIf Input worksheet          |
+-----+
| Security symbol :                               |
| Description   :                               |
| Trading scenario                               |
|   Desired Percentage : 0.00% of Total          |
|   Leveling Method   : Maximum - sell only     |
|   Round off Lots By : 100.00                 |
|   Rounding Method  : Up                      |
|   Minimum shares   :                         |
|   Hold Minimum of 1.00% Cash : Yes           |
|   Can Target Cap Be Exceeded? : Yes - Ignore Target Caps |
|   Ignore MSP sleeve code? : Yes   Sub-Model code : |
|   Apply Additional Tax-Filter Rules : Yes     |
|   Account selection : Select Accounts         |
|   Reporting options                               |
|     Template Display : DEFAULT - GLTM WHATIF DEFAULT TEMPLATE |
|     Report Title   :                               |
+-----+
| F1 Help  F3 Exit  F8 Templates  F9 Cycle  F10 Go |
+-----+
  
```

- Only one leveling method is supported in GLTM: Maximum - Sell Only
- If the tax-sensitive trading capability is enabled and the GLTM Tool is selected, a warning displays that these tools do not support tax-lot swapping

6.8 Setting Supervisor Status

This menu item indicates whether you have supervisor status. Thus, if you see SET SUPERVISOR STATUS on the menu, you have supervisor status. If this item is not the menu, you do not have supervisor status.

6.9 Block Status

To display a list of trade blocks sent to the InvestCloud Trading system by UMA, select BLOCK STATUS from the Trading menu. The following screen will open:

| BLOCK STATUS AS OF 05/23/03 12:52 P.M. | | | | | | |
|---|-------|-------|----------------------------|------|---------|------|
| * = COMMITTED G = GOOD-TILL-CANCELLED ORDER | | | \$ = COMMITTED G-T-C ORDER | | | |
| NAME | DATE | TIME | BLOCK TITLE | B/S | TOTAL | DONE |
| LAUREN | 05/23 | 10:36 | LAUREN | SELL | N/A | 0 |
| MSP075 | 04/30 | 14:00 | MSP REBALANCER | SELL | N/A | 0 |
| MSP071 | 04/30 | 13:55 | MSP REBALANCER | SELL | N/A | 0 |
| MSP070 | 04/30 | 13:54 | MSP REBALANCER | B/S | N/A | 0 |
| MSP069 | 04/30 | 13:52 | MSP REBALANCER | SELL | N/A | 0 |
| MSP068 | 04/30 | 13:51 | MSP REBALANCER | SELL | N/A | 0 |
| NETTST | 04/30 | 13:00 | NETTES | | 0 | 0 |
| MSP065 | 04/29 | 16:21 | MSP REBALANCER | B/S | N/A | 0 |
| MSPMC7 | 04/29 | 11:41 | MSPMC7 | B/S | 16,916 | 0 |
| MSP064 | 04/29 | 11:01 | MSP REBALANCER | SELL | N/A | 0 |
| LSZTST | 04/14 | 14:24 | ACCOUNT ADJUSTMENT MSP1 | B/S | N/A | 0 |
| SUBAAT | 04/14 | 12:15 | ACCOUNT ADJUSTMENT MSP1 | SELL | 16,500 | 0 |
| MSPWIT | 04/14 | 12:14 | I B M - IBM | SELL | 333,000 | 0 |
| MSP012 | 04/01 | 12:10 | SUBMVC - MSP REBALANCER | BUY | N/A | 0 |

More information on the Block Status tool can be found in the InvestCloud Trading System User Guide.

Checking Block for Violations During Commit Process

When committing a block, the Commit process checks the block for certain violations, based on the Minimum Trades Table. There are three workflow scenarios for the Commit Check process, depending on your firm's configuration: Hard, Soft, or None.

Note: Users must be configured for the Minimum Trades Table in order to utilize the minimum check feature.

Hard Violations Configuration

If the block, at the Commit or Multi-Commit check, violates minimum trade rules set within the Minimum Trades Table (established by your firm) the following message will appear:

| APL MESSAGE | | | | | |
|---|----------|-----------|----------|--------|--------------|
| The following trades violate the minimum trade size | | | | | |
| 0 | ABC123 | 1000.0000 | 111111AA | MKSMCN | < \$1000.00 |
| 0 | XYZ123 | 1000.0000 | 222222AB | NWQNSM | < \$1000.00 |
| 0 | XYZ321 | 1000.0000 | 333333AA | NWQNSM | < \$1000.00 |
| 0 | ABC321 | 1000.0000 | 444444AB | NWQNSM | < \$1000.00 |
| 0 | 12345678 | 1.0000 | 555555AA | BLANK | < 1000 units |
| 0 | ABC124 | 1000.0000 | 555555AB | ESTEBL | < \$1000.00 |

Note: If the number of these violations exceeds 49, only the number of restrictions that fit on the screen without scrolling will be displayed.

In order to proceed, users have two options:

Move trades to another block:

```
MOVE TRADES WITH AN ERROR TO ANOTHER BLOCK ?  
  
NO  
YES
```

OR

Delete all trades with an error:

```
DELETE ALL TRADES WITH AN ERROR ?  
  
NO  
YES
```

The Hard violation option reduces errors when committing a block. It provides the ability to return to the commit block screen to edit the block so that it does not violate these rules. When the block no longer violates these rules, it can be committed.

Soft Violations Configuration:

The soft violations option is more flexible than the Hard violations option. It provides the choice of bypassing any violations and committing the block, or returning to the main screen to edit the block.

If the block, at the Commit or Multi-Commit check, violates one or more rules set within the Minimum Trades table, the following warning message will appear:

| APL MESSAGE | | | | | |
|---|----------|-----------|----------|--------|--------------|
| The following trades violate the minimum trade size | | | | | |
| 0 | ABC123 | 1000.0000 | 111111AA | MKSMCN | < \$1000.00 |
| 0 | XYZ123 | 1000.0000 | 222222AB | NWQNSM | < \$1000.00 |
| 0 | XYZ321 | 1000.0000 | 333333AA | NWQNSM | < \$1000.00 |
| 0 | ABC321 | 1000.0000 | 444444AB | NWQNSM | < \$1000.00 |
| 0 | 12345678 | 1.0000 | 555555AA | BLANK | < 1000 units |
| 0 | ABC124 | 1000.0000 | 555555AB | ESTEBL | < \$1000.00 |

With this configuration, the following options are available:

Ignore these violations and commit the block:

Do you want to allow these minimum violations ?

[NO](#)
[YES](#)

Note: If these violations are ignored and the block is committed, the overridden violations appear in the [Restrictions Override](#) report.

OR

Move trades that contain errors to another block:

MOVE TRADES WITH AN ERROR TO ANOTHER BLOCK ?

[NO](#)
[YES](#)

OR

Delete all trades that contain an error:

DELETE ALL TRADES WITH AN ERROR ?

[NO](#)
[YES](#)

No Violations Configuration:

If the block, at the Commit or Multi-Commit check, violates minimum trade rules set within the Minimum Trades Table, no error or warning message will appear and the block will be committed.

This option expedites the workflow process but involves risk. It does not provide the opportunity to edit a block that may have minimum trade violations.

Restrictions Override (RESTOVERLEG) Report

This report shows overridden restrictions and minimum trades violations.

If configured for the **Soft minimum** trades check, users may override these block violations during the commit process. Overridden violations are added to the Restrictions Override (RESTOVERLEG) Report.

To run the Restrictions Override (RESTOVERLEG) Report:

1. At the WHAT NEXT prompt, type RESTOVERLEG
2. At the SEARCH FOR WHAT? prompt, enter account selection
3. When prompted, enter a beginning date and an end date. Use the format MM/DD/YY. Select Enter
4. At the WHAT NEXT prompt, type BROWSE and select Enter to browse the report

The RESTOVERLEG report, either in a .CSV or .LRP file, will appear. Below is a sample report.

PAGE 1:

```

                                ABC ADVISORS EXTERNAL
                                Restriction Override Audit Report
Accounts Selected: 1
Run Date: 04/01/13  1:42 P.M.
Date Range: 03/31/13 - 04/01/13

```

| Date | Time | Userid | Account | Side | Security | Quantity | Override |
|----------|------------|----------|-----------|------|----------|----------|----------|
| 04/01/13 | 12:00 P.M. | msubrama | 123456789 | Buy | ABCD | 179 | Trade |
| 04/01/13 | 12:00 P.M. | msubrama | 123456789 | Buy | ABCD | 1197 | Trade |
| 04/01/13 | 2:58 P.M. | msubrama | 123456789 | Sell | A123 | 172000 | Trade |
| 04/01/13 | 2:58 P.M. | msubrama | 123456789 | Sell | B123 | 263000 | Trade |
| 04/01/13 | 2:58 P.M. | msubrama | 123456789 | Sell | C123 | 170000 | Trade |
| 04/01/13 | 2:58 P.M. | msubrama | 123456789 | Sell | D123 | 259000 | Trade |
| 04/01/13 | 2:58 P.M. | msubrama | 123456789 | Buy | XYZ | 1141 | Trade |
| 04/01/13 | 2:58 P.M. | msubrama | 123456789 | Buy | IBM | 96 | Trade |
| 04/01/13 | 2:58 P.M. | msubrama | 123456789 | Buy | IBM | 229 | Trade |
| 04/01/13 | 2:58 P.M. | msubrama | 123456789 | Buy | XYZ | 1517 | Trade |
| 04/01/13 | 2:58 P.M. | msubrama | 123456789 | Buy | IBM | 96 | Securi |
| 04/01/13 | 2:58 P.M. | msubrama | 123456789 | Buy | IBM | 229 | Securi |
| 04/01/13 | 2:58 P.M. | msubrama | 123456789 | Buy | XYZ | 1517 | Securi |
| 04/01/13 | 2:58 P.M. | msubrama | 123456789 | Buy | ABCD | 179 | Trade |

Continued

```

                                ABC ADVISORS EXTERNAL
                                Restriction Override Audit Report

```

PAGE 1

PAGE 2:

| ccount | Side | Security | Quantity | Override | Note |
|-----------|------|----------|----------|-------------------------|-----------|
| 123456789 | Buy | XYZ | 179 | Trade minimum violation | Auto Note |
| 123456789 | Buy | XYZ | 1197 | Trade minimum violation | Auto Note |
| 123456789 | Sell | A123 | 172000 | Trade minimum violation | Auto Note |
| 123456789 | Sell | B123 | 263000 | Trade minimum violation | Auto Note |
| 123456789 | Sell | C123 | 170000 | Trade minimum violation | Auto Note |
| 123456789 | Sell | D123 | 259000 | Trade minimum violation | Auto Note |
| 123456789 | Buy | XYZ | 1141 | Trade minimum violation | Auto Note |
| 123456789 | Buy | IBM | 96 | Trade minimum violation | Auto Note |
| 123456789 | Buy | IBM | 229 | Trade minimum violation | Auto Note |
| 123456789 | Buy | XYZ | 1517 | Trade minimum violation | Auto Note |
| 123456789 | Buy | IBM | 96 | Security Restricted | Auto Note |
| 123456789 | Buy | IBM | 229 | Security Restricted | Auto Note |
| 123456789 | Buy | ABC | 1517 | Security Restricted | Auto Note |
| 123456789 | Buy | ABC | 179 | Trade minimum violation | Auto Note |

Note: Both restrictions and minimum trades violations will appear in this report.

Append Rebalancer Trades Option

This option has been disabled to avoid creating untagged trades in UMA accounts.

(This block level option within APL Block Order Status launched the SMA Rebalancer and appended the trades generated to the selected block.)

Extracting trades from a block with a submodel code

The Block Order Status menu includes the item, Separate Block by Submodel, that allows you to select an uncommitted UMA block and remove trades from a submodel. Once you select the trades for removal, a prompt will appear giving you the option to remove the selected trades from the original block and place them in a new block.

To use the Separate Block by Submodel capability:

1. Select Block Status from the Trading menu. The Block Status screen will open:

| BLOCK STATUS AS OF 12/26/03 12:15 P.M. | | | | | | |
|--|-------|-------|---------------------------|--------|---------|------|
| NAME | DATE | TIME | BLOCK TITLE | B/S | TOTAL | DONE |
| NETHC1 | 12/03 | 14:36 | NETHC1 | BUY | 5 | 0 |
| MSP106 | 12/03 | 14:26 | MSP REBALANCER | B/S | N/A | 0 |
| NET123 | 10/28 | 14:50 | NET123 | BUY | 5 | 0 |
| JAMES4 | 10/19 | 04:24 | INVISION TECHNOLOGIES INC | CO BUY | 123,150 | 0 |
| MSP105 | 10/02 | 16:18 | MSP REBALANCER | BUY | N/A | 0 |
| MSP103 | 09/23 | 13:55 | SUBMVC - MSP REBALANCER | B/S | N/A | 0 |
| JAMES1 | 09/19 | 10:20 | I B M - IBM | B/S | 303,200 | 0 |
| MVCG | 09/15 | 12:13 | MVC1 | B/S | N/A | 0 |
| MSP102 | 09/15 | 12:05 | SUBMVC - MSP REBALANCER | B/S | N/A | 0 |
| MSP101 | 08/06 | 14:05 | MSP REBALANCER | BUY | N/A | 0 |
| MSP098 | 07/23 | 10:47 | MSP REBALANCER | B/S | N/A | 0 |

2. Select the UMA account from which you need to extract trades. The DO WHAT WITH BLOCK MSP menu will open:

```

+-----+
|          DO WHAT WITH BLOCK MSP102          |
+-----+
|Delete                                       |
|Commit                                      |
|Multiple commits                            |
|Combine blocks                              |
|Append rebal trades                        |
|Create empty block                         |
|Effects of this block                      |
|Quick swap                                 |
|Separate block by broker                   |
|Extract trades from block                  |
|Separate block by security                 |
|Extract Vsp trades from block             |
|Change status of this block               |
|Sort blocks                               |
|Change block name                         |
|Receive Galaxy wrap blocks               |
|Wash-sale audit report                   |
|Separate block by Wash-sale violations    |
|Separate Block by tax-term               |
|Separate block by submodel                |
+-----+
    
```

3. Select Separate Block by Submodel. A menu will appear listing submodels in the account:

```

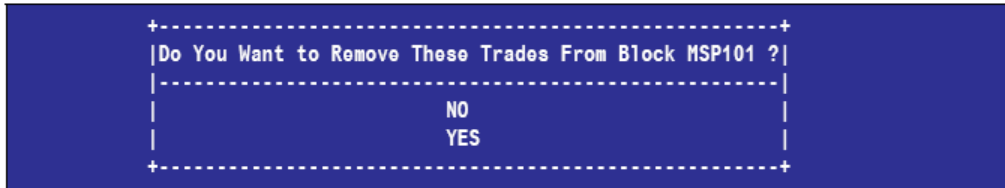
+-----+
|SELECT THE SUBMODELS TO SEPARATE FROM THE BLOCK|
+-----+
|          MOEREV          |
|          SUBABC         |
+-----+
| Esc-Exit  F1-Help  F4-Search  SF5-Select ALL  SF6-Clear ALL |
| F7-Refresh Search  F8-Options  F10-Go  Return-Select/Un-Select |
+-----+
    
```

4. Select the submodel, or submodels that you need to extract trades from and press F10. A menu of trades opens:

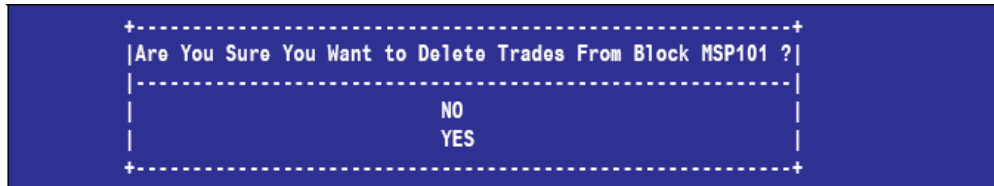
```

+-----+
|Select Trades to Separate from Block MSP101|
+-----+
| ALL TRADES |
| ALL BUYS   |
| MSP1 BUY   5,734 LIZ  539320101 |
| MSP1 BUY   2,143 T    001957505 |
+-----+
| Esc-Exit  F1-Help  F4-Search  SF5-Select ALL  SF6-Clear ALL |
| F7-Refresh Search  F8-Options  F10-Go  Return-Select/Un-Select |
+-----+
    
```

5. Select the trade or trades you wish to extract and press ENTER. Press F10 to execute. A confirmation message opens:



6. Select YES to remove the trades. A message will appear asking if you want to delete the trades:



7. Select YES or NO as appropriate. A message will appear asking for the trade block name:



8. Type the name of the affected trade block. A message asks if you want to append the block
9. Select YES or NO as appropriate

6.10 Master Manager Account Adjuster trading tool

The Master Manager Account Adjuster enables the master manager to adjust cash or other positions manually at the tax lot level for individual accounts or adjust cash for multiple accounts. Once you adjust the target amount of cash or other securities, this tool calculates the trades necessary to meet the targets.

To run the Account Adjuster, use the following steps:

4. Select Account Adjuster from the TRADING menu. The following screen will open:

```

Rounding for Master Manager Account Adjustment

Mode: SINGLE ACCOUNT ADJUSTMENTS
Freeze Option: RESTRC+TRADES ONLY
When Raising Cash: PRO-RATE ACROSS HOLDINGS
Asset Class: TOTAL
Tax Lot Trading: NO           Wash sale: YES

Do you want to use the Master Model in the Account Adjuster? YES
F10- GO           ESC - QUIT
    
```

| Field | Description |
|-------------------|--|
| | Select to adjust cash and/or positions one account at a time or adjust cash for multiple accounts at one time. |
| | Single Account Adjustments: Cash and/or positions can be manually adjusted at the tax lot level for individual accounts. |
| MODE | Multi Account Raise Cash Multi Account Lower Cash Multi Account Adjust Cash Specified cash amounts can be raised, lowered or adjusted for multiple accounts from one screen. |
| | Select the types of tax lots to exclude from the cash adjustment process. Press F1 to view an option menu: |
| | RESTRC+TRADES ONLY: Prevents trading in restricted security tax lots and in tax lots that are part of committed trades. |
| FREEZE OPTION | EQUITY+RESTRC+TRADES: Prevents trading in equity tax lots, restricted security tax lots, and tax lots that are part of committed trades. FIXED+RESTRC+TRADES: Prevents trading in fixed income tax lots, restricted security tax lots, and tax lots in committed trades. UNFREEZE ALL: All tax lots may be traded. |
| WHEN RAISING CASH | Despite its label, When Raising Cash controls how cash is invested or raised during a single or multiple account adjustment. CASH: Adjuster will create sales when raising cash. Press F1 to view the menu of options: |

| Field | Description |
|--|---|
| | <p>PRO-RATE ACROSS HOLDINGS: Sell from each tax lot based on the proportion of the tax lot within the portfolio.</p> <p>MINIMIZE NUMBER OF TRADES: Generate the smallest number of trades necessary by selling off the largest tax lot first and continuing with each successively smaller tax lot until the target amount of cash is reached.</p> <p>DIVIDE EQUALLY ACROSS HOLDINGS: Sell the same percent from each tax lot.</p> <p>PRO-RATE BUYS TO TARGET/PRO-RATE SELLS TO HOLDINGS: Any new cash being invested is pro-rated based on the associated master model while any cash being raised is pro-rated across current holdings.</p> <p>The Do you want to use the Master Model in the Account Adjuster prompt must be set to YES in order to pro-rate buys to target.</p> |
| ASSET CLASS | <p>Select the portion of the portfolio to adjust. Press F1 to view the menu of options.</p> <p>TOTAL</p> <p>EQUITY</p> <p>FIXED INCOME</p> |
| Tax Lot Trading | <p>YES</p> <p>NO</p> |
| Wash Sale Rule | <p>Determines whether wash sale rules are to be applied to trades. Select YES or NO as appropriate.</p> |
| Do you want to use the Master Model in the Account Adjuster? | <p>This option allows you to choose whether or not to rebalance the portfolio according to the master model using the Account Adjuster. Press F1 to view the menu of options:</p> <p>YES: The option to rebalance the portfolio to the master model is available through the options menu on the ACCOUNT ADJUSTMENT screen.</p> <p>NO: The option to rebalance the portfolio according to the master model is unavailable.</p> |
| | <ul style="list-style-type: none"> ▪ Rounding and minimum units for this tool are controlled by the MSP Rounding Table in the Master Manager Administration Tools menu. See “Editing the Standard Rounding Table” ▪ When raising or investing cash, Rounding and Minimum parameters may be bypassed in order to get cash as close to the target as possible. In the trading priority, cash to target (net of the flow) is primary over Rounding and Minimum criteria ▪ Accounts having master models that contain holds cannot be rebalanced in the Master Manager Account Adjuster tool. Instead, use the UMA REBALANCER for this purpose |

- When Raising or Investing cash, the Account Adjuster only takes into consideration restrictions on securities. Cash restriction violations (pseudo restrictions) will be flagged upon COMMIT
- If cash is part of a UMA model, a portion of the cash being raised or invested is applied to the target cash percentage. This may yield results that may not be intuitive. For example, if a cash contribution of \$X is invested in to an account that has a Y% cash target, purchases equal to $$(100 - Y)?X$ are suggested by the Account Adjuster, leaving the remainder of the cash investment allocated to cash

Make your selections, and press F10 to continue.

The MODE option selected determines the next step in the process flow.

- If MODE is SINGLE ACCOUNT ADJUSTMENTS the single account selection screen will open

```

+-----+
| SHORT NAME:          ACCOUNT NUMBER: |
| DESCRIPTION:        |
+-----+
| MSP1      0 MULTIPLE STRATEGY PORTFOLIO TEST ACCT 1 |
| MSP10     0 MULTIPLE STRATEGY PORTFOLIO TEST ACCT 1 |
| MSP13     0 MULTIPLE STRATEGY PORTFOLIO TEST ACCT 1 |
| MSP14     0 MULTIPLE STRATEGY PORTFOLIO TEST ACCT 1 |
| MSP15     0 MULTIPLE STRATEGY PORTFOLIO TEST ACCT 1 |
| MSP16     0 MULTIPLE STRATEGY PORTFOLIO TEST ACCT 1 |
+-----+
|          SELECT ACCOUNTS AND HIGHLIGHT YOUR CHOICE          |
+-----+
| F1-Help  F3-Quit  F7-List Accounts  F10/Return-Go          |
+-----+
  
```

1) Select the account to adjust by typing the short name (SNAM), internal account number (BWNUM), or custodian account number (DTCNO). Or, press F7 for a list of available accounts, and select one. Then, press F10 to continue. The Account Adjustment screen, listing each tax lot in the Submodel, opens.

```

ACCOUNT: CIFRMI          ACCOUNT ADJUSTMENT
SNAM: CIFRMI

      DESCRIPTION          TARGET          FREEZE          STRING
      SHARES             PCT F PRICE    SECURITY SHARES  MSPSLV  MSP%
CASH                2000000.00  100.00  100.000  CASH-12000000
CITIGROUP INC.      0.00      0.00  47.8500  C          0  SUBMVC  0.307
CITIGROUP INC.      0.00      0.00  47.8500  C          0  XYZMVC  0.467
CITIGROUP INC.      0.00      0.00  47.8500  C          0  SUBDB1  3.000
CHEESECAKE FACTORY INC 0.00      0.00  42.8500  CAKE       0  XYZMVC  0.273
CHECKFREE CORP NEW  0.00      0.00  27.3600  CKFR       0  SUBABC  24.000
CHECKFREE CORP NEW  0.00      0.00  27.3600  CKFR       0  SUBMVC  0.348
CHECKFREE CORP NEW  0.00      0.00  27.3600  CKFR       0  XYZMVC  2.369
CHECKFREE CORP NEW  0.00      0.00  27.3600  CKFR       0  SUBDB1  1.000
DAIMLERCHRYSLER AG  0.00      0.00  45.6500  DCX        0  SUBMVC  0.165
DAIMLERCHRYSLER AG  0.00      0.00  45.6500  DCX        0  XYZMVC  0.271
DAIMLERCHRYSLER AG  0.00      0.00  45.6500  DCX        0  SUBDB1  1.500
FORD MTR CO DEL     0.00      0.00  16.2000  F          0  SUBMVC  0.149
FORD MTR CO DEL     0.00      0.00  16.2000  F          0  XYZMVC  0.226
FORD MTR CO DEL     0.00      0.00  16.2000  F          0  SUBDB1  1.500
GUCCI GROUP N V     0.00      0.00  85.3800  GUC        0  XYZMVC  0.204
GUCCI GROUP N V     0.00      0.00  85.3800  GUC        0  HOEREV  2.000
HONEYWELL INTL INC  0.00      0.00  32.7300  HON        0  XYZMVC  0.190

Selected MSP Model MVCMDM: MDM TEST MODEL
F1-HELP  F3-EXIT  F6-ADD  F7-RECALC  F8-OPTIONS  F9-GAIN/LOSS  F10-SAVE
  
```

| Field | Description |
|-----------------|---|
| DESCRIPTION | Long description of the security as it will appear in the Security Master. |
| PDATE | The original trade date of the tax lot. |
| GAIN | Amount of unrealized gain or loss of the tax lot. Gains appear as positive numbers; losses appear as negative numbers |
| TARGET SHARES | Target number of shares, bond face value, or amount of cash to be held in the portfolio. You can edit this field. |
| PCT | Target percent of the tax lot or cash to be held in the portfolio. You can edit this field. |
| FREEZE | <p>Indicates if a tax lot cannot be traded. You can edit this field. The possible choices for this field are:</p> <p>F: You can manually place this code next to each specific tax lot to be frozen. This code is also used if the user elected to freeze all equity positions or all fixed positions automatically.</p> <p>R: Denotes tax lots frozen due to trading restrictions.</p> <p>T: Denotes tax lots frozen because they are part of a committed trade.</p> <p>No code in this column indicates that the tax lot may be traded.</p> |
| PRICE | Security price per unit. The default price is the previous business day's closing price; however, for clients who receive service from HyperFeed Technologies, 15-minute delayed quotes will be the default prices. The user can edit this field. |
| SECURITY | Ticker symbol. |
| STARTING SHARES | Actual number of shares, bond face value, or cash in the submodel before any account adjustments. |
| MSPSLV | Submodel associated with the tax lot. |
| MSP% | Master model target for each position. |

2) Perform any modifications as required.

- You can adjust cash and existing tax lots by editing the TARGET SHARES or PCT column. Press F7 to recalculate and to view the effect on the portfolio. Tax lots affected by the adjustments are marked with an asterisk (*)
- You can also add new securities as well by pressing F6

After all required adjustments have been made, press F10 to save them and continue.

- b. If MODE is one of the MULTI ACCOUNT CASH options a multiple account selection screen will open.
Select one or more accounts, press F10

| SELECT ACCOUNTS BY SNAM, BNUM OR ACCOUNT PROFILE FIELDS | |
|--|-----------|
| FUNCTION: AND | SEARCH: █ |
| 9466 RECORDS FOUND | |
| Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back | |
| Do you want to use the Master Model in the Account Adjuster? YES F10- GO ESC - QUIT | |

- 1)The ACCOUNT ADJUSTMENT screen for multiple accounts is displayed.

Note: The difference in the Account Adjustment screen between the three "Multi Account" options is the first line of this screen and the header of the second-to-last column. The text displayed corresponds to the Multi Account option selected. In this example the Multiple Account Raise Cash option was selected.

| ACCOUNT ADJUSTMENT: MULTIPLE ACCOUNTS <u>RAISE CASH</u> | | | | |
|--|-------------|--------------|----------------------|--------|
| ENTER 'MAX' TO RAISE AS MUCH AS POSSIBLE F8 WILL 'MAX' ALL ACCOUNTS | | | | |
| ACCOUNT | TOTAL VALUE | CURRENT CASH | CASH TO <u>RAISE</u> | ERRORS |
| ACC566 | 536720.30 | 17242.98 | 0.00 | |
| ACC335 | 310659.07 | 10140.58 | 0.00 | |
| ACC589 | 1910842.44 | 61096.60 | 0.00 | |
| ACC566 | 760097.28 | 25532.30 | 0.00 | |
| ACC554 | 625970.64 | 29491.51 | 0.00 | |
| ACC516 | 296924.20 | 6905.33 | 0.00 | |
| Esc/F3 - Return to Main Screen F8 - Options F-10 - Go | | | | |

- 2)Tab to the CASH TO RAISE/LOWER/ADJUST column and enter the amount of cash to raise, lower, adjust.

A positive number entered indicates cash should be raised in the account and sells should be generated. Positive signage is implied.

A negative number indicates cash should be spent and buys should be generated. The negative sign is mandatory to designate amounts to invest.

Data can be copied and pasted into the "CASH TO..." column. The INSERT/DELETE disabled message that pops up is of no consequence.

Note: The impact of raising or investing in an account is the same as if the cash balance had been manually adjusted in the Single Account Adjustment mode.

3)After entering amounts, press F10 to continue.

7. The system processes the adjustments and, if proposed trades are generated, a trade block is created. The following prompt displays:

```
+-----+1
|ENTER BLOCK NAME (6 CHRS, RET TO ABORT): |
+-----+
```

8. Type the name of the block, and press ENTER. A message indicating that the trading block has been created displays:

```
+-----+
|      AAMSP HAS BEEN LOADED TO THE TRADING SYSTEM      |
+-----+
```

Then, a message indicating the name of the Account Adjuster Summary Report will appear. The report name will consist of the account short name with an extension .LAA.

```
+-----+
|      Account Adjuster Summary Stored in MSP1 .LAA      |
+-----+
```

Viewing the report: To view the report, use the BROWSE Report function in the REPORTS menu. In the left-hand column, the report lists each tax lot and indicates the number of shares, bond face value, or amount of cash and the submodel percent before the adjustment. The change required by the adjustment is indicated in the center column. The amount and submodel percent of each tax lot after the adjustment is indicated in the right-hand column.

| SNAM : CRSNEW | | Account Adjuster Summary | | | | | | | | | PAGE 1 | |
|--------------------|---------|--------------------------|-------------------------------------|--------|------|------------------|-------|------|--------|--------|--------|--|
| Account Number : | | | ----- | | | | | | | | | |
| 09/09/02 3:33 P.M. | | | Account Name : CRS NEW TEST ACCOUNT | | | | | | | | | |
| *****AFTER***** | | | *****BEFORE***** | | | *****CHANGE***** | | | | | | |
| Security | SACUS | Price | Units | Value | Pct | Units | Value | Pct | Units | Value | Pct | |
| CASH-1 | 13321 | 100.000 | 47,427 | 47,427 | 5.12 | 0 | 0 | 0.00 | 47,427 | 47,427 | 5.12 | |
| ATG | 756 | 59.450 | 790 | 46,966 | 5.07 | 0 | 0 | 0.00 | 790 | 46,966 | 5.07 | |
| AXP | 663 | 34.700 | 810 | 28,107 | 3.03 | 0 | 0 | 0.00 | 810 | 28,107 | 3.03 | |
| C | 4362927 | 30.280 | 1,600 | 48,448 | 5.23 | 0 | 0 | 0.00 | 1,600 | 48,448 | 5.23 | |
| CAT | 2191 | 43.200 | 420 | 18,144 | 1.96 | 0 | 0 | 0.00 | 420 | 18,144 | 1.96 | |
| CKFR | 6169459 | 11.700 | 3,050 | 35,685 | 3.85 | 0 | 0 | 0.00 | 3,050 | 35,685 | 3.85 | |
| CKFR | 6169459 | 11.700 | 4,580 | 53,586 | 5.78 | 0 | 0 | 0.00 | 4,580 | 53,586 | 5.78 | |
| CSC | 2890 | 35.970 | 980 | 35,251 | 3.81 | 0 | 0 | 0.00 | 980 | 35,251 | 3.81 | |
| CSCO | 684274 | 13.030 | 2,220 | 28,927 | 3.12 | 0 | 0 | 0.00 | 2,220 | 28,927 | 3.12 | |
| DELL | 487107 | 26.100 | 2,440 | 63,684 | 6.87 | 0 | 0 | 0.00 | 2,440 | 63,684 | 6.87 | |
| DTS | 3619 | 15.360 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | |
| GM | 5098 | 45.800 | 390 | 17,862 | 1.93 | 0 | 0 | 0.00 | 390 | 17,862 | 1.93 | |
| HPQ | 5711 | 13.500 | 2,730 | 36,855 | 3.98 | 0 | 0 | 0.00 | 2,730 | 36,855 | 3.98 | |
| JNJ | 6555 | 54.920 | 1,550 | 85,126 | 9.19 | 0 | 0 | 0.00 | 1,550 | 85,126 | 9.19 | |
| KO | 2625 | 49.890 | 1,410 | 70,345 | 7.59 | 0 | 0 | 0.00 | 1,410 | 70,345 | 7.59 | |
| MMN | 8137139 | 122.630 | 310 | 38,015 | 4.10 | 0 | 0 | 0.00 | 310 | 38,015 | 4.10 | |
| MSFT | 253116 | 47.820 | 770 | 36,821 | 3.97 | 0 | 0 | 0.00 | 770 | 36,821 | 3.97 | |
| MSFT | 253116 | 47.820 | 1,160 | 55,471 | 5.99 | 0 | 0 | 0.00 | 1,160 | 55,471 | 5.99 | |
| ORCL | 253120 | 9.630 | 2,300 | 22,149 | 2.39 | 0 | 0 | 0.00 | 2,300 | 22,149 | 2.39 | |
| PG | 9558 | 89.950 | 440 | 39,578 | 4.27 | 0 | 0 | 0.00 | 440 | 39,578 | 4.27 | |
| SEBL | 2441748 | 8.430 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | |
| TSA | 1718527 | 5.650 | 5,760 | 32,544 | 3.51 | 0 | 0 | 0.00 | 5,760 | 32,544 | 3.51 | |
| WB | 7508598 | 36.240 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | |
| XOM | 5279156 | 34.310 | 2,490 | 85,432 | 9.22 | 0 | 0 | 0.00 | 2,490 | 85,432 | 9.22 | |

Summary Statistics:

| | | |
|-------------------------|------------|--------|
| Market Value: | | |
| Before Rebalancing | 926,422.20 | |
| Market Value: | | |
| After Rebalancing | 926,422.20 | |
| Change in Market Value: | 0.00 | |
| Cash Available | | |
| Before Adjustments: | 47,426.80 | 5.12% |
| Cash Available | | |
| After Adjustments: | 47,426.80 | 5.12% |
| Cash Spent: | 0.00 | 0.00% |
| Equity Value | | |
| Before Adjustments: | 878,995.40 | 94.88% |
| Equity Value | | |
| After Adjustments: | 878,995.40 | 94.88% |
| Change in | | |
| Equity Value: | 0.00 | 0.00% |
| Fixed Income Value | | |
| Before Adjustments: | 0.00 | 0.00% |
| Fixed Income Value | | |
| After Adjustments: | 0.00 | 0.00% |
| Change in | | |

9. To edit and/or commit the trading block, access the BLOCK STATUS option through the Trading menu

Add a security from the Account Adjustment screen

To add a security from the Account Adjustment screen:

1. Press F6
2. Select a submodel
3. Provide the ticker, SACUS, CUSIP, or pool number when prompted. A new tax lot line will appear
4. Edit the TARGET SHARES or PCT column
5. Press F7 to recalculate and to view the effect on the portfolio
6. To access a menu of additional options, press F8. These additional options include:

| Option | Description |
|---------------------------|---|
| OOPS-NEVER MIND | Return to the Account Adjustment screen. |
| OOPS-UNDO WHAT I JUST DID | Undo the last calculation and/or entry made in the Account Adjustment screen. |
| FREEZE OPTIONS | <p>Select different freeze options:</p> <p>RESTRC+TRADES ONLY: Prevents trading in restricted security tax lots and in tax lots that are part of committed trades.</p> <p>EQUITY+RESTRC+TRADES: Prevents trading in equity tax lots, restricted security tax lots, and tax lots that are part of committed trades.</p> <p>FIXED+RESTRC+TRADES: Prevents trading in fixed income tax lots, restricted security tax lots, and tax lots that are part of committed trades.</p> |
| REPRICE OPTIONS | Reprice securities according to the most recent 15minute delayed quotes (for clients who receive this service from Hyperfeed Technologies, Inc.). |
| UNFREEZE OPTIONS | Make previously frozen tax lots available for trading. |
| RESTORE ORIGINAL | Undo all calculations and entries made in the POSITION Account Adjustment screen. |
| ACCOUNT ANALYSIS | A report is generated detailing the effects of the changes made in the Account Adjustment screen. Each tax lot is listed along with the number of units, market value, and percent of the portfolio before and after the adjustments. Changes in the portfolio's yield to maturity and modified duration are also indicated. |
| SORT SCREEN | <p>Change the field by which tax lots are sorted. They can be sorted by:</p> <p>TICK</p> <p>DESCRIPTION</p> <p>YIELD</p> <p>DURATION</p> <p>INDUSTRY</p> <p>PERCENTAGE</p> <p>UNREALIZED G/L</p> |

| Option | Description |
|-----------------------------------|---|
| TOGGLE BETWEEN SHARES AND DOLLARS | This option allows the user to select trading in shares or in dollars when trading mutual funds. |
| ADJUST TO MASTER | This option will appear only if the user answered YESMODEL to the option Do you want to use the Master Model in Account Adjuster? Selecting this option automatically makes adjustments in the Account Adjustment screen to align the portfolio with the master model. |

6.11 Selling untagged lots

If an account has untagged lots, these can be sold using the SELL UNTAGGED LOT functionality. This allows the untagged lots to be sold off automatically without requiring a full account rebalance.

To sell an untagged lot:

1. Select SELL UNTAGGED LOT from the TRADING menu. The Account Selection screen will appear. Either select the account or press F7 for a list of accounts and choose the appropriate account from the list
2. The untagged lots are sold and the MSPXXX.LUT report file is generated. This report lists the sold lots

| MSP Untagged Taxlot Report | | | | | | | | |
|--|--------------|------|-----------|---------------|----------------|---------------|------------|------------------|
| SAMPLE ASSET MANAGEMENT | | | | | | | | |
| As of February 4, 2004 | | | | | | | | |
| Sales of Untagged Taxlots in block: MSP107 | | | | | | | | |
| SNAM | MASTER MODEL | TICK | CUSIP | PURCHASE DATE | SHARES TO SELL | ORIGINAL COST | PROCEEDS | REMAINING SHARES |
| MSP1 | MVCMDM | C | 172967101 | 03/05/02 | 301 | 14,321.92 | 14,758.75 | 0 |
| | | C | 172967101 | 06/21/02 | 2200 | 90,200.00 | 107,800.00 | 0 |

A block is created and can be committed and executed according to standard procedures.

- Splitting Blocks during Commit Process
- e. A feature is available on request to separate (split) blocks by mutual fund, non-mutual fund (e.g., ETF/equity) orders, and fixed income orders during the commit process. Fixed income mutual fund orders will be included in the mutual fund block
- You can create your own 6-character block name when this functionality is used. Please contact InvestCloud for activation.
- f. Please note that for firms with custom block naming, this does not apply
- If this function is available:

g. To ensure that trades are not discarded when a block name is not specified, the following question is presented:

- Are you sure you want to discard all trades? No/Yes?
- Yes (All trades are discarded.)
- No

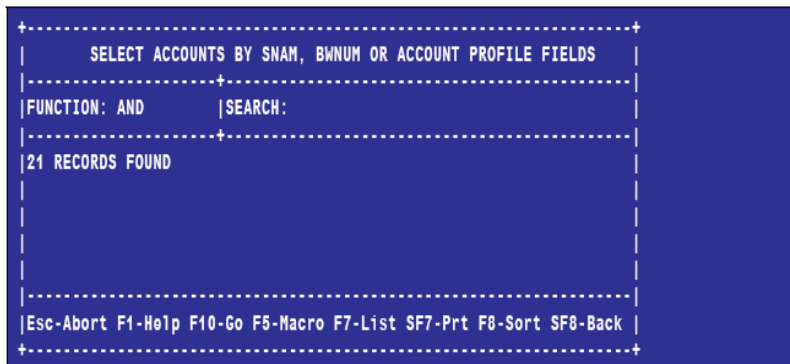
Focus returns to the block naming prompt.

- Enter the block name. If the block name already exists, a message is displayed
- DO YOU WANT TO APPEND TO EXISTING BLOCK XXX?" Yes/No
- Either append the trades to the selected block, or enter a new name

6.12 Adjusting cash between submodels

The MSP Submodel Cash Adjustment screen enables you to move cash between submodels. Use the following steps:

1. Select SUBMODEL CASH ADJUSTER from the TRADING menu. The Account Selection screen will open:



2. Specify the account short names (SNAMs) of the accounts for which you want to adjust cash, and press F10
 - You can display a list of accounts by pressing F7
 - You can select more than one account for this function

The following screen will open:

| MSP Submodel Cash Adjustment Screen | | | | | | |
|-------------------------------------|--------|--------------|--------------|--------------|----------------|----------------|
| SAMPLE ASSET MANAGEMENT | | | | | | |
| 12/04/02 2:38 P.M. | | | | | | 3 |
| SNAM | MODEL | MODEL CASH | CASH ADJMN'T | TOTAL CASH | COMMITTED CASH | AVAILABLE CASH |
| CIFRMI | SUBABC | 940,920.00 | 10.00 | 940,930.00 | 0.00 | 940,930.00 |
| | SUBMVC | 556,280.00 | -10.00 | 556,270.00 | 0.00 | 556,270.00 |
| | MOEREV | 93,600.00 | 0.00 | 93,600.00 | 0.00 | 93,600.00 |
| | SUBDB1 | 319,560.00 | 20.00 | 319,580.00 | 0.00 | 319,580.00 |
| MSP1 | SUBABC | 1,516,983.46 | 0.00 | 1,516,983.46 | 0.00 | 1,516,983.46 |
| | SUBMVC | 1,211,026.78 | -20.00 | 1,211,006.78 | 0.00 | 1,211,006.78 |
| | ABCMVC | 6,776.94 | 0.00 | 6,776.94 | 0.00 | 6,776.94 |
| | MOEREV | 421,545.75 | 0.00 | 421,545.75 | 0.00 | 421,545.75 |
| MSP2 | SUBDB1 | 1,513,692.28 | 0.00 | 1,513,692.28 | 0.00 | 1,513,692.28 |
| | SUBABC | 1,516,983.45 | 0.00 | 1,516,983.45 | 0.00 | 1,516,983.45 |
| | SUBMVC | 1,211,026.76 | 0.00 | 1,211,026.76 | 0.00 | 1,211,026.76 |
| | XYZMVC | 495,087.01 | 0.00 | 495,087.01 | 0.00 | 495,087.01 |

F10 - Save Esc - Quit

| Column | Description |
|----------------|--|
| SNAM | The account short name of the master model. |
| MODEL | The submodels within each master model. |
| MODEL CASH | The amount of uncommitted cash within the submodel. |
| CASH ADJMN'T | <p>Entering amounts in this column enables you to move cash from one submodel to another within a master model. You do this by entering a positive number to add cash, or a negative number to remove cash.</p> <p>The amounts in this column are changed to zero when trades are posted overnight. Any cash adjustments are posted to the general ledger for the account.</p> <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p>Note: The positive and negative amounts you enter must be in balance, otherwise an error message is displayed when you try to save the screen. Cash can only be adjusted between submodels within accounts. Cash cannot be moved between accounts using this method.</p> </div> |
| TOTAL CASH | Total cash within the submodel after the cash adjustment. |
| COMMITTED CASH | Cash committed to trades that have not yet posted. The amounts in this column are changed to zero when trades are posted overnight. |
| AVAILABLE CASH | Total cash, less committed cash. |

6.13 Tagging UMA transactions

Once any UMA trade is executed and placed in the portfolios through end-of-day processing, each tax lot is tagged with the associated submodel in the MSP field in EDPORT, level 5.

| (0) | MVC001 | ACNUM: | 0 | | | | | |
|------|--------|---------|-----------|----------|--------|-------|-------|--------|
| (1) | TICK | SACUS | UNITS | YLDCST | AMTHTH | AMTDT | AMTPR | MSP |
| (2) | ---- | ----- | ----- | ----- | ----- | ----- | ----- | --- |
| (3) | AIG | 756 | 1100.0000 | 0.000000 | BLANK | 0 | 0.00 | CRS2 |
| (4) | AIG | 756 | 1700.0000 | 0.000000 | BLANK | 0 | 0.00 | CRS2 |
| (5) | CKFR | 6169459 | 3800.0000 | 0.000000 | BLANK | 0 | 0.00 | CRS2 |
| (6) | CKFR | 6169459 | 8200.0000 | 0.000000 | BLANK | 0 | 0.00 | CRS2 |
| (7) | CSCO | 684274 | 4800.0000 | 0.000000 | BLANK | 0 | 0.00 | CRS2 |
| (8) | CSCO | 684274 | 8800.0000 | 0.000000 | BLANK | 0 | 0.00 | CRS2 |
| (9) | DELL | 487107 | 4700.0000 | 0.000000 | BLANK | 0 | 0.00 | CRS1 |
| (10) | DELL | 487107 | 5800.0000 | 0.000000 | BLANK | 0 | 0.00 | ABCLCG |
| (11) | IBM | 6273 | 400.0000 | 0.000000 | BLANK | 0 | 0.00 | CRS1 |
| (12) | IBM | 6273 | 1100.0000 | 0.000000 | BLANK | 0 | 0.00 | CRS2 |
| (13) | IBM | 6273 | 1700.0000 | 0.000000 | BLANK | 0 | 0.00 | CRS1 |
| (14) | IBM | 6273 | 1700.0000 | 0.000000 | BLANK | 0 | 0.00 | CRS2 |

All cash transactions related to specific submodels are similarly tagged in the MSP field in EDGL. These transactions include:

- Dividend payments
- Coupon payments
- Movements of cash from one submodel to another resulting from master model rebalancing. These movements of cash between submodels are coded with the following trade types

MSPRCV: Cash is added to the submodel.

MSPDLV: Cash is deducted from the submodel.

Note: The MSPRCV and MSPDLV transactions will always net to zero since these are only internal flows of cash which do not affect the total amount of cash in the portfolio.

| (0) | INCOME CASH LEDGER FOR: SNAM= MSP1 BWNUM: - RR: 45 MGR: MSP | | | | | | |
|------|---|--------|---------|----------|-------|------------|-----------------------|
| (1) | TRDTY | TICK | SACUS | DATE | UNITS | \$ AMOUNT | MSP DESCRIPTION |
| (2) | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| (3) | OPE | CASH-1 | 13321 | 20020304 | 0 | 5000000.00 | BLANK **OPENING |
| (4) | RCV | WMT | 12516 | 20020324 | 0 | 0.00 | BLANK 0.00% STOCK DI |
| (5) | DIV | KO | 2625 | 20020401 | 3140 | 628.00 | BLANK -COCA COLA CO |
| (6) | RCV | WMT | 12516 | 20020406 | 0 | 0.00 | BLANK 0.00% STOCK DI |
| (7) | DIV | DCX | 4402680 | 20020411 | 1716 | 1716.24 | SUBMVC -DAIMLERCHRYSL |
| (8) | RCV | WMT | 12516 | 20020427 | 0 | 0.00 | BLANK 0.00% STOCK DI |
| (9) | DIV | C | 4362927 | 20020524 | 3151 | 567.10 | SUBMVC -CITIGROUP INC |
| (10) | DIV | F | 6158473 | 20020603 | 4638 | 463.82 | SUBMVC -FORD MTR CO D |
| (11) | DIV | IBM | 6273 | 20020610 | 1416 | 212.46 | SUBMVC -I B M |
| (12) | MSPDLV | CASH-1 | 13321 | 20020625 | 0 | -174932.05 | CRS1 MSP SUBMODEL T |
| (13) | MSPDLV | CASH-1 | 13321 | 20020625 | 0 | -65517.95 | CRS2 MSP SUBMODEL T |

Security and general ledger transactions are each tagged to allow performance calculations for each submodel.

6.14 Intraday Cash Adjuster

The Intraday Cash Adjuster tool allows master managers and submanagers to add or modify real-time cash deposits and withdrawals to sleeves.

In addition, master managers can add or modify cash adjustments to the total account and have cash allocated to the individual sleeves based on the master model cash target or based on submodel drift according to the client's configuration.

Master managers can opt to post cash adjustments to the General Ledger (EDGL). If this option is not selected, cash adjustments are automatically deleted at the end of the day.

In addition, master managers and submanagers can load a .CSV file of transactions to the Intraday Cash Adjuster.

Optionally, cash adjustments can be entered and automatically traded with the immediate launching of a drift-based trade generation process. See the section, "Trade Cash Adjustments" for instructions. Contact your InvestCloud Representative for information on enabling this feature

This service-based solution allows for concurrent access by multiple users.

Note: Contact InvestCloud to add the Intraday Cash Adjuster to your UMA menu.

If you use the existing Add Intraday Cash option from the Windows menu, you can request to replace it with the UMA version. If you choose to add the Intraday Cash Adjuster to the UMA menu, the Add Intraday Cash option on the Windows menu is disabled in the UMA universe only.

General Work Flow

1. Select Intraday Cash Adjuster from the Trading Menu
2. Select one or more accounts
3. Take one of the following actions:

Add an adjustment transaction.

Modify a transaction.

Delete one or more transactions.

Upload adjustments from a .csv file.

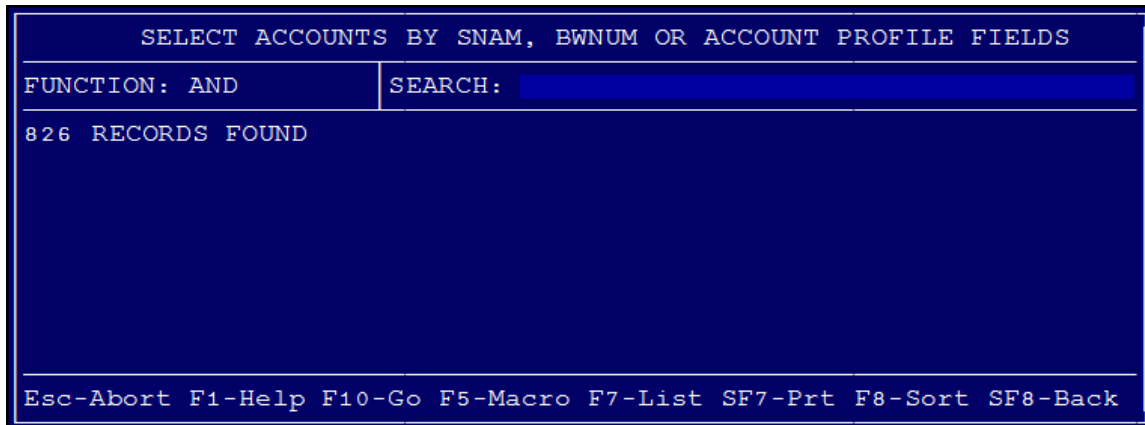
If enabled, add and trade new cash adjustments.

Account Selection

Existing transactions display only for the selected accounts. Transactions can be added or uploaded for an account that was not previously selected. The account is added to the account selection so that transactions for that account can be viewed.

Note: When adding new entries, only one valid account needs to be entered to launch the Cash Adjuster screen. Use of Account Selection for multiple accounts is best suited for when multiple transactions need to be edited or deleted.

1. From the TRADING menu, select INTRADAY CASH ADJUSTER. The Account Selection screen is displayed



```
SELECT ACCOUNTS BY SNAM, BWNUM OR ACCOUNT PROFILE FIELDS
-----
FUNCTION: AND      SEARCH:
-----
826 RECORDS FOUND
-----
Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back
```

2. Enter account ID(s) or search criteria in the SEARCH box and press Enter. The number of records found is noted. Filter or add to selection if needed using the AND or OR options
3. Press F10 - Go to proceed with the selected accounts
4. The Cash Adjuster screen is displayed

Cash Adjuster Screen

The Cash Adjuster screen displayed when accessed from the Master Manager Trading menu is different than the one displayed when accessed from the Submanager Trading menu. The differences are:

Master Manager

- Has Post to Ledger option (YES/NO)
- Selecting a sleeve is optional

Submanager

- Does not have Post to Ledger option
- Selecting a sleeve is required
- Additional column, A (Actor)
 - m means the proposed transaction was entered by the master manager and cannot be edited or deleted by the submanager
 - s means that the proposed transaction was entered by the submanager and can be edited or deleted

Sample Master Manager Cash Adjuster Screen

Below is a sample of the Cash Adjuster screen that displays for a master manager after selecting accounts without prior transactions.

```

Transaction Type: [REDACTED]      Account ID:      Sleeve: BLANK
      Date: 12/02/15      Amount:      0.00 Ticker: CASH-1
      Description: MM ICA      Post to Ledger: YES
-----
F3:Exit   F7:Upload   F8:Select Transaction   F10:Add Above Transaction
-----
Type  SNAM   Account Sleeve Date Amount Post Tick Description User
-----

```

Sample Submanager Cash Adjuster Screen

Below is a sample screenshot of the Cash Adjuster screen that displays for a submanager after selecting accounts without prior transactions.

```

Transaction Type: RCV      Account ID:      Sleeve:
      Date: 12/01/15      Amount:      0.00 Ticker: CASH-1
      Description: Intraday Cash Adjuster
-----
F3:Exit   F7:Upload   F8:Select Transaction   F10:Add Above Transaction
-----
Type  SNAM   Account A Sleeve Date Amount Post Tick Description User
-----

```

Add Transactions

To add a transaction, follow these steps:

1. Select or enter a value for each adjustment parameter. Refer to the table below for parameter descriptions and options
2. Select F10: Add Above Transaction to add the transaction
3. A confirmation message, "Are you sure you want to add this transaction?" displays
 - a. Select YES to add the transaction. A summary message is displayed. Press Esc.to return to the entry screen. The new transaction is displayed on the bottom section of the screen
 - b. Select NO to return to the entry screen without adding the transaction
4. Once all transactions have been added, select F3: Exit to close the function

Notes:

- Except for MSPRCV and MSPDLV, duplicate entries where Type, Sleeve and Amount are identical are not allowed
- Duplicate entries are also not allowed for an entire set of identical MSPRCV/MSPDLV entries

Sample (Master Manager) screen with entered transactions

| Transaction Type: ██████ | | Account ID: | | Sleeve: BLANK | | | | | |
|---|--------|---------------------|--------|---------------------------|---------|------|--------|-------------|--------|
| Date: 12/02/15 | | Amount: | | 0.00 Ticker: CASH-1 | | | | | |
| Description: MM ICA | | Post to Ledger: YES | | | | | | | |
| F3:Exit | | F7:Upload | | F8>Select Transaction | | | | | |
| | | | | F10:Add Above Transaction | | | | | |
| Type | SNAM | Account | Sleeve | Date | Amount | Post | Tick | Description | User |
| DLV | ACCT01 | ACCT01 | BLANK | 12/02/15 | 5000.00 | NO | PNDDL | MM ICA | USER01 |
| RCV | ACCT02 | ACCT02 | SLV01 | 12/02/15 | 1000.00 | YES | CASH-1 | MM ICA | USER02 |

Note: Type, Account, Date, Post, Tick and Description can have default screen values controlled via configuration. Contact your InvestCloud Client Account Manager for additional information.

| Column name | Description |
|-------------|---|
| Type | <p>Transaction Type</p> <p>Enter the Transaction type or press F1 to select the transaction type from the list. Transaction types include:</p> <p>DLV - Deliver</p> <p>DLVINC - Deliver Income</p> <p>RCV - Receive</p> <p>RCVINC - Receive Income</p> <p>FEEADV - Advisory Fee</p> <p>Master Managers Only: Not available to Submanagers:</p> <p>MSPRCV- Intra-sleeve cash flows - cash into a sleeve</p> <p>MSPDLV - Intra-sleeve cash flows - cash out of a sleeve</p> |

| Column name | Description |
|-------------|--|
| | <p>Note: The pairing of MSPRCVs and MSPDLVs must have valid sleeve tags and net to zero (0).</p> |
| SNAM | <p>Displayed as column in table section only.</p> <p>SNAM of account</p> |
| Account | <p>Account ID</p> <p>Enter the account number. Acceptable options include:</p> <p>SNAM</p> <p>DTCNO</p> <p>BWNUM</p> |
| A | <p>Displayed as column in table section only.</p> <p>Actor</p> <p>Appears only on Submanager screen:</p> <p>m means the proposed transaction was entered by the Master Manager and cannot be edited or deleted by the Submanager.</p> <p>s means that the proposed transaction was entered by the Submanager and can be edited or deleted.</p> |
| Sleeve | <p>Enter the sleeve name. Enter the name or press F1 to select a submodel from the list.</p> <p>Master managers can select BLANK for account level transactions and automatically allocate cash to the sleeves or select a sleeve.</p> <p>Submanagers must select a sleeve.</p> <p>Note: Sleeves that are not currently in the master model but have cash are listed.</p> |
| Date | <p>Editable with default of today's date. Can be either today's date or prior business day.</p> |
| Amount | <p>Enter the adjustment dollar amount.</p> |
| Post | <p>Specify whether to post the transaction overnight to EDGL.</p> <p>Master Manager only.</p> |

| Column name | Description |
|-------------|---|
| | <p>Notes:</p> <ul style="list-style-type: none"> • If posting is not allowed, the value in the POST field cannot be changed • If posting is allowed, change the value to YES to post transactions to EDGL during the end-of-day posting process. Cash adjustments are posted with the current date • If NO is selected, adjustments are deleted as part of the end-of-day process |
| Tick | <p>Ticker</p> <p>Enter the Ticker. Valid options are:</p> <p>CASH-1</p> <p>PNDDL</p> <p>Note: For pending withdrawals, the transaction type must be DLV or DLVINC.</p> |
| Description | Modify the default description as needed. |
| User | <p>Displayed as column in table section only.</p> <p>User ID of the person who last modified the adjustment.</p> |

Functional Keys for Add Cash Adjustment

| Key | Description |
|-----|---|
| F1 | List value options |
| F3 | Exit the screen without saving changes. |
| F7 | <p>Upload .csv file.</p> <p>See the Upload Cash Adjustments section below for details.</p> |
| F9 | Scroll through value options |
| F8 | Select Transaction |
| F10 | Add the transaction from the top section of the screen to the bottom section of the screen. |

Upload Cash Adjustments

New cash adjustment transactions can be uploaded from a “.csv” formatted file, provided those accounts exist within the trading universe. The file must exist in the user directory and have a .csv format.

File Upload Layout

The easiest way to create the file would be to create it in Excel and then save it as a .csv file.

Do not include headers or footers in the file -- just the data.

Best practice is to ensure one transaction per combination of account and sleeve.

Example:

| Transaction Type | Account ID | Sleeve | Ticker | Amount | Post | Description |
|------------------|------------|--------|--------|----------|------|-------------|
| DLV | A11111 | BLANK | CASH-1 | 10000.00 | NO | Withdrawal |
| RCV | A22222 | SUBONE | CASH-1 | 20000.00 | YES | Deposit |

Post

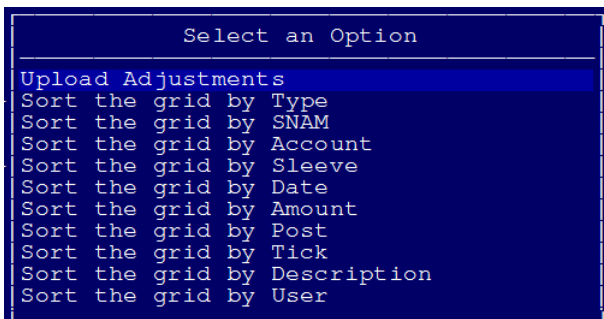
- Post is not an option at the Sleeve Manager level. Only Overlay Managers can enter transactions with the option of “Post = YES”

Sleeve

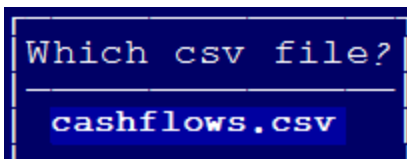
- If the entry has untagged/blank sleeves, either leave the sleeve blank or enter BLANK. Tagged transactions require a valid sleeve
- For Overlay Managers, the file can have both general and sleeve specific transactions
- For Sleeve Managers, only sleeve specific transactions are accepted
- Each MSPRCV/MSPDLV set of transactions must be tagged and net to zero. All existing entries are then treated as one set

Upload files

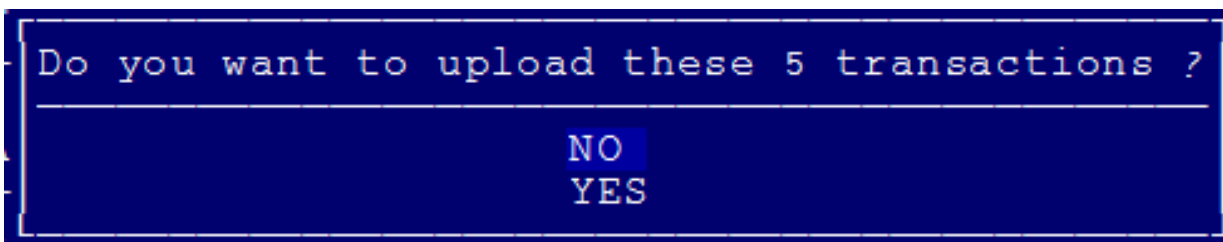
1. From the Cash Adjuster screen, Press F7. From the edit screen press F8: Options
 - a. If coming from the Add Cash Adjustments screen, continue with step 2
 - b. If coming from the edit screen, the following menu displays. Choose Upload Adjustments



2. From the next pop-up, select the file to be uploaded



3. A confirmation message displays



4. Select YES to upload the transactions

Selecting NO results in a “No transactions were uploaded” message being displayed.

5. The cash summary message is displayed showing successful and failed transactions. Press Esc to return to the Cash Adjuster screen

```

----- HIT ESCAPE TO EXIT -----
Add Transaction:
-----
Account Sleeve      Beginning      Ending
Cash              Change        Cash
ACCT01  BLANK    21,454.57  4,500.00  25,954.57  SUCCESS  Message
    
```

Edit or Delete Cash Adjustments

To edit, delete or sort existing cash adjustments follow these steps:

1. Navigate to the Intraday Cash Adjuster screen for the desired accounts
2. Select F8: Select Transaction to display the edit screen

```

Transaction Type: ----- Account ID: -----
Date: ----- Amount: ----- Ticker: -----
Description: ----- Post to Ledger: ---
-----
Type   Account Date      Amount Post Tick  Description  User
-----
DLV    ACCT01  .2/02/15  300.00 NO  CASH-1  CASH
DLVINC ACCT02  12/01/15  400.00 NO  CASH-1  CASH
    
```

F3:Exit F6:Delete F7>Edit F8:Options F9:More

2. Perform one of the following actions

SORT

- a. To sort cash transactions in order to better find a transaction to edit or delete, select F8: Options and choose a sort option from the list presented

```

Select an Option
-----
Upload Adjustments
Sort the grid by Type
Sort the grid by Account
Sort the grid by Date
Sort the grid by Amount
Sort the grid by Post
Sort the grid by Tick
Sort the grid by Description
Sort the grid by User
    
```

- b. The transactions are sorted within the modification screen by the option selected

EDIT

- a. To edit a cash transaction, arrow down to the transaction to be edited and mark it by typing any letter into the left-most column
- b. Select F7: Edit. The selected transaction parameters are displayed in the upper portion of the edit screen
- c. Edit any editable parameter values then select F10: Add Above Transaction
- d. A view of the old and new parameter values displays. Select YES to save the edits or NO to return to the edit screen without saving
- e. If YES is selected, the old transaction is deleted and new one is added. A message displays the reversal of the old transaction and the addition of the new one. Press Esc to return to the edit screen

DELETE

- a. To delete cash transactions, arrow down to the transactions to be deleted and mark each by typing any letter into the left-most column
- b. Select F6: Delete
- c. A confirmation message is displayed. If one transaction was selected a summary of it displays. If multiple transactions were selected a general message displays without the summary

Select YES to delete the transactions or NO to abort the process and return to the edit screen.

- d. If YES, the selected transactions are deleted and a summary message is displayed. Press Esc to return to the edit screen
3. Once all modifications are complete select F3: Exit to return to the Intraday Cash Adjuster screen

Trade Cash Adjustments

This feature is available upon request.

If automatic trading for entered cash flows has been enabled, follow these steps to enter adjustments and immediately trade them using the assigned model.

- For account level transactions, one transaction per account can be entered (master manager only)
 - For sleeve specified transactions, multiple transactions per account can be entered, one per sleeve
 - Sleeve specific and account level transactions cannot be entered for the same account (master manager only)
1. Select Intraday Cash Adjuster from the trading menu
 2. A prompt is displayed. Choose to either:
 - a. Enter and edit cash adjustments without trading them using the standard workflow described above, or
 - b. Enter adjustments and initiate the drift-based trade generation process

Do you want to trade cash flows?

3. Select YES to enter cash adjustments and automatically trade them
4. The Intraday Cash Adjuster screen is displayed. No existing transactions are displayed

```
Transaction Type: [ ] Account ID: Sleeve: BLANK
Date: 12/02/15 Amount: 0.00 Ticker: CASH-1
Description: MM ICA Post to Ledger: YES
F3:Exit F7:Upload F8:Select Transaction F10:Add Above Transaction F11:Trade
Type SNAM Account Sleeve Date Amount Post Tick Description User
```

5. Create cash adjustments by entering or selecting parameters

| Parameter | Description/Options |
|------------------|--|
| Transaction Type | Choose RCV or DLV. |
| Account ID | Enter Valid account ID (SNAM, BWNUM, or DTC1/2). |
| Sleeve | Master managers can select BLANK for account level transactions or select a sleeve. Submanagers must select a sleeve. |
| Date | Date defaults to today's date and is not editable. |
| Amount | Enter the dollar amount of the cash flow. |
| Ticker | Choose CASH-1 or PNDDL PNDDL (pending deliveries) are DLV transactions only |
| Post to Ledger | Choose YES to post to the General Ledger or NO (master manager only). |
| Description | Displays an editable default description. |

Note: As an alternative, upload a .csv file containing flows, one per account or per sleeve, by selecting the F7: Upload screen option and follow the standard workflow described earlier in this chapter.

6. Select F10: Add Above Transaction to add the transaction
7. A confirmation message, "Are you sure you want to add this transaction?" displays
 - a. Select YES to add the transaction. The cash summary message is displayed. Press Esc.to return to the Cash Adjuster screen which will include the new transaction

```
— HIT ESCAPE TO EXIT —
Add Transaction:
Account Sleeve Beginning Ending
Cash Change Cash Status Message
ACCT01 BLANK 21,454.57 4,500.00 25,954.57 SUCCESS
```

- b. Select NO to return to the Cash Adjuster screen without adding the transaction

Note: To exit the Intraday Cash Adjuster, select F3: Exit. If no transactions have been entered the function closes and focus returns to the Trading menu. If there are transactions, a warning message is displayed

Are you sure you want to exit? Transactions have been saved but will not be traded, No/Yes

To exit select YES. Otherwise select NO to have the function remain open.

- Added transactions can be edited or deleted prior to launching trade generation

To edit or delete transactions, select F8: Select Transaction and follow the standard workflow described earlier in this chapter.

8. Select F11: Trade to define trade options and initiate trading. The Trade Cash Flow screen will open

```
12/02/15 12:40 P.M.
TRADE CASH FLOW
Trade Method      : TRADE CASH TO TARGET
Use Minimum Table : NO
Apply Wash Sale   : YES
Block Title       :
F-1 Help   F-3 Exit   F-9 Cycle   F-10 Go
```

9. Edit the trade options if needed:

- Trade Method
 - Select TRADE TOTAL DOLLAR to trade the total amount of the cash flow regardless of current cash available
 - Select TRADE CASH TO TARGET to trade the amount of the flow while keeping cash to target. The total cash flow may not be traded if cash is above or below the target
- Use Minimum Table
 - Select YES to apply rules from the Minimum and Rounding Table (MRT)

This requires that Minimum and Rounding Table (MRT) be enabled. The system defaults are used if not enabled.

- Select NO to use the system defaults

Trades are rounded to whole units. Units defined as follows:

- Equity - 1 share
- BONDS - 1000 of original face

- Mutual Funds - 0.0001 share for unit trades and \$1 for dollar trades
 - Apply Wash Sale - Choose YES or NO
 - Block Title - Enter a title for the trade block or, if one is not entered, the default title is used
10. Select F-10 Go to initiate trading. A confirmation message is displayed. Select YES to confirm the action
11. The entered flows are processed
- Account, semi global, and global restrictions are applied by default
 - For model HOLD and Replacement Securities, when investing receipts of cash, securities with sub-model HOLD designations are not purchased. The portion allotted to the HOLD security is left in cash or invested in the replacement security if there is one designated and the replacement security is currently held in the account. This is true for cases where trades are generated based on drift and the HOLD security is underweighted or there is no drift and prorated trades are generated

The Hold and Replace process and the Restriction validation process are separate and independent of each other. Restriction validation does not recognize model security replacements. It validates against the securities held in the account.

- If trades are generated a block is loaded to Block Order Status
- If trades were generated, an output report, CASHFLOWTRADING.LXX, is generated showing current, target and drift values in dollars and percent
- If exceptions occur, an exceptions report, CASHFLOWPROBS.LXX, is generated showing differences between the requested scenario and actual results

Trading Account Level Cash Flows

(Master manager only)

Trade Process

Trades are generated based on drift starting with most drifted sleeves, selling from the most overweight positions or buying into most underweight positions.

If trading is still required after drift is mitigated, a second pass generates prorated trades. If there is no drift, an initial pass is made, generating prorated trades.

Drift is calculated based on pre-cash flow actual sleeve values and post-cash flow target sleeve values.

Note: Overweight and underweight positions are considered when drift is calculated for trading purposes. Trading Targets are adjusted due restrictions and need to sum to 100% just as Model Targets do.

As a result of restrictions with a restriction method of Leave in Cash, the Trading Target % for cash is adjusted and may not match the Model Target %.

If Cash Available After Trades is above target when Trade Method is set to Cash To Target, review the account for extensive buy restrictions on underweight securities, i.e. recent tax harvest.

Cash Reallocation

After trades have been generated, in order to align cash allocations more closely with proposed trades, cash is reallocated by sleeve drift starting from the most drifted sleeve based on relative drift. If any cash is left after the most drifted sleeve is brought to target, it is allocated to the next drifted sleeve and so on.

Reallocation does not consider whether trades were generated, whether they were generated in the most drifted sleeve or another sleeve, or whether the trade amount is the same or different from the cash flow amount.

The intra-account transactions MSPRCV and MSPDLV are used to reallocate cash. The transactions are added to the Intraday Cash Adjuster with the same POST indicator as the original cash flow transaction and the description, ICA ADJUSTMENT.

MSPDLV transactions are allowed in both modelled and non-modelled sleeves. MSPDLVs for non-modelled sleeves can be deleted as long as the total of all MSPDLV and MSPRCV transactions in a group net to zero (0).

Trading Sleeve Cash Flows

Trade Process

When sleeve cash flows are entered, only sleeves with cash flows are considered for trading. Trades are based on actual sleeve market value.

For DLV transactions, overweight securities are traded first. If there are no overweight securities, the cash is prorated across all securities in the sleeve.

For RCV transactions, underweight securities are traded first. If there are no underweight securities, the cash is prorated across all securities in the sleeve.

If the desired amount of cash cannot be raised/invested from the sleeve, the process will not continue.

Intraday Cash Adjuster Trading Results Reports

Trading Output Report

This report, CASHFLOWTRADING.LXXX, shows changes in the accounts' holdings structure due to the trading process. Before and after market value, target, and, drift information demonstrate the effects of proposed trades on each account.

| Cash Flow Trade Report | | | | | | | | | | |
|--|-----------|----------------|-----------------|------------------------|-------------------------|------------------------|-----------------------|-----------|-------|------------|
| Investment Management | | | | | | | | | | |
| TRADE ENTIRE ACCOUNT; TRADE CASH TO TARGET | | | | | | | | | | |
| Block Name: MSP000 | | | | | | | | | | |
| Master Model: MASTER MODEL 01 | | | | | | | | | | |
| Mr. John Doe | | | | | | | | | | |
| Number of Accounts: 1 of 1 | | | | | | | | | | |
| Contribution: 2,000.00 | | | | | | | | | | |
| Sub Model | Current % | Current MV | Target % | Contrib Allocation, \$ | Target \$ After Contrib | Drift \$ After Contrib | Drift % After Contrib | | | |
| SUBM01 | 100.00 | 20,000 | 100.00 | 2,000 | 22,000 | -2,000 | -10.00 | | | |
| TOTAL | 100.00 | 20,000 | 100.00 | 2,000 | 22,000 | -2,000 | -10.00 | | | |
| Sub Model | Security | Starting units | Starting Amount | Security drift % | Security drift \$ | Trade units | Trade Amount | New Units | New % | New Amount |
| SUBM01 | CASH-1 | 2,000 | 2,000 | 5.00 | 1,000 | 0 | 0 | 2,050 | 9.32 | 2,050 |
| SUBM01 | TICK01 | 1,000 | 10,000 | 30.00 | 6,000 | 0 | 0 | 1,000 | 45.45 | 10,000 |
| SUBM01 | TICK02 | 200 | 3,000 | -25.00 | -3,000 | 130 | 1,950 | 330 | 22.50 | 4,950 |
| SUBM01 | TICK03 | 50 | 5,000 | -10.00 | -2,000 | 0 | 0 | 50 | 22.73 | 5,000 |
| | | 20,000 | | | | 1,950 | | | | 22,000 |
| Cash Available After Trades (Total Account): | | | | \$2,050.00 | 9.32% | | | | | |

Note: If Cash Available After Trades is above target when Trade Method is set to Cash To Target, review the account for extensive buy restrictions on under-weight securities, i.e. recent tax harvest.

Exceptions Report

The Cash Flow Trading Exceptions Report, CASHFLOWPROBS.LXXX, is divided into sections; each detailing different types of exceptions encountered.

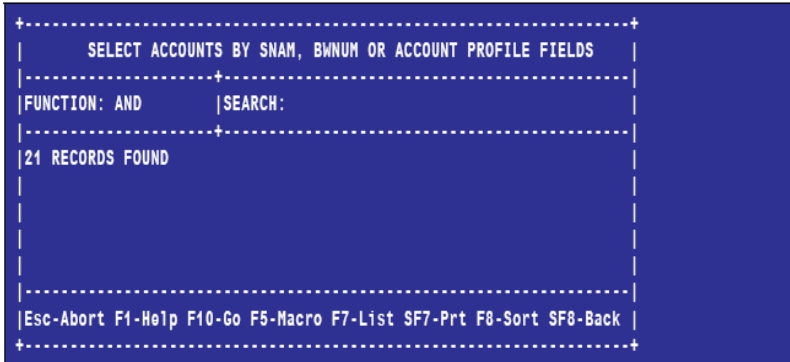
| Cash Flow Trading Exceptions Report | | | | | | | PAGE 1 |
|--|--------------|------------------|------------------|---------------------------|--------------|------------|--------------|
| Report Created: 08/01/14 3:55 P.M. | | | | | | | |
| Adjusted Cash Flow Amount reflects adjustments due to starting negative cash, cash restriction, or available cash. | | | | | | | |
| Example reasons why the cash flow amount was NOT met: Rounding and Minimum Lots, wash Sale Violations, Restrictions | | | | | | | |
| The following accounts did not trade the full cash flow amount: | | | | | | | |
| Account Number | Account Name | Transaction Type | Cash Flow Amount | Adjusted Cash Flow Amount | Trade Amount | Difference | |
| 000000000 | Account 000 | Contribution | 1,000.00 | 1,000.00 | 800.00 | 200.00 | |
| 111111111 | Account 111 | Withdrawal | 10,000.00 | 12,000.00 | 7,000.00 | 5,000.00 | |
| Cash Flow Trading Exceptions Report | | | | | | | PAGE 2 |
| Report Created: 08/01/14 3:55 P.M. | | | | | | | |
| The following orders are invalid because they did not meet the minimum trade amount. The value of the minimum trade amount reflects either the entered minimum dollar amount or calculated value based on the entered percent of market value or number of shares. | | | | | | | |
| Account | Sleeve | Minimum Type | Minimum Basis | Minimum Amount | Tick | Side | Trade Amount |
| 222222222 | SUBM01 | Expert Group | Shares | 7,500.00 | TICK01 | BUY | 1,050.00 |

6.15 Automatically selling untagged lots

You may sell untagged securities from an account without requiring a full account rebalance using the Sell Untagged Lots tool. This tool automatically sells off all untagged securities for chosen accounts, allowing the proceeds to be distributed to all the submanagers for each account. It also creates a block of trades with specific versus purchase dates. However, having versus purchases within a block can be problematic for certain custodial interfaces, in which case you are allowed to create a trade block without versus purchase dates.

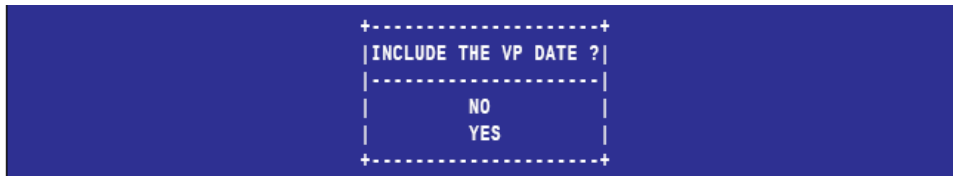
Note: This function is run in batch overnight. To add this option, contact InvestCloud to reconfigure the batch version of this function to create the block of trades without the versus purchase dates.

1. Select SELL UNTAGGED LOTS from the Trading Menu. The Account Selection screen will appear:



2. Specify the account short names (SNAMs) of the accounts for which you want to adjust cash and press F10
 - You can display a list of accounts by pressing F7
 - You can select more than one account for this function

The following screen will open:



3. To include versus purchase dates, choose YES. Otherwise, choose NO. The MSP Untagged Taxlot Report, bearing a file name MSPnnn.LUT, is created

| MSP Untagged Taxlot Report | | | | | | | | |
|--|--------------|------|-----------|---------------|----------------|---------------|------------|------------------|
| SAMPLE ASSET MANAGEMENT | | | | | | | | |
| As of May 20, 2005 | | | | | | | | |
| Sales of Untagged Taxlots in block: MSP003 | | | | | | | | |
| SNAM | MASTER MODEL | TICK | CUSIP | PURCHASE DATE | SHARES TO SELL | ORIGINAL COST | PROCEEDS | REMAINING SHARES |
| MSP1 | MVCMDM | C | 172967101 | 03/05/02 | 301 | 14,321.92 | 14,457.53 | 0 |
| | | C | 172967101 | 06/21/02 | 2200 | 90,200.00 | 105,600.00 | 0 |
| | | C | 172967101 | 06/28/02 | 1000 | 39,190.00 | 48,000.00 | 0 |
| MSP2 | MVCMDM | C | 172967101 | 03/05/02 | 301 | 14,321.92 | 14,457.53 | 0 |
| | | C | 172967101 | 06/21/02 | 2200 | 90,200.00 | 105,600.00 | 0 |
| | | C | 172967101 | 06/28/02 | 1000 | 39,190.00 | 48,000.00 | 0 |
| MSP3 | MVCMDM | C | 172967101 | 03/05/02 | 301 | 14,321.92 | 14,457.53 | 0 |
| | | C | 172967101 | 06/21/02 | 2200 | 90,200.00 | 105,600.00 | 0 |
| | | C | 172967101 | 06/28/02 | 1000 | 39,190.00 | 48,000.00 | 0 |
| MSP4 | MVCMDM | C | 172967101 | 03/05/02 | 301 | 14,321.92 | 14,457.53 | 0 |
| | | C | 172967101 | 06/21/02 | 2200 | 90,200.00 | 105,600.00 | 0 |
| | | C | 172967101 | 06/28/02 | 1000 | 39,190.00 | 48,000.00 | 0 |
| MSP5 | MVCMDM | C | 172967101 | 03/05/02 | 301 | 14,321.92 | 14,457.53 | 0 |
| | | C | 172967101 | 06/21/02 | 2200 | 90,200.00 | 105,600.00 | 0 |
| | | C | 172967101 | 06/28/02 | 1000 | 39,190.00 | 48,000.00 | 0 |
| MSP6 | MVCMDM | C | 172967101 | 03/05/02 | 301 | 14,321.92 | 14,457.53 | 0 |
| | | C | 172967101 | 06/21/02 | 2200 | 90,200.00 | 105,600.00 | 0 |
| | | C | 172967101 | 06/28/02 | 1000 | 39,190.00 | 48,000.00 | 0 |

6.16 TBA Swap Trading Tool

A TBA trade represents a contract for the purchase or sale of mortgage-backed securities to be delivered at a future agreed-upon date. The specific pool numbers of the pools that will be delivered to fulfill the trade obligation or terms of the contract are unknown at the time.

The tool is used to exchange currently held TBA security positions for actual bonds delivered in accounts that hold these fixed income securities.

UMA users are able to allocate bonds across multiple sleeves for UMA accounts. When selected, the tool will automatically apply the correct sleeve tags based on the selected TBA positions within each selected account.

Users can allocate multiple delivered pools to a single TBA Bond held in the selected accounts.

Accessing the UMA Tool:

1. Select Tool from the Trading Tools menu to access the tool

```
DELIVERY OF TO BE ANNOUNCED MORTGAGE BONDS
-----
TBA : (TICKER/CUSIP/SACUS)
TAX LOTS DATED : 00/00/00 TO : 06/02/11
DESCRIPTION :

MULTIPLE POOLS : NO
DELIVERED BOND : (CLOSEOUT/TICKER/CUSIP/SACUS)
TOTAL FACE DELIVERED :
DESCRIPTION :
DELIVERED BOND PRICE :
DELIVERED BOND FACTOR :

SUBMODEL SELECTION : *ALL SUBMODELS

ESC,F3-ABORT F1-HELP F10-EXECUTE
```

2. Enter the following criteria:
 - TBA identifier
 - Desired tax lot dates
 - Specify whether you are swapping one or multiple pools
 - for one delivered bond, select NO and enter the identifier and total fax delivered on this screen
 - for multiple delivered bonds select YES

The Delivered Bonds input screen will appear when you press F10.

CLOSEOUT

The close-out feature enables you to close out TBA positions that remain after a deliver of less than the full amount of the TBA face purchased.

To use this feature:

1. Enter CLOSE-OUT or -CLSOUT as the delivered bond
2. Proceed at this point as if this were a normal allocation

When the information is saved, the TBA positions are sold at cost, but nothing is purchased. The trade date is the date you purchased the TBA position. If you have an under-delivery that contains multiple pools, then close out the position first and commit it. In this way, the pool can be allocated using the automatic spread features. These are accessed by using F8 on the date detail screen.

3. Select all, multiple or one sub model
4. Press F1 for the list of options

Submodels list will be displayed after F10 is pressed if 'multiple' is selected.

5. Press F10 to proceed

The next screen is a summary screen that displays the TBA security, delivered security and number of tax lots for each purchase date.

```

DELIVERY OF TO BE ANNOUNCED MORTGAGE BACKED BONDS

TBA : AAA223 396NNY QRST ZY2000 5.5 Due 05/01/2021
TOTAL FACE DELIVERED: 127,000
TOTAL ON THIS SCREEN: 127,000

TAX PURCHASE TOTAL SUM OF DELIVER NEW DELIVERED
LOTS DATE POSITION DETAIL TARGET FACE BOND
-----
2 02/17/11 23000 23000 23000 0
1 03/24/11 6000 6000 6000 0
3 04/07/11 17000 17000 17000 0
2 04/21/11 81000 81000 81000 0

<Esc> Abort F1 Help F5 Add Line F6 View Delivered Bonds
F7 Recalculate F8 Options F9 Balance All F10 Save
F11 Restore screen F12 Assign delivered bond to unassigned rows
    
```

Multiple pools

Multiple pools can accommodate multiple delivered bonds.

1. Answer YES at the MULTIPLE POOLS prompt to swap multiple pools

If multiple pools are selected, you are brought to the screen for entering multiple delivered bonds.

After accounts are selected, TBA Summary screen is displayed.

```

----- This report is based on the summary targets -----

CUSIP      TICK  DESCRIPTION                                FACE
-----
223XYZ     ABC123 FNMA M12345 5.5 Due 04/01/2036 63,500
63,500 MORE NEEDED
123ABC     ABC555 FNMA P12345 5.00000 Due 11/01/2038 31,750
31,750 MORE NEEDED
456WMMR     ABC666 FNMA D12345 4.5 Due 05/01/2023 31,750
31,750 MORE NEEDED
-----
    
```

The TBA Details Screen gives you transaction details for the including Account, Purchase Date, Total Position and Delivered Bonds information. There is also a Sleeve column showing the sleeve name for each TBA tax lot.

2. Press F10 to save your changes and create a block

```

DELIVERY OF TO BE ANNOUNCED MORTGAGE BACKED BONDS

TBA : ABC123 XYZ777 FDR AA11222 5.5 Due 05/01/2021

FACE DELIVERED 02/17/11: 0
TOTAL ON THIS SCREEN: 0

ACCOUNT      SLEEVE    PURCHASE    TOTAL      DELIVER     DELIVERED
            DATE      POSITION      TARGET      BOND
-----
12345678    XXX      02/17/11    12000      0 776688DX4
87654321    YYY      02/17/11    11000      0 999999DX4

ESC-ABORT F1-HELP F2-SORT F5-ADD LINE F6-VIEW DELIVERED BONDS
F7-RECALCULATE F8-OPTIONS F10-SAVE F11-RESTORE SCREEN
F12-ASSIGN DELIVERED BONDS TO UNASSIGNED ROWS
    
```

Note: When committing the block, the tool will run the Commit Check process. At the conclusion of the Commit Process, the tool returns the user to the Block Order Status screen:

```

BLOCK STATUS AS OF 05/21/13  1:36 A.M.

F = TRADES SENT TO FIX      TOTAL      M = MUTUAL FUND TRADE INCLUDED ON EOD
* = COMMITTED      G = GOOD-TILL-CANCELLED ORDER      $ = COMMITTED G-T-C ORDER

NAME      DATE  TIME  BLOCK TITLE      B/S      TOTAL      DONE
-----
ABC123 *05/21 01:36 TBA SWAP C33724 IN FOR S2CRY1  SELL      2,213      0
ABC321  05/21 01:36 TST053 - ACCOUNTS WITH ERRORS  BUY      2,213      0
XYZ123  05/21 01:02 *SPLIT- MSP REBALANCER      B/S      N/A      0
    
```

6.17 Using FIXGLDES to search for and to delete general ledger entries

The FIXGLDES utility is designed to search and delete specific general ledger entries across large groups of accounts. This tool is typically used for automatically searching and deleting incorrect dividend payments, coupon payments, or other cash transactions which have been posted to many different accounts. This allows the transactions to automatically repost correctly.

In addition to its uses for typical APL accounts, this function allows users to search for transactions with specific submodel tags.

To use FIXGLDES:

1. Type FIXGLDES at the WHICH FUNCTION? prompt and press ENTER. The following prompt will appear asking if you would like to include MSP tags in the search

```
INCLUDE MSP TAG SEARCH ?
```

2. Type Y so that you can use submodel tags and press ENTER. If you type N you will not be able to use MSP tags as search criteria. A prompt will appear asking if you want to allow the deletion of split entries

```
ALLOW DELETION OF SPLIT ENTRIES: ?
```

3. Type Y or N as appropriate and press ENTER
 - Y. Allow stock split and stock dividend memos to be deleted as part of the along with other entries for the selected security
 - N. Exclude stock split and stock dividend memos from the list of transactions deleted

A prompt will appear asking if you want to include a ticker search in the deletion.

```
INCLUDE TICK SEARCH IN THE DELETION: ?
```

4. Type Y or N appropriate and press ENTER
 - Y. Allow searching to include the security ticker symbol
 - N. Search for the security based on the SACUS number only

You are prompted to enter the SACUS information to be used in the search. The line editor will appear allowing the user to input the following search criteria using standard APL line editor syntax. All general ledger transactions that fit these criteria for the selected group of accounts will be deleted automatically.

```
ENTER SACUS AND XDATE TO BE REMOVED FROM THE SELECTED ACCOUNTS
(0)  TYPE      SACUS    DATE      TICK      MSP      GL DESCRIPTION
(1)  DIV        1122     20040914  XYZ       XYZ123   XYZCORP
(2)
```

5. Specify information to be removed from selected accounts and press ENTER

| Field | Description |
|----------------|--|
| TYPE | General ledger transaction type, e.g. DIV |
| SACUS | InvestCloud APL SACUS number for the security |
| DATE | Transaction date |
| TICK | (If selected in step 3) Security ticker symbol |
| MSP | (If selected in step 2) Submodel sleeve tag. |
| GL DESCRIPTION | General ledger description |

An account selection prompt displays.

```
SEARCH FOR WHAT?
```

6. Select the account range from which the transactions should be deleted and press ENTER. A list of deleted transactions will appear on the screen and a FIXGL.Lxx report will be produced listing all of the specific transactions that were deleted

```
DELETING 1 POSITION(S) FROM ACCOUNT N00001  
DELETING 1 POSITION(S) FROM ACCOUNT N00002  
DELETING 1 POSITION(S) FROM ACCOUNT N00003  
DELETING 1 POSITION(S) FROM ACCOUNT N00004  
Audit Trail of Entries Which Have Been Deleted Has Been Stored to : FIXGL.L01
```

6.18 Report functions

When you select REPORTS from the master manager menu, the Reports menu is displayed, as illustrated below.

Master Manager Reports

```
-----  
      SELECT DESIRED OPTION  
ESC TO EXIT  
-----  
SUBMODEL WEIGHTING REPORT  
SECURITY DRIFT REPORT  
SUB MANAGER CURRENT TRADING CASH  
PORTFOLIO VALUATION REPORT  
SUB MANAGER HISTORICAL CASH  
ASSETS UNDER MANAGEMENT REPORT  
ASSETS UNDER MGMT FEE REPORT  
PERFORMANCE EVALUATION BY STYLE  
CASH FLOW REPORT  
CASH LEDGER REPORT  
DUPLICATE SECURITY REPORT  
REBALANCING RULES REPORT  
CASH THRESHOLD REPORT
```

UMA MULTI ACCOUNT DRIFT REPORT

SUBMODEL DRIFT REPORT

DURPORT

CROSS REFERENCE BY ISSTY

MSP ASSET MIX REPORT

OWNLOADABLE ALLOCATION REPORT

TOP HOLDINGS REPORT

SHOW CASH FLOWS FROM REBALANCE

ASSET CLASS DRIFT REPORT

AUM FLEX REPORT

SECURITY CROSS REFERENCE REPORT

TRADE MANAGER EXCEPTION VIEWER

BROWSE REPORT

- SUBMODEL WEIGHTING REPORT shows the submodel allocations within a selected group of portfolios
- SECURITY DRIFT REPORT shows the percent and percentage drift of a portfolio from its associated master model and submodel
- SUB MANAGER CURRENT TRADING CASH shows the unaffiliated cash in each submodel
- PORTFOLIO VALUATION REPORT provides a high-level summary of one or many portfolios
- SUB MANAGER HISTORICAL CASH provides a snapshot of the cash available within submodels at the end of the trading day for any specified date
- ASSET UNDER MANAGEMENT REPORT summarizes the total assets under management for each submodel
- PERFORMANCE EVALUATION BY STYLE evaluates the performance of groups of portfolios based on their styles
- CASH FLOW REPORT shows a master model portfolio's cash flow by detailing the flows from its individual submodel portfolios
- CASH LEDGER REPORT lists transactions that cause cash to flow into or out of a submodel within a portfolio
- DUPLICATE SECURITY REPORT shows any overlapping securities within a particular master model
- REBALANCING RULES REPORT displays drift and rebalancing rules for selected accounts
- CASH THRESHOLD displays accounts and general ledger transactions with sleeve cash flows greater than the selected threshold on the previous business day
- SUBMODEL DRIFT generates Summary Weights or Security Drift reports

- AIMRMEMO is a composite report based on EDMEMO coding and sorting preferences that allows you to specify the composites used. This report helps facilitate AIMR-compliant reporting at the composite level
- DURPORT is a fixed income summary report that provides fixed income managers another option for monitoring fixed income sleeves
- CROSS REFERENCE BY ISSTY uses the master model to calculate the issue type percent targets and then display the outliers based on a tolerance range
- UMA ASSET MIX REPORT provides information regarding the portfolio asset mix
- TOP HOLDINGS. The UMA Top Holdings Report allows master managers to view top holdings across selected accounts. In addition to displaying top holdings among all accounts, master managers can generate reports that show top holdings by submanagers or submodels
- Asset Class Drift Report allows user to report drift on asset class level

Note: To prevent certain submanager users from accessing Reports functions, contact InvestCloud and provide the user's APL ID. This prevents these users from accessing the Reports menu.

TRADE EXCEPTION REPORT shows the accounts and securities that were excluded from rebalancing or that have adjusted trades.

Browse Report function

This function enables you to view a menu of recently run reports. From the Reports menu, select BROWSE REPORT. The following prompt will appear:



Submodel Weighting Report

This report allows you to select which weighting to use, beginning of day or net of committed trades, to show the submodel allocations within a selected group of master portfolios.

Beginning of Day Weightings Report

1. Select SUBMODEL WEIGHTING REPORT from the Reports menu. The following selection box opens



2. Select Beginning of Day Weightings. A prompt asks you to input the “as of” date for the report
3. Input the appropriate date and press ENTER. A menu of reporting options opens:

```

+-----+
| Choose one of the following reporting options: |
+-----+
| Summarize Cash and Security Submodel Weightings |
| List Cash and Security Submodel Weightings Separately |
| Exclude Cash balances from Submodel Weightings |
+-----+
    
```

The options shown in this selection box are based on the manner in which cash should be handled in calculating the weighting of each submodel.

4. Highlight the required method, and press ENTER. An account selection box opens:

```

+-----+
| SELECT ACCOUNTS BY SNAM, BNUM OR ACCOUNT PROFILE FIELDS |
+-----+
| FUNCTION: AND | SEARCH: |
+-----+
| 21 RECORDS FOUND |
| |
| |
| |
+-----+
| Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back |
+-----+
    
```

5. Specify the range of accounts to include in the report, and press F10. The report will appear on the screen. An example is shown below:

| Multiple Strategy Portfolio MODEL WEIGHTING REPORT | | | | | | | | |
|--|-------|--------|--------|---------|--------|-------|-------|--------|
| As of: September 13, 2002 | | | | | | | | |
| SNAM | AAAVL | AAAGRO | AAABAL | AAAIINT | AAAFIX | BBBSM | BBBAG | TOTAL |
| MSP001 | 14.65 | 16.56 | 16.36 | 15.34 | 18.21 | 18.88 | | 100.00 |
| MSP002 | 47.57 | 52.43 | | | | | | 100.00 |
| MSP003 | | 51.92 | | 48.08 | | | | 100.00 |
| MSP004 | | | | 45.72 | 54.28 | | | 100.00 |
| MSP005 | 55.97 | | 20.84 | | 23.19 | | | 100.00 |
| MSP006 | | 30.14 | 19.86 | 27.91 | 22.09 | | | 100.00 |
| MSP007 | 35.67 | | 19.91 | | 44.42 | | | 100.00 |
| MSP008 | 26.15 | 9.86 | 9.67 | | 54.32 | | | 100.00 |
| MSP009 | | | 22.85 | | 25.47 | 22.11 | 29.57 | 100.00 |
| MSP010 | 16.95 | | 28.65 | | | 23.27 | 31.13 | 100.00 |

 PRESS <ESC> TO EXIT <F1> FOR HELP <F3> MAIN MENU FISERV APL

- The left column shows the short name (SNAM) of the account
- The right column shows the total percent of all portfolio allocations. These values equal 100.00
- The columns between the SNAM and right column represent the submodels that are part of the selected portfolios. The columns contain the percent of each account that the portfolio represents

Security Drift Report

The Security Drift Report shows the actual variance of a portfolio from the master model and submodels on a security-by-security basis. To generate this report:

1. Select SECURITY DRIFT REPORT from the Reports menu. A menu will appear that allows you to select the sort order for the report:



Your options include:

- Sort by Submodel then alphabetically by ticker
- Sort alphabetically by ticker then by Submodel
- Sort by Buy/Sell then alphabetically by ticker then by Submodel
- Sort by Buy/Sell then by Submodel then alphabetically by ticker
- Sort by Buy/Sell from largest drift to smallest drift
- Sort by Sell/Buy from largest drift to smallest drift

2. Select the option for the desired sort order. The Account Selection window will appear:



3. Define the range of accounts you want to use, and press the F10 key

The Drift Report opens:

| Multi Strategy Product Drift Report SAMPLE ASSET MANAGEMENT As of January 2, 2004 | | | | | | | | | | 01/02/04 1:29 P.M. | | PAGE 1 | |
|--|---------------|---------|--------|----------------|-----------|-----------|---------------|-----------|-----------|--------------------|--|--------|--|
| ADELOACH | | | | | | | | | | | | | |
| Sub Model Tick | *** Model *** | | | *** Actual *** | | | *** Drift *** | | | | | | |
| | % | Value | Units | % | Value | Units | % | Value | Units | | | | |
| PIZZALI - LISA PIZZA | | | | | | | | | | | | | |
| Rebalancing Model Used : MVOMDM-MDM TEST MODEL | | | | | | | | | | | | | |
| CASH-1 | 0.00 | 0 | 0 | 100.00 | 1,000,000 | 1,000,000 | 100.00 | 1,000,000 | 1,000,000 | | | | |
| MOEREV CASH-1 | 0.50 | 5,000 | 5,000 | 0.00 | 0 | 0 | -0.50 | -5,000 | -5,000 | | | | |
| MOEREV GUC | 2.00 | 20,000 | 234 | 0.00 | 0 | 0 | -2.00 | -20,000 | -234 | | | | |
| MOEREV HON | 2.00 | 20,000 | 598 | 0.00 | 0 | 0 | -2.00 | -20,000 | -598 | | | | |
| SUBASC CKFR | 24.00 | 240,000 | 8,680 | 0.00 | 0 | 0 | -24.00 | -240,000 | -8,680 | | | | |
| SUBASC IBM | 24.00 | 240,000 | 2,590 | 0.00 | 0 | 0 | -24.00 | -240,000 | -2,590 | | | | |
| SUBASC INNV | 3.00 | 30,000 | 894 | 0.00 | 0 | 0 | -3.00 | -30,000 | -894 | | | | |
| SUBDB1 C | 3.00 | 30,000 | 618 | 0.00 | 0 | 0 | -3.00 | -30,000 | -618 | | | | |
| SUBDB1 CASH-1 | 1.00 | 10,000 | 10,000 | 0.00 | 0 | 0 | -1.00 | -10,000 | -10,000 | | | | |
| SUBDB1 CKFR | 1.00 | 10,000 | 362 | 0.00 | 0 | 0 | -1.00 | -10,000 | -362 | | | | |
| SUBMVC C | 0.31 | 3,069 | 63 | 0.00 | 0 | 0 | -0.31 | -3,069 | -63 | | | | |
| SUBMVC CASH-1 | 0.09 | 915 | 915 | 0.00 | 0 | 0 | -0.09 | -915 | -915 | | | | |
| SUBMVC CKFR | 0.35 | 3,480 | 126 | 0.00 | 0 | 0 | -0.35 | -3,480 | -126 | | | | |
| SUBMVC DCX | 0.16 | 1,645 | 36 | 0.00 | 0 | 0 | -0.16 | -1,645 | -36 | | | | |
| SUBMVC F | 0.15 | 1,490 | 93 | 0.00 | 0 | 0 | -0.15 | -1,490 | -93 | | | | |
| XYZMVC C | 0.47 | 4,668 | 96 | 0.00 | 0 | 0 | -0.47 | -4,668 | -96 | | | | |
| XYZMVC CAKE | 0.27 | 2,728 | 62 | 0.00 | 0 | 0 | -0.27 | -2,728 | -62 | | | | |
| XYZMVC CASH-1 | 1.84 | 18,420 | 18,420 | 0.00 | 0 | 0 | -1.84 | -18,420 | -18,420 | | | | |
| XYZMVC CKFR | 2.37 | 23,688 | 857 | 0.00 | 0 | 0 | -2.37 | -23,688 | -857 | | | | |
| XYZMVC DCX | 0.27 | 2,708 | 59 | 0.00 | 0 | 0 | -0.27 | -2,708 | -59 | | | | |
| XYZMVC F | 0.23 | 2,256 | 141 | 0.00 | 0 | 0 | -0.23 | -2,256 | -141 | | | | |
| XYZMVC GUC | 0.20 | 2,040 | 24 | 0.00 | 0 | 0 | -0.20 | -2,040 | -24 | | | | |

| Multi Strategy Product Drift Report SAMPLE ASSET MANAGEMENT As of January 2, 2004 | | | | | | | | | | 01/02/04 1:29 P.M. | | PAGE 2 | |
|--|---------------|-----------|-----------|----------------|-----------|-----------|---------------|-------|-------|--------------------|--|--------|--|
| ADELOACH | | | | | | | | | | | | | |
| Sub Model Tick | *** Model *** | | | *** Actual *** | | | *** Drift *** | | | | | | |
| | % | Value | Units | % | Value | Units | % | Value | Units | | | | |
| Total | 100.00 | 1,000,000 | 1,000,000 | 100.00 | 1,000,000 | 1,000,000 | 0.00 | 0 | 0 | | | | |
| SECTOR WEIGHTINGS | | | | | | | | | | | | | |
| CASH | 100.00% | | | | | | | | | | | | |
| EQUITY | 0.00% | | | | | | | | | | | | |
| FIXED | 0.00% | | | | | | | | | | | | |
| SUB MODEL WEIGHTINGS CIFRMI | | | | | | | | | | | | | |
| MOEREV | SUBASC | SUBDB1 | SUBMVC | XYZMVC | CASH | TOTAL | | | | | | | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 100.00 | | | | | | | |

Note: Cash is associated with the ticker symbol CASH-1.

Each security is shown with its associated submodel. If a security will appear in more than one portfolio, the shares and share values are not aggregated.

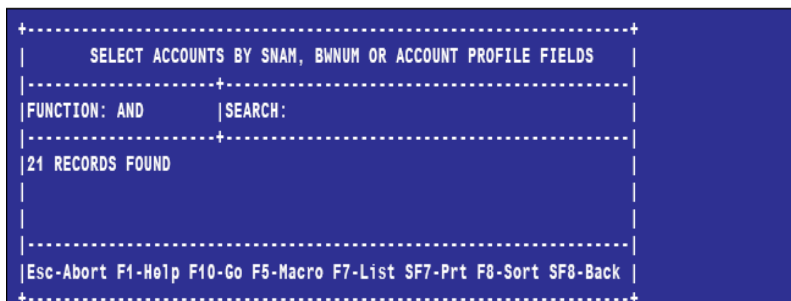
The CASH column in the Submodel Weighting section provides the account’s overall cash level after rebalancing. This information is provided since sleeve weights do not include cash flows from the previous days’ after-hours rebalancing.

Submanager Current Trading Cash Report

The Submanager Current Trading Cash Report shows the amount of free cash presently available within an account’s submodels. This report, which can be run for one account or for a range of accounts, reflects the trades committed during the day. A similar report, Submanager Historical Cash, shows the cash available at the beginning of the day for the day you select. See “Submanager Historical Cash Report”.

To view the Submanager Current Trading Cash Report:

1. Select Sub Manager Current Trading Cash from the Reports menu. The Account Selection screen will open:



2. Define the range of accounts you want to use, and press the F10 key to process your selection. The report is displayed for the accounts you select

| Submodel | Avail | Cash | As Of | 07/19/02 | 2:35 P.M. |
|----------|--------|------------|-------|----------|-----------|
| HDITST | MSPCS1 | 0.00 | | | |
| | MSPCS2 | 0.00 | | | |
| | BBBSM | 469,136.10 | | | |
| | BBBAG | 627,386.20 | | | |
| MSP001 | AAVAL | 35.24 | | | |
| | AAAGRO | 7.35 | | | |
| | AAABAL | 2,071.54 | | | |
| | AAINT | 54.38 | | | |
| | AAAFIX | 2,340.13 | | | |
| | BBBSM | 20,000.00 | | | |
| MSP002 | AAVAL | 12,500.00 | | | |
| | AAAGRO | 12,602.95 | | | |
| MSP003 | AAAGRO | 14.85 | | | |
| | AAINT | 24.60 | | | |

PRESS <ESC> TO EXIT <F1> FOR HELP <F3> MAIN MENU FISERV APL

| Column | Description |
|---------------|---|
| First column | The account name. |
| Second column | The submodels associated with the account. |
| Third column | The amount of cash in the account that is affiliated with the submodel. |

Portfolio Valuation Report

The Portfolio Valuation Report contains a wide variety of information about a specific portfolio, including:

- List of holdings for each submodel, with the option of displaying tax lot information
- A summary of the current market value for each sleeve, the sleeve weight, the master model target weight and the drift
- Concentration of each issue type in each submodel
- Summary of portfolio changes

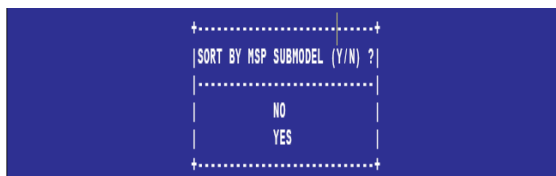
- Calculation of total realized gain/loss
- Amount of cash in each sleeve

To display this report, use the following steps:

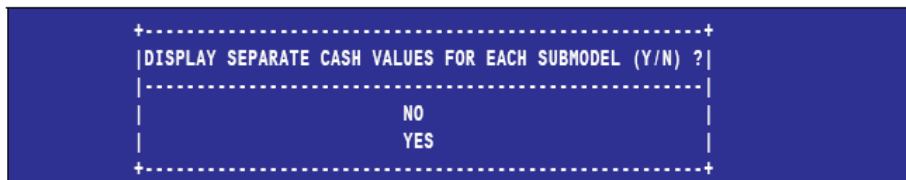
1. Select Portfolio Valuation Report from the Reports menu. The following dialog box opens:



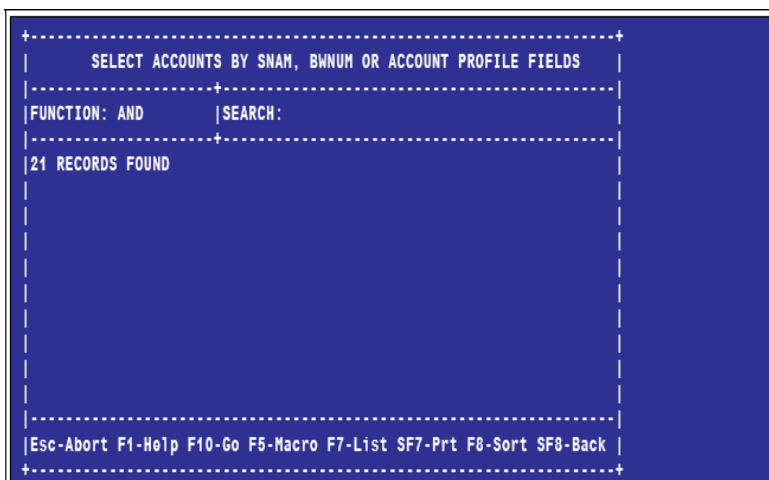
2. Select NO if you want tax lot information displayed for each security, otherwise select YES to calculate an average price per unit. The following dialog box opens:



3. Select NO if you want all security holdings displayed in alphabetical order, without regard for their association with a submodel. Otherwise, select YES to group security holdings by submodel. The following dialog box opens:



4. Select NO if you do not want the cash values to appear for each submodel in the report or select YES if you do want the cash values for each submodel to appear in the report. The following dialog box opens:
5. Select YES if you want the report to show an additional section displaying sleeve totals that include cash. Select NO if you do not want cash amounts to appear in the report. The account selection screen displays:



6. Select the accounts for which you want reports generated, and press F10 to process. The report is written to the SNAM.LRP file and displays on the screen. Use the arrow keys to view each section of the report. You can also print it as you would any other report

Note: If you selected multiple accounts, you can view the next report by pressing F8, and the previous report by pressing F7. (A sample report has been excluded due to its large size.)

- If applicable, the next anniversary rebalancing date will display at the top of the report. In addition, the benchmark portion of the report is tied to the account in the FDTYPE field
- Sleeves with a zero value will be excluded from the report
- Securities that are in a “committed” state will be denoted with an asterisk on the report

Inception-to-Date Performance Report

Inception-to-date performance reporting can be problematic when the inception date of an account is in the middle of a month but the benchmark for the account receives new values only weekly or monthly. For UMA accounts, there may be an additional issue in that the inception date (OPEDT) of the account may not be the inception date of the specific sleeve for which a particular benchmark is being used. This is true for accounts that were converted to UMA after their initial opening as well as existing UMA accounts in which new sleeves were added.

Thus, you must be able to add new values to a benchmark automatically for dates other than the OPEDT for reporting purposes. To accommodate this need, use the ADDFNDVALALL function to add new values to a selected monthly or weekly benchmark within a selected date range without being tied to a specific account’s OPEDT.

ADDFNDVALALL will perform V-value approximation for all dates between the beginning and ending dates. The function uses the same logic found in ADDFNDVAL, i.e. a geometric interpolation using the beginning and ending month values.

Note: Weekend and holiday dates are skipped. The function cannot interpolate new values for a date that is after the most recent new value in the benchmark. For example, if the last update to the benchmark is 10/31/04, the tool cannot interpolate new values for dates after 10/31/04.

To run ADDFNDVALALL:

1. Type ADDFNDVALALL at a WHICH FUNCTION? prompt. You are prompted to provide a date range

```
ENDING DATE (MM/DD/YY) - HIT ENTER FOR 05/18/05 :  
BEGINNING DATE (MM/DD/YY) - HIT ENTER FOR 05/18/05 :
```

2. Type the beginning and ending dates for the date range and press ENTER. The search prompt displays

```
SEARCH FOR WHAT? DOMINI
```

3. At the SEARCH FOR WHAT? prompt, type the short name of the selected benchmark. You will receive a prompt indicating the search results and the resulting action

```
1 RECORDS FOUND  
NEXT OPERATION (HIT RETURN WHEN DONE, OR TYPE HELP):  
1  
POSTING FOR BENCHMARK DOMINI  
2
```

Submanager Historical Cash Report

The Submanager Historical Cash Report enables you to view a snapshot of the cash available for the submodels within any account at the beginning of any specified day. A similar report, Submanager Current Trading Cash, displays an up-to-the-minute snapshot of the submodels within accounts. See “Submanager Current Trading Cash Report”.

To access this report, use the following steps:

1. Select Sub Manager Historical Cash from the Reports menu. The Date Selection dialog box opens:

```
+-----+  
|AS OF DATE (MM/DD/YY) - HIT ENTER FOR 07/19/02 : |  
+-----+
```

2. Type the date for the report, and press ENTER. Or, simply press ENTER for today's date. The Account Selection screen will open:

```
+-----+  
|          SELECT ACCOUNTS BY SNAM, BNUM OR ACCOUNT PROFILE FIELDS          |  
+-----+  
|FUNCTION: AND      |SEARCH: |  
+-----+  
|21 RECORDS FOUND |  
|                  |  
|                  |  
+-----+  
|Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back |  
+-----+
```

3. Select the account range for which you wish to display data, and press F10 to start. The report displays

```

Submodel Available Cash As Of 07/26/02
HDITST MSPCS1      0.00
      MSPCS2      0.00
      BBBSM     469,136.10
      BBBAG     627,386.20
MSP009 AAABAL     9,674.55
      AAAFX     9,678.12
      BBBSM     423,490.27
      BBBAG     566,343.00
MSP010 AAAVAL     288.45
      AAABAL     11,587.25
      BBBSM     426,004.84
      BBBAG     569,705.81
CSDEMO MSPCS1    -33,087.21
      MSPCS2    -64,051.58
      BBBSM     18,977.50
      BBBAG     261,541.40
-----
PRESS <ESC> TO EXIT  <F1> FOR HELP  <F3> MAIN MENU  FISERV APL
    
```

| Column | Description |
|---------------|---|
| First column | The account name |
| Second column | The submodel associated with the account |
| Third column | The amount of cash in the account that was affiliated with the submodel at the beginning of the date selected |

Asset Under Management Report

The Assets Under Management Report summarizes the total assets under management for each submodel. You can select a specific day, and any number of accounts.

Note: Reports reflect the assets at the end of the day specified.

To generate this report:

1. Select Asset Under Management Report from the Reports menu. The date selection screen will open:

```

+-----+
|AS OF DATE (MM/DD/YY) - HIT ENTER FOR 07/19/02 : |
+-----+
    
```

2. Specify the date for which you want a report, and press ENTER. Or, simply press ENTER to specify the close of the last trading day. The account selection screen will open:

```
+-----+
| SELECT ACCOUNTS BY SNAM, BWNUM OR ACCOUNT PROFILE FIELDS |
+-----+
| FUNCTION: AND      |SEARCH:              |
+-----+
| 21 RECORDS FOUND  |
|                   |
|                   |
+-----+
|Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back |
+-----+
```

3. Select the accounts you want to include in the report, and press ENTER. The following prompt displays

```
+-----+
|Sort by (A)sset or (M)anager?|
+-----+
|          ASSET          |
|          MANAGER        |
+-----+
```

4. Select whether you want the results sorted by Asset or Manager, and press ENTER. The following screen will open:

```
+-----+
|(A)scending or (D)escending?|
+-----+
|          ASCENDING          |
|          DESCENDING        |
+-----+
```

5. Select whether you want the results sorted in Ascending or Descending order, and press ENTER. The following screen will open:

```
+-----+
|Include Account Detail (Y/N) ?|
+-----+
|          NO                 |
|          YES                |
+-----+
```

6. Select YES if you want the amount of assets under management displayed for each portfolio, otherwise select NO. If you select YES, the following screen will open:

```
+-----+
|Display (S)NAM, (D)TCNO, (B)WNUM?|
+-----+
|          SNAM              |
|          DTCNO             |
|          BWNUM             |
+-----+
```

7. Select whether you want accounts listed by SNAM, DTCNO, or BWNUM. The report is generated, and displayed in a BROWSE window. An example is shown below:

| Multiple Strategy Portfolio AUM Detail Report | | | |
|---|---|------------|------------|
| PAGE 1 | Account Selection: ALL ACCOUNTS Sort by MANAGER in Ascending order As Of: July 19, 2002 | | |
| BBB=BBB ASSET MANAGEMENT | | | |
| ACCOUNT | BBBAG | BBBSM | TOTAL |
| TOTAL | 1939522.48 | 2163378.95 | 4102901.43 |
| % | 47.27% | 52.73% | 100.00% |
| BALLLU | 384863.10 | 396269.60 | 781132.70 |
| % | 49.27% | 50.73% | 100.00% |
| BOGAHU | 401206.40 | 413315.00 | 814521.40 |
| % | 49.26% | 50.74% | 100.00% |

- The first column contains, in this case, the SNAM of each account being reported
- The second and third columns contain data for the submodels within each account. (The number of columns varies depending on the number of submodels under management in the account.) This data consists of:
 - Dollar value of assets in the submodel
 - Percent of the account that is under management in the submodel
 - The last column totals the assets in the account for all portfolios

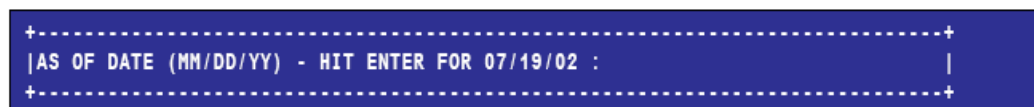
Asset Under Management Fee Report

Assets Under Management Fee Report aggregates market values for selected accounts by master model and submodels as of selected date. It provides both percent and dollar values.

Note: Reports reflect the assets at the end of the day specified.

To generate this report:

1. Select Asset Under Management Fee Report on the Reports menu. The date selection screen will open



2. Specify the date for which you want a report, and press ENTER
 - Or, simply press ENTER to specify the close of the last trading day
 - The account selection screen displays:



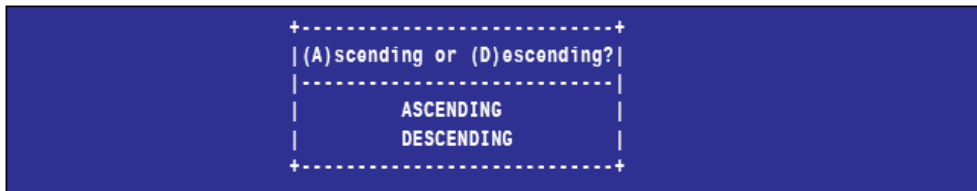
3. Select the accounts you want to include in the report and press ENTER

The following dialog box opens:



4. Select whether you want the results sorted by Model Name or Asset Size
5. Press ENTER

The following dialog box opens:



6. Select whether you want the results sorted in Ascending or Descending order
7. Press ENTER. The following screen displays:

| AUM FEE Report | | Multiple Strategy Portfolio | | |
|-------------------------------|----------|--|----------|-----------|
| | | Account Selection: Sort by MODEL NAME in Ascending order As Of: June 1, 2011 | | |
| Model/Program - Avg Weight | CPAFX | CPAINE | CPAUSE | TOTAL |
| CPA NORMAL BALANCED | 34.58% | 27.08% | 38.34% | 100.00% |
| Sub-Mgr Total Percentage | 34.58% | 27.08% | 38.34% | 100.00% |
| Model/Program - Total Dollars | CPAFX | CPAINE | CPAUSE | TOTAL |
| CPA NORMAL BALANCED | \$43,221 | \$33,841 | \$47,909 | \$124,971 |
| Sub-Mgr Total AUM | \$43,221 | \$33,841 | \$47,909 | \$124,971 |

Performance Evaluation by Style Report

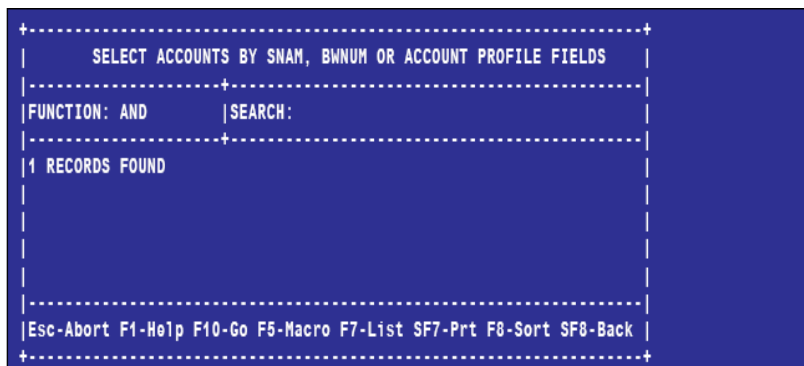
The Performance Evaluation by Style Report displays performance for an individual submodel, as well as for all portfolios. This report can be run for large groups of portfolios. Performance data for each portfolio is listed, as well as median, average, and standard deviation data for the entire group.

To generate this report:

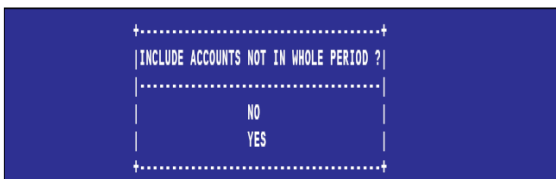
1. Select Performance Evaluation by Style from the Reports menu. A window displays for selecting the master model:



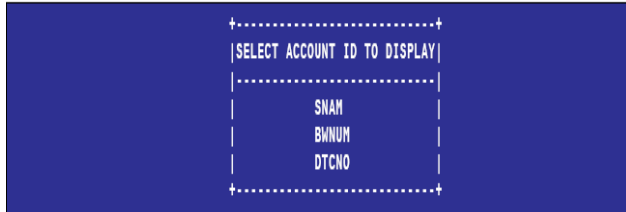
2. Highlight the master model you want to use as the basis for your report, and press ENTER. An Account Selection window opens:



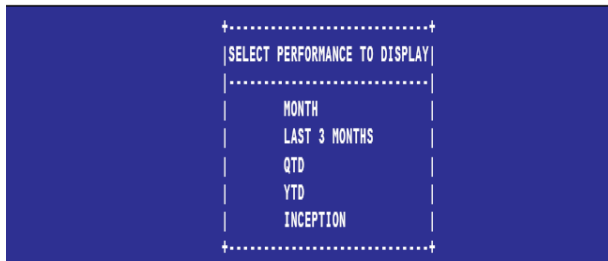
3. Select the accounts to be included in the report, and press ENTER. A dialog box will appear that allows you to include accounts that were not held for a whole period:



4. Select YES or NO as appropriate. A menu of account IDs displays:



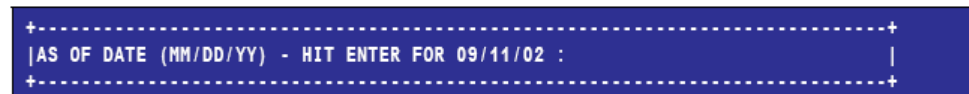
5. Select the type of account ID to use in the report, and press ENTER. A menu of time periods opens:



6. Select the period for the report, and press ENTER. A menu of sort order options displays:



7. Select the data field to sort by, and press ENTER. A dialog box will appear, enabling you to select the “as-of” date for the report:



8. Type the basis date for the report, and press ENTER. A benchmark selection dialog box will appear:



Note: View a current list of benchmarks provided by InvestCloud by typing BENCHLIST at the prompt.

A benchmark must first be initialized on the client’s directory before it can be used. See the InvestCloud APL Guide to Performance and Benchmarks for more information.

9. Type the comparison benchmarks to use (each separated by a space), and press ENTER. The report is generated, and displayed in a BROWSE window. An example is shown below:

| SAMPLE ASSET MANAGEMENT PORTFOLIO-SUMPER.LRP | | | | | | SAMPLE ASSET MANAGEMENT PORTFOLIO-SUMPER.LRP | | | | | |
|--|-------------------|---------------|-------------------|----------------------|-------------------|--|--------|----------------------|---------------|-------------------|---------------|
| SUMMARY PERFORMANCE REPORT AS OF February 13, 2004 MASTER MODEL = MVACHN | | | | | | SUMMARY PERFORMANCE REPORT AS OF February 13, 2004 MASTER MODEL = MVACHN | | | | | |
| TOTAL PORTFOLIO: | | GROWTH CORE: | | LARGE CAP GROWTH CO: | | SMALL CAP CORE: | | SMALL CAP VALUE COR: | | | |
| SHAN | 02/13/04 VALUE | TRLSH PERF | 02/13/04 VALUE | TRLSH PERF | 02/13/04 VALUE | TRLSH PERF | SHAN | 02/13/04 VALUE | TRLSH PERF | 02/13/04 VALUE | TRLSH PERF |
| MSPI1 | 7,434,688 | 46.04 | 1,090,233 | 51.05 | 1,613,201 | -39.31 | MSPI1 | 1,079,274 | 131.38 | 961,407 | 97.32 |
| MSPI2 | 7,434,688 | 46.04 | 1,090,233 | 51.05 | 1,613,201 | -39.31 | MSPI2 | 1,079,274 | 131.38 | 961,407 | 97.32 |
| MSPI3 | 7,434,688 | 46.04 | 1,090,233 | 51.05 | 1,613,201 | -39.31 | MSPI3 | 1,079,274 | 131.38 | 961,407 | 97.32 |
| MSPI4 | 7,434,688 | 46.04 | 1,090,233 | 51.05 | 1,613,201 | -39.31 | MSPI4 | 1,079,274 | 131.38 | 961,407 | 97.32 |
| MSPI5 | 7,434,688 | 46.04 | 1,090,233 | 51.05 | 1,613,201 | -39.31 | MSPI5 | 1,079,274 | 131.38 | 961,407 | 97.32 |
| MSPI6 | 7,434,688 | 46.04 | 1,090,233 | 51.05 | 1,613,201 | -39.31 | MSPI6 | 1,079,274 | 131.38 | 961,407 | 97.32 |
| MSPI7 | 7,434,688 | 46.04 | 1,090,233 | 51.05 | 1,613,201 | -39.31 | MSPI7 | 1,079,274 | 131.38 | 961,407 | 97.32 |
| MSPI8 | 7,434,688 | 46.04 | 1,090,233 | 51.05 | 1,613,201 | -39.31 | MSPI8 | 1,079,274 | 131.38 | 961,407 | 97.32 |
| MSPI9 | 7,434,688 | 46.04 | 1,090,233 | 51.05 | 1,613,201 | -39.31 | MSPI9 | 1,079,274 | 131.38 | 961,407 | 97.32 |
| MSPI10 | 7,434,688 | 46.04 | 1,090,233 | 51.05 | 1,613,201 | -39.31 | MSPI10 | 1,079,274 | 131.38 | 961,407 | 97.32 |
| MSPI11 | 7,434,688 | 46.04 | 1,090,233 | 51.05 | 1,613,201 | -39.31 | MSPI11 | 1,079,274 | 131.38 | 961,407 | 97.32 |
| MSPI12 | 7,434,688 | 46.04 | 1,090,233 | 51.05 | 1,613,201 | -39.31 | MSPI12 | 1,079,274 | 131.38 | 961,407 | 97.32 |
| MSPI13 | 7,434,688 | 46.04 | 1,090,233 | 51.05 | 1,613,201 | -39.31 | MSPI13 | 1,079,274 | 131.38 | 961,407 | 97.32 |
| MSPI14 | 7,434,688 | 46.04 | 1,090,233 | 51.05 | 1,613,201 | -39.31 | MSPI14 | 1,079,274 | 131.38 | 961,407 | 97.32 |
| MSPI15 | 7,434,688 | 46.04 | 1,090,233 | 51.05 | 1,613,201 | -39.31 | MSPI15 | 1,079,274 | 131.38 | 961,407 | 97.32 |
| MSPI16 | 7,434,688 | 46.04 | 1,090,233 | 51.05 | 1,613,201 | -39.31 | MSPI16 | 1,079,274 | 131.38 | 961,407 | 97.32 |
| MSPI17 | 7,434,688 | 46.04 | 1,090,233 | 51.05 | 1,613,201 | -39.31 | MSPI17 | 1,079,274 | 131.38 | 961,407 | 97.32 |
| MSPI18 | 7,434,688 | 46.04 | 1,090,233 | 51.05 | 1,613,201 | -39.31 | MSPI18 | 1,079,274 | 131.38 | 961,407 | 97.32 |
| MSPI19 | 7,434,688 | 46.04 | 1,090,233 | 51.05 | 1,613,201 | -39.31 | MSPI19 | 1,079,274 | 131.38 | 961,407 | 97.32 |
| MSPI20 | 7,434,688 | 46.04 | 1,090,233 | 51.05 | 1,613,201 | -39.31 | MSPI20 | 1,079,274 | 131.38 | 961,407 | 97.32 |
| MECHAN | 7,434,688 | 46.04 | 1,090,233 | 51.05 | 1,613,201 | -39.31 | MECHAN | 1,079,274 | 131.38 | 961,407 | 97.32 |
| AVG | 7,128,274 | 43.85 | 4,892,464 | 29.27 | 1,600,967 | -37.44 | AVG | 1,032,149 | 127.12 | 920,083 | 92.69 |
| STD | 0 | 9.89 | 0 | 6.81 | 0 | 8.37 | STD | 0 | 27.98 | 0 | 20.75 |
| NUMBER | 21 | 21 | 21 | 21 | 21 | 21 | NUMBER | 21 | 21 | 21 | 21 |
| TOTAL | 149,693,760 | | 102,748,980 | | 33,620,300 | | TOTAL | 21,678,120 | | 19,321,740 | |
| AIMI | (REG VAL WGT) | 0.29 | (REG VAL WGT) | 0.21 | (REG VAL WGT) | 0.94 | AIMI | (REG VAL WGT) | 0.29 | (REG VAL WGT) | 0.11 |
| SPI00 | | | | | | | SPI00 | | | | |

Note: The report will print all sleeve columns. If additional pages are needed to print all sleeve columns, each additional page includes the account identifiers and other row labels so that the meaning of each row in each column is clear.

Cash Flow Report

In UMA, “cash flow” is the increase or decrease of cash within a portfolio as a result of unsettled intraday trades. The Cash Flow Report shows a master model portfolio’s cash flow by detailing the flows from its individual sub-model portfolios.

To run the Cash Flow Report, use the following steps:

1. Select CASH FLOW REPORT from the Reports menu. The following prompt opens:

```
+-----+
|AS OF DATE (MM/DD/YY) - HIT ENTER FOR 11/30/02 : |
+-----+
```

2. Type the “as-of” date, and press ENTER. The account selection window opens:



3. Select the master model account that you want to report on, and press F10 to continue. A report file with a *.LCF extension is generated. The report can be viewed using the BROWSE function, or it can be printed

An example of this report is shown below:

| MSP CASH FLOW REPORT BY SLEEVE | | | | | | | | | | |
|---|---------------|---------------|--------------|--------------|--------------|--------------------|----------------|--------------|------------|--------------|
| ACCOUNT SNAM MSP2 BNUM 830 | | | | | | | | | | |
| FOR MULTIPLE STRATEGY PORTFOLIO TEST ACCT 2 | | | | | | | | | | |
| 11/30/02 | | | | | | | | | | |
| SUB MODEL | UNTAGGED CASH | TAGGED CASH | PURCHASES | SALES | BOD CASH | 11/30/02 PURCHASES | 11/30/02 SALES | EOD CASH | AFTER FLOW | CASH |
| ABCMVC | 0.00 | 6,776.93 | 0.00 | 0.00 | 6,776.93 | 0.00 | 0.00 | 6,776.93 | 0.00 | 6,776.93 |
| MOEREV | 418,062.80 | 435,818.75 | 458,735.00 | 26,399.20 | 421,545.75 | 0.00 | 0.00 | 421,545.75 | 0.00 | 421,545.75 |
| SUBABC | 4,504,851.20 | -386,839.79 | 3,031,110.00 | 430,082.04 | 1,516,983.45 | 0.00 | 0.00 | 1,516,983.45 | 0.00 | 1,516,983.45 |
| SUBDB1 | 1,572,894.20 | 519,983.81 | 1,264,320.08 | 684,684.34 | 1,513,242.27 | 0.00 | 0.00 | 1,513,242.27 | 0.00 | 1,513,242.27 |
| SUBMVC | 2,631,588.40 | -1,007,872.80 | 1,584,130.50 | 1,171,337.84 | 1,210,922.94 | 0.00 | 0.00 | 1,210,922.94 | 0.00 | 1,210,922.94 |
| XYZMVC | 398,262.80 | 443,222.50 | 455,575.00 | 109,026.71 | 494,937.01 | 0.00 | 0.00 | 494,937.01 | 0.00 | 494,937.01 |
| TOTAL | 9,525,659.40 | 11,089.40 | 6,793,870.58 | 2,421,530.13 | 5,164,408.35 | 0.00 | 0.00 | 5,164,408.35 | 0.00 | 5,164,408.35 |

| Column | Description |
|---------------------------|--|
| SUB MODEL | This SNAM of the submodel portfolio within this master model |
| UNTAGGED CASH | Cash received into a UMA and apportioned by the master model |
| TAGGED CASH | Cash committed to a submodel |
| PURCHASES | Historical amount of purchases up to beginning of day |
| SALES | Historical amount of sales up to beginning of day |
| BOD CASH | Beginning-of-day cash |
| PURCHASES <as of date> | Unposted purchases for the date specified |

| Column | Description |
|-----------------|--|
| EOD CASH | End-of-day cash |
| FLOW | Cash flowed between submodels to adjust for rebalancing expenditures |
| AFTER FLOW CASH | Beginning-of-day cash, less flow |

Cash Ledger Report

The Cash Ledger Report lists transactions that cause cash to flow into or out of a specified account associated with a specific submodel.

Notes:

- Only one submodel may be selected
- Separate reports are generated for each account

To run the report, use the following steps:

1. Select CASH LEDGER REPORT from the Reports menu. A prompt will appear, asking for the report's beginning (as-of) date:

```
+-----+
|AS OF DATE (MM/DD/YY) - HIT ENTER FOR 11/30/02 : |
+-----+
```

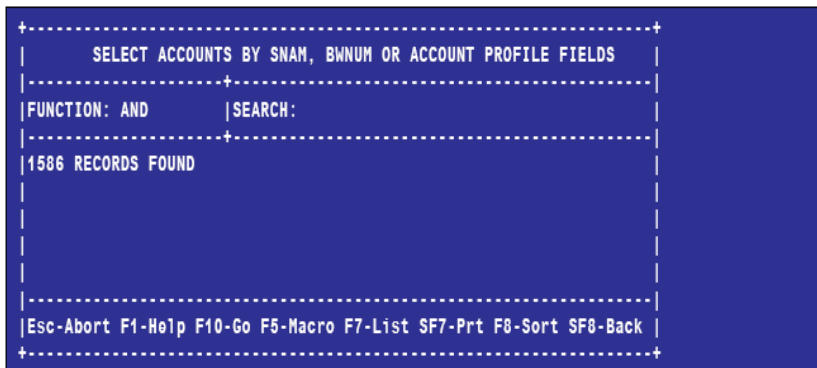
2. Type the beginning date of the report, and press ENTER. A prompt asking for the ending date opens:

```
+-----+
|ENDING DATE (MM/DD/YY) - HIT ENTER FOR 11/30/02 : |
+-----+
```

3. Type the ending date of the reporting period, and press ENTER. The following window opens:

```
+-----+
|          SELECT MODELS BY SNAM OR MODEL PROFILE FIELDS          |
+-----+
|FUNCTION: AND      |SEARCH: |
+-----+
|13 RECORDS FOUND  |
|                  |
|                  |
+-----+
|Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back |
+-----+
```

4. Select the submodel portfolio on which you wish to report, and press F10. (You can use the F7 key to display a list of available submodels.) The following selection window opens:



- Select the accounts to be included in the report, and press F10. (You can use the F7 key to display a list of accounts.) A report file with the account short name and an *.LCL extension is generated. The report can be viewed using the BROWSE function, or can be printed

An example of this report is shown below:

Left side:

| | |
|---------------------|-------------------------------------|
| XYZ INVESTMENT LLC | MSP CASH LEDGER FOR |
| PI #: 10101 | J SMITH, IRA |
| CUSTODIAN #: ABCXYZ | FOR THE PERIOD 01/01/10 TO 06/01/10 |
| | SUBMODEL: XYZ LARGE CAP GROW |

| TRANS | UNITS | DESCRIPTION | DATE | C | PR |
|-------|-------|--------------------------------------|----------|---|----|
| OPE | | CASH BALANCE | | | |
| OPE | 19.00 | ABC Inc. | 01/03/11 | | |
| OPE | 74.00 | DEF (CL A) | 01/03/11 | | |
| DIV | | CCC Inc. *CCC Inc. | 01/03/11 | | |
| CLO | 27.00 | GHI Inc. | 01/03/11 | | |
| CLO | 33.00 | MMM CORP. | 01/03/11 | | |
| DIV | | JKL GROUP *JKL G 01/07/11 | | | |
| CLO | 34.00 | MMM INC. | 01/10/11 | | |
| DIV | | MMM Inter 01/10/11 | | | |
| OPE | 59.00 | PQR Corp | 01/10/11 | | |
| OPE | 23.00 | RST Corp | 01/18/11 | | |
| CLO | 18.00 | UVW Inc | 01/18/11 | | |

| Column | Description |
|----------------------|--|
| PRINCP L CSH | The running cash balance after the transaction is completed. |
| CHANGE IN INCOME AMT | For dividend transactions, the amount of the dividend. |
| INCOME CSH | The running total of dividends for the account |

Right Side:

MSP CASH LEDGER FOR
 J SMITH, IRA
 THE PERIOD 01/01/10 TO 06/01/10
 MODEL: XXX LARGE CAP GROWTH

PAGE 1
 06/09/11 2:19 P.M.

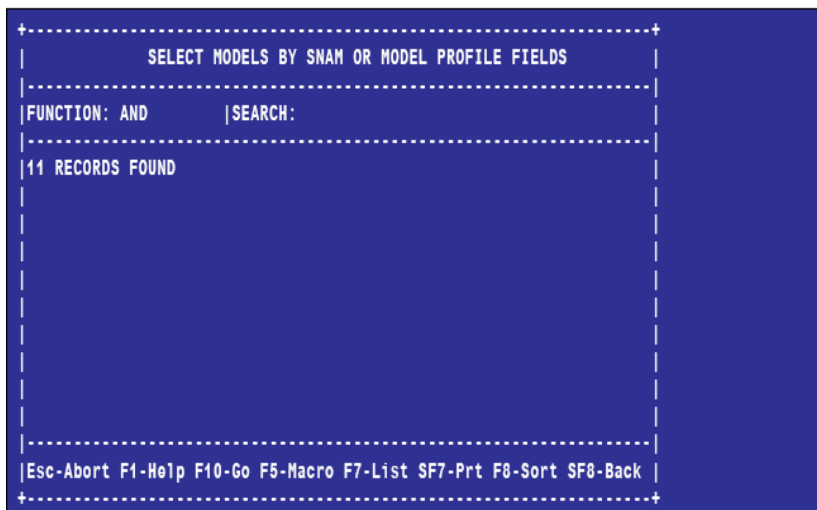
| | DATE | CHANGE IN PRIN AMOUNT | PRINCPL CSH | CHANGE IN INCOME AMT | INCOME CSH |
|------------|----------|--------------------------|-------------|-------------------------|------------|
| | | | 2,577.64 | | -254.99 |
| | 01/03/11 | -788.31 | 1,789.33 | | |
| | 01/03/11 | -1,638.95 | 150.38 | | |
| Inc. | 01/03/11 | | | 5.55 | -249.44 |
| | 01/03/11 | 1,600.53 | 1,750.91 | | |
| | 01/03/11 | 925.30 | 2,676.21 | | |
| PER XYZ G | 01/07/11 | | | 15.50 | -233.94 |
| | 01/10/11 | 1,929.40 | 4,605.61 | | |
| WXYZ Inter | 01/10/11 | | | 39.04 | -194.90 |
| | 01/10/11 | -1,903.70 | 2,701.91 | | 61 |
| | 01/18/11 | 737.08 | 2,677.69 | | |
| | 01/18/11 | -761.30 | 1,940. | | |

Duplicate Security Report

The Master Model Duplicate Security Report shows any overlapping securities within a particular master model.

To run this report:

1. Select Duplicate Security Report the Reports menu. The following selection window opens:



2. Select the model for which you want to see a report and press F10. The report displays:

```

DUPLICATE SECURITIES

KMMAST  KAREN TRAINING
-----
IBM      SUBABC  XYZMVC
CKFR     SUBABC  SUBMVC  XYZMVC  SUBDB1
C        SUBMVC  XYZMVC  SUBDB1
CASH-1   SUBMVC  XYZMVC  MOEREV  SUBDB1
DCX      SUBMVC  XYZMVC  SUBDB1
F        SUBMVC  XYZMVC  SUBDB1
KO       SUBMVC  XYZMVC
WMT      SUBMVC  XYZMVC
LIZ      XYZMVC  MOEREV
MSFT     XYZMVC  SUBDB1
TIF Z    XYZMVC  MOEREV
T----Z   XYZMVC  MOEREV
GUC      XYZMVC  MOEREV
HON      XYZMVC  MOEREV

-----
PRESS <ESC> TO EXIT  <F1> FOR HELP  <F3> MAIN MENU      FISERV APL
    
```

Rebalancing Rules Report

The Master Model Rebalancing Rules Report shows the trading parameters, or rebalancing rules, for a particular account including the trading frequency and the variance needed to start the rebalance.

To run this report:

1. Select REBALANCING RULES REPORT from the report menu. The following window opens:

```

+-----+
|          SELECT ACCOUNTS BY SNAM, BNUM OR ACCOUNT PROFILE FIELDS          |
+-----+
| FUNCTION: AND      | SEARCH: |
+-----+
| 23 RECORDS FOUND  |
|                   |
|                   |
|                   |
+-----+
| Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back |
+-----+
    
```

2. Select the account for which you want to see a report and press F10. The report displays:

| SNAM | Submdl | Drift | Overcomp | Cash | Min Tr | Ann Dt/Freq |
|--------|-----------|-------|----------|-----------|-----------|-------------|
| LPIZZA | 5%/15%/3% | | 1%/1% | 5%/1%/35% | \$500/ 0% | OPEDT /12 |

PRESS <ESC> TO EXIT <F1> FOR HELP <F3> MAIN MENU FISERV APL

Cash Threshold Report

The Cash Threshold Report displays accounts and general ledger transactions with sleeve cash flows greater than the selected threshold on the previous business day. This report is used to search for accounts which may require the master manager to flow cash among sleeves.

1. Select CASH THRESHOLD from the Reports menu. The following prompt will appear, requesting a threshold amount:

```
+-----+
|ENTER THE THRESHOLD AMOUNT: |
+-----+
```

2. Enter the threshold amount in the field and press ENTER. A prompt asks if you only want to show receives (RCV) and delivers (DLV) associated with the threshold amount,

```
+-----+
|SHOW RCV AND DLV TRANSACTION TYPES ONLY? |
+-----+
|              NO              |
|              YES             |
+-----+
```

3. Select YES or NO as appropriate. If you choose NO, then all general ledger transaction types will be reported on. If you choose YES, the system will search for accounts with sleeve cash flows greater than the specified threshold amount as of the previous business day only

The Account Selection screen will open:

Specify which account or accounts to include in the report. To include all accounts in the report, press F10. To view a menu of accounts from which to choose, press F7 and choose an account from the list.

Submodel Drift Report

The Submodel Drift Report shows both the target allocations for each portfolio along with the current allocations. This report allows for comparisons between the current weightings and the target submodel weightings based on the master model associated with each account.

Running the Security Drift Report using the Beginning of Day Weightings reporting option

To run this report:

1. Select Submodel Drift Report from the Reports menu. The following menu displays:

```
+-----+
|Choose one of the following reporting options:|
+-----+
|           Beginning of Day Weightings         |
|           Net of Committed Trades Weightings  |
+-----+
```

2. Select either Beginning of Day Weightings or Net of Committed Trades Weightings. The As Of Date field will appear at the bottom of the screen:

```
+-----+
|AS OF DATE (MM/DD/YY) - HIT ENTER FOR 12/17/03 :|
+-----+
```

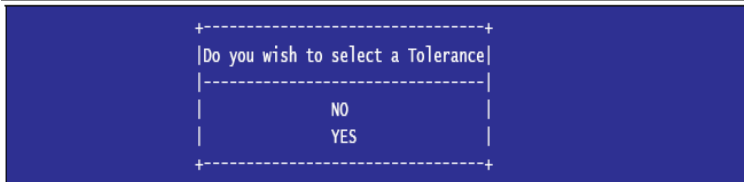
3. Enter a date and press ENTER. You are then prompted to choose from the following options:
 - Summarize Cash and Security Submodel Weightings
 - List Cash and Security Submodel Weightings Separately
 - Exclude Cash balances from Submodel Weightings

```
+-----+
| Choose one of the following reporting options: |
+-----+
|Summarize Cash and Security Submodel Weightings|
|List Cash and Security Submodel Weightings Separately|
|Exclude Cash balances from Submodel Weightings|
+-----+
```

4. Select the appropriate reporting option. The model selection screen will open
5. Select the model for which you want to run the drift report against. When you select a master model, you also sub-select your accounts. Because each master model has different styles and allocations, viewing accounts that have different master models would be difficult; thus, the report limits you to accounts from one particular master model

The account selection screen will open.

6. Choose the account or accounts to include in the report. You are prompted to include a tolerance range. This ability allows you to display only those accounts that violate a given tolerance range so you can focus only on those accounts that need additional research without scanning through all the accounts



7. Select NO to report on all accounts. Select YES to select a tolerance range and report only on accounts that fall outside the tolerance

If YES is selected, the next prompt will ask the user to select the type of tolerance range:

- **ABSOLUTE PERCENT:** A specific tolerance range based on the model target. For example, if the target allocation for a security is 5% of a sleeve and a tolerance of 2% is selected, the report will not display accounts that hold 3-7% of the security in the sleeve
- **PERCENT RELATIVE:** A tolerance relative to the model target. For example, if the target allocation for a security is 10% of a sleeve and a tolerance of 10% is selected, the report will not display accounts that hold 9-11% of the security in the sleeve. In this example, the tolerance band is +/- 1% since 1 is 10% of 10
- **STANDARD DEVIATION:** A tolerance based on the selected number of standard deviations based on the average of the selected group of accounts

The report runs:

```

Multiple Strategy Portfolio Model Weighting Report
AS of: June 7, 2004
Beginning of Day Weightings

Target Sub Model Allocation

MMODEL          ABCMVC  MOEREV  SUBABC  SUBDB1  SUBMVC  XYZMVC  TOTAL
-----
MVCMDT          2.00    -    45.00  30.00   15.00   8.00   100.00

Current Sub Model Allocations and Drift

SNAM            ABCMVC  MOEREV  SUBABC  SUBDB1  SUBMVC  XYZMVC  TOTAL
-----
MSPTST (current) -6.81   9.74   46.63  25.51   19.59   5.35  100.00
MSPTST (Drift)   *      *      *      *      *      *      -
-----+-----
HIGH            -6.81   9.74   46.63  25.51   19.59   5.35
LOW             -6.81   9.74   46.63  25.51   19.59   5.35
MEDIAN          -6.81   9.74   46.63  25.51   19.59   5.35
AVERAGE        -6.81   9.74   46.63  25.51   19.59   5.35
STD             0.00    0.00   0.00   0.00   0.00   0.00
OBS             1        1        1        1        1        1
    
```

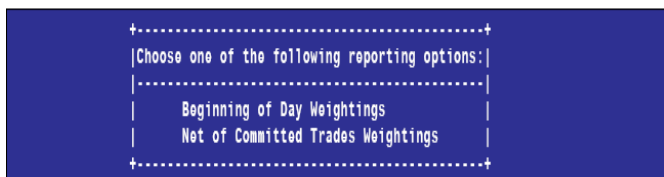
* sleeves are not outside of tolerance range

Note: You can also view the most recently generated report by using the BROWSE function in APL. See the InvestCloud APL User Guide for more information.

Running the Security Drift Report using the Net of Committed Trades Weightings reporting option

To run this report:

1. Select Submodel Drift Report from the Reports menu. The following menu will appear:



2. Select Net of Committed Trades Weightings from the Reports menu. The model selection screen will appear
3. Select the model against which you want to run the drift report. When you select a master model, you also sub-select your accounts. Because each master model has different styles and allocations, viewing accounts that have different master models would be difficult; thus, the report limits you to accounts from one particular master model

Note: To exclude cash from the report type SNAM NE 0 in the Search field and press F10.

The account selection screen will open.

4. Choose the account or accounts to include in the report. You are prompted to include a tolerance range. This ability allows you to display only those accounts that violate a given tolerance range so you can focus only on those accounts that need additional research without scanning through all the accounts
5. Select NO to report on all accounts. Select YES to select a tolerance range and report only on accounts that fall outside the tolerance

If YES is selected, the next prompt will ask the user to select the type of tolerance range:

- **ABSOLUTE PERCENT:** A specific tolerance range based on the model target. For example, if the target allocation for a security is 5% of a sleeve and a tolerance of 2% is selected, the report will not display accounts that hold 3-7% of the security in the sleeve
- **PERCENT RELATIVE:** A tolerance relative to the model target. For example, if the target allocation for a security is 10% of a sleeve and a tolerance of 10% is selected, the report will not display accounts that hold 9-11% of the security in the sleeve. In this example, the tolerance band is +/- 1% since 1 is 10% of 10
- **STANDARD DEVIATION:** A tolerance based on the a selected number of standard deviations based on the average of the selected group of accounts

The report runs:

Multiple Strategy Portfolio Model Weighting Report
As of: June 7, 2004
Net of Committed Trades weightings

Target Sub Model Allocation

| MMODEL | CASH | SUBMVC | SUBM2 | XYZMVC | TOTAL |
|--------|------|--------|-------|--------|--------|
| MVCTS2 | 6.97 | 24.77 | 47.51 | 20.75 | 100.00 |

Current Sub Model Allocations and Drift

| SNAM | | CASH | SUBMVC | SUBM2 | XYZMVC | TOTAL |
|---------|-----------|-------|--------|-------|--------|--------|
| MSPTS2 | (Current) | 48.15 | 3.91 | 33.69 | 14.26 | 100.00 |
| MSPTS2 | (Drift) | * | * | * | * | - |
| HIGH | | 48.15 | 3.91 | 33.69 | 14.26 | |
| LOW | | 48.15 | 3.91 | 33.69 | 14.26 | |
| MEDIAN | | 48.15 | 3.91 | 33.69 | 14.26 | |
| AVERAGE | | 48.15 | 3.91 | 33.69 | 14.26 | |
| STD | | 0.00 | 0.00 | 0.00 | 0.00 | |
| OBS | | 1 | 1 | 1 | 1 | |

* sleeves are not outside of tolerance range

Note: You can also view the most recently generated report by using the BROWSE function in InvestCloud APL. See the InvestCloud APL User Guide for more information.

Master Manager AIMRMEMO Report

AIMRMEMO is a composite report, based on EDMEMO coding and sorting preferences, that allows you to specify the composites used. This report helps facilitate AIMR-compliant reporting at the composite level.

Creating AIMRMEMO composites

Use EDMEMO to define when an account enters and leaves a composite. AIMRMEMO will use the composite codes and open and close dates to determine which accounts to report in a composite.

Using EDMEMO you can put an account into many different composites for many different time periods. Remember the AIMRMEMO report will only include full calendar quarters (or months if you are set up that way).

Following is the syntax and sample EDMEMO entries:

```
AIMR: (composite name) (start date) (end date)
AIMR: E1 10/31/15 06/30/16
AIMR: E2 7/31/16
```

Note: It is recommended that a composite for each sleeve be set up.

Tip:

- Every line with information for this report begins “AIMR:” in EDMEMO
- Keep the composite name short, 3 characters or fewer. It forms part of the filename of the output file. The files produced for an account would be “SUMXXX.LAM” and “SUMXXX.LAM”. A longer composite name will not be reflected in the report output file name and may cause the output file not be produced
- Ending date may be left empty until an account leaves a composite
- Refer to the Strategy List table in the UMA administrator menu to determine the performance sector for each sleeve that is set up as a composite.

When running AIMR, you must not only select the correct composite code, you must also select the correct performance sector number for the report to pull the correct performance data.

For example, if you set up composite LG1 to refer to sleeve ABCLG1, and if performance values for ABCLG1 are sector 11, you must select sector 11 when running AIMRMEMO for composite LG1.

Note: AIMRMEMO must be configured to allow UMA clients to select all UMA sectors. The default configuration will only allow users to select sectors 1-4.

Generating the AIMRMEMO Report

1. At the WHICH FUNCTION? prompt, type AIMRMEMO and press ENTER. The following prompt opens:

```
AS OF DATE (MM/DD/YY):
```

2. Type the month end date that you wish to report through and press ENTER. The prompt below opens:

```
ENTER FULL UNIVERSE:  
xxx ACCOUNTS CURRENTLY ON FILE  
SEARCH FOR WHAT?
```

3. Type the account selection and press ENTER. The following prompt will appear:

```
XX RECORDS FOUND  
NEXT OPERATION (HIT RETURN WHEN DONE, OR TYPE HELP):
```

4. Type additional commands for sorting, broadening or narrowing account selection and press ENTER. The following prompt will appear:

```
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC  
QTR1 QTR2 QTR3 QTR4 YRLY OPEDT ACCT MNTHEND  
SORT BY WHICH FIELD?
```

5. Type the field by which the report should be sorted and press ENTER. The following prompt opens:

```
SORT IN DESCENDING ORDER?
```

6. Type Yes and press ENTER to sort in descending order. Type No and press ENTER to sort in ascending order. The following prompt displays:

```
WHICH FILE: (M=MANUAL 01=AUTO 02=EQUITY 03=FIXED 04=CASH)
```

Note: The default sectors available are M=MANUAL 01=AUTO 02=EQUITY 03=FIXED 04=CASH. If you need to be able to select from sectors five (5) and up for reporting purposes, contact InvestCloud to have this option turned on. Once this is turned on, all UMA sectors and their descriptions will be listed and can be selected.

7. Type the sector identifier and press ENTER. The following prompt opens:

```
WHAT BENCHMARK? (I.E. SP500 DJIA)
```

8. Type the SNAMs for the benchmarks you want to use, and press ENTER. The following prompt opens:

```
PROCESSING X OF X  
("ALL" WILL CREATE A COMPLETE UNIVERSE AS WELL AS ALL SUB UNIVERSES)  
SELECT MGR SUB-UNIVERSE:
```

9. Type the code for the composite on which to report or type ALL to report on all composites and press ENTER

Selecting ALL will produce a separate report for each composite (SUMxx.LSM and SUMxx.LAM), as well as a report for all accounts (SUMALL.LSM and SUMALL.LAM). The message below will appear and the system will return to the WHICH FUNCTION? prompt.

```
ACCOUNTS WITH NO MEMO MARKED "AIMR" SEE: SUMBAD.LXX
```

If you chose a specific composite, the following prompt opens:

```
SUB-UNIVERSE TITLE:
```

10. Type the title of the composite, for example, BALANCED ACCOUNTS, and press ENTER. The following prompt opens:

```
SUB-UNIVERSE BENCHMARKS:
```

11. Type the SNAM for the benchmark that you want to appear for this particular composite and press ENTER. (This benchmark must be one that was included in your first benchmark selection.) The following prompt opens:

```
COMPOSITE: (TITLE)  
SUMxx.LSM  
SUMxx.LAM  
SELECT MGR SUB-UNIVERSE
```

12. Type another composite or press ENTER to exit

- If you type another composite, repeat Steps 9-12
- If you press ENTER, the following message will appear and the system will return to the WHICH FUNCTION? prompt:

ACCOUNTS WITH NO MEMO MARKED "AIMR" SEE: SUMBAD.LXX

DURPORT Fixed Income Summary Report

The DURPORT fixed income portfolio summary report assists fixed income managers in monitoring fixed income sleeves. They may run the report for all fixed income securities in a sleeve, for selected securities, or for select issue types. When running this report, the user may choose whether to include or exclude cash from the calculations.

To run this report:

1. Select DURPORT from the Reports menu. You are prompted to enter an "As of" date

```
+-----+
|AS OF DATE (MM/DD/YY) - HIT ENTER FOR 04/05/04 : |
+-----+
```

2. Enter the date of the last business day you wish to include in the report and press ENTER. The model selection screen will open:

```
+-----+
|          SELECT MODELS BY SNAM OR MODEL PROFILE FIELDS          |
+-----+
|FUNCTION: AND      |SEARCH:                                     |
+-----+
|16 RECORDS FOUND  |
|
|
|
|Esc-Abort F1-He1p F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back |
+-----+
```

3. Choose one model and press F10. To choose from a list of models, press F7, choose a model, and press ENTER. The account selection screen will appear:

```
+-----+
|          SELECT ACCOUNTS BY SNAM, BNUM OR ACCOUNT PROFILE FIELDS          |
+-----+
|FUNCTION: AND      |SEARCH:                                     |
+-----+
|22 RECORDS FOUND  |
|
|
|
|Esc-Abort F1-He1p F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back |
+-----+
```

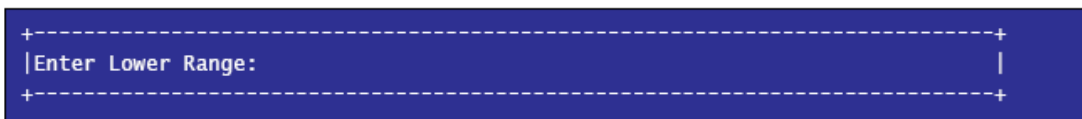
4. Choose an account or a range of accounts and press F10. Or, to choose all accounts, leave the Search field empty and press F10. A menu will appear listing the various sorting options available to the report



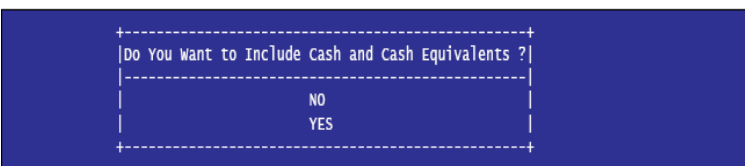
5. Choose a sort option and press ENTER. A prompt will appear asking if you prefer the data sorted in ascending or descending order
6. Choose Ascending or Descending as appropriate and press ENTER. You are prompted to enter a lower and then an upper range

The lower and upper ranges allow you to choose only accounts whose weighted average duration falls within the range. Leave the prompts empty if you do not wish to choose a range.

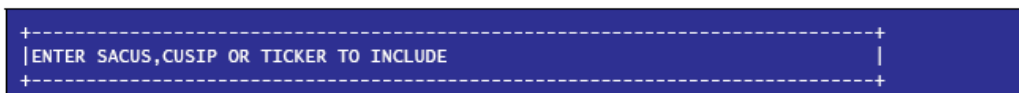
7. Enter the lower range number, or leave the prompt empty if you do not wish to choose a range. Press ENTER. You are prompted to enter an upper range



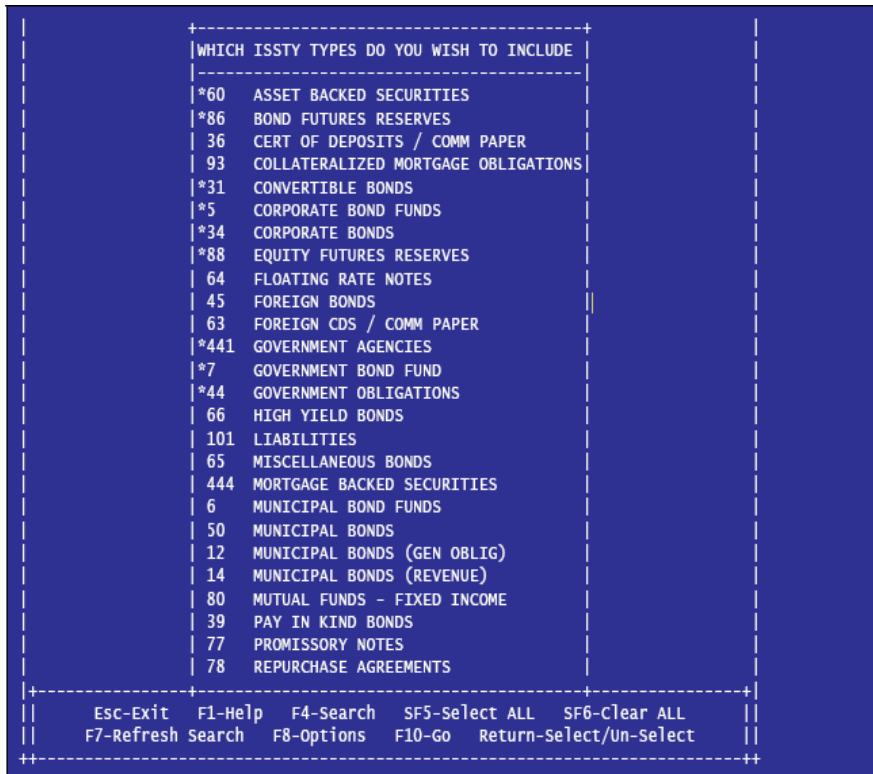
8. Enter the upper range, or leave the prompt empty if you do not wish to choose a range. Press ENTER. You are prompted to include or exclude cash equivalents from the report calculations



9. Choose YES or NO as appropriate. You are prompted for a SACUS, CUSIP, or TICKER to report on. Type ALL or leave the prompt empty to report on all securities. You are prompted to enter a SACUS, CUSIP, or TICKER for specific fixed income issue types to report on
10. Type the SACUS, CUSIP, or TICKER and press ENTER. Or, press ENTER to view a list of issue types from which to choose



11. Press SHIFT+F5 to choose all issue types. An asterisk will appear to the left of a selected option
 - To choose a single issue type, highlight its respective line and press ENTER
 - For additional selection and usage options, please refer to the bottom of the screen



12. Press F10 to generate the report

| SAMPLE ASSET MANAGEMENT | | | FIXED INCOME PORTFOLIO SUMMARY | | | | | | | | PAGE 1 | | |
|---------------------------------|----------|-----------------|--------------------------------|--------------|------------------|--------------------|-------------|----------|---------|---------|---------|------------|------------|
| Run Date: 03/30/04 | | | As Of March 29, 2004 | | | | | | | | | | |
| MSP Sleeve: XYZFIX:FIXED INCOME | | | | | | | | | | | | | |
| BNUM | DTCNO1/2 | ACCOUNT NAME | CASH | MARKET VALUE | ACCRUED INTEREST | TOTAL MARKET VALUE | # OF ISSUES | AVG LIFE | AVG CPN | AVG YTM | AVG DUR | AVG SNPRAT | AVG MRATNG |
| 10000001 | 20000001 | TEST ACCOUNT 1 | 8,898 | 191,952 | 2,050 | 194,001 | 18 | 3.92 | 5.28 | 2.97 | 3.28 | AA+ | AA1 |
| 10000002 | 20000002 | TEST ACCOUNT 2 | 6,296 | 155,335 | 1,656 | 156,991 | 20 | 3.94 | 5.30 | 3.01 | 3.30 | AA+ | AA1 |
| 10000003 | 20000003 | TEST ACCOUNT 3 | 2,521 | 88,564 | 944 | 89,508 | 19 | 4.02 | 5.38 | 3.04 | 3.35 | AA+ | AA1 |
| 10000004 | 20000004 | TEST ACCOUNT 4 | 2,765 | 85,936 | 927 | 86,863 | 20 | 4.35 | 5.51 | 3.41 | 3.57 | AA+ | AA1 |
| 10000005 | 20000005 | TEST ACCOUNT 5 | 1,407 | 50,680 | 574 | 51,254 | 17 | 4.73 | 5.47 | 3.29 | 3.80 | AA+ | AA1 |
| 10000006 | 20000006 | TEST ACCOUNT 6 | 3,115 | 193,237 | 2,131 | 195,368 | 19 | 4.92 | 5.42 | 3.21 | 3.93 | AA+ | AA1 |
| 10000007 | 20000007 | TEST ACCOUNT 7 | 11,168 | 189,240 | 2,023 | 191,264 | 20 | 5.18 | 5.19 | 3.25 | 4.13 | AA+ | AA1 |
| 10000008 | 20000008 | TEST ACCOUNT 8 | 1,777 | 108,170 | 1,213 | 109,383 | 17 | 5.46 | 5.44 | 3.39 | 4.30 | AA+ | AA1 |
| 10000009 | 20000009 | TEST ACCOUNT 9 | 930 | 51,805 | 598 | 52,403 | 17 | 5.68 | 5.49 | 3.46 | 4.39 | AA+ | AA1 |
| 10000010 | 20000010 | TEST ACCOUNT 10 | 4,492 | 88,676 | 892 | 89,568 | 17 | 6.20 | 5.27 | 3.65 | 4.81 | AA+ | AA1 |
| AVERAGE | | | 4,337 | 120,360 | 1,301 | 124,697 | 18 | 4.84 | 5.37 | 3.27 | 3.89 | | |
| STANDARD DEVIATION | | | 3,246 | 54,137 | 580 | 56,673 | 1 | 1.28 | 0.10 | 0.21 | 0.50 | | |
| HIGHEST VALUE | | | 11,168 | 193,237 | 2,131 | 200,850 | 20 | 6.20 | 5.51 | 3.65 | 4.81 | | |
| LOWEST VALUE | | | 930 | 50,680 | 574 | 52,087 | 17 | 3.92 | 5.19 | 2.97 | 3.28 | | |

Cross Reference by ISSTY Report

This report uses the master model to calculate the issue type percent targets and then display the outliers based on a tolerance range.

To run the Cross Reference by ISSTY report:

1. Select CROSS REFERENCE BY ISSTY from the Reports menu. You are prompted to enter an “As of” date

```
+-----+  
|AS OF DATE (MM/DD/YY) - HIT ENTER FOR 04/05/04 : |  
+-----+
```

2. Enter the date of the last business day you wish to include in the report and press ENTER. The model selection screen will appear:

```
+-----+  
|          SELECT MODELS BY SNAM OR MODEL PROFILE FIELDS          |  
+-----+  
|FUNCTION: AND      |SEARCH: |  
+-----+  
|4 RECORDS FOUND |  
|  
|  
+-----+  
|Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back |  
+-----+
```

3. Choose one model and press F10. To choose from a list of models, press F7, choose a model, and press ENTER. The account selection screen will open:

```
+-----+  
|          SELECT ACCOUNTS BY SNAM, BNUM OR ACCOUNT PROFILE FIELDS          |  
+-----+  
|FUNCTION: AND      |SEARCH: |  
+-----+  
|22 RECORDS FOUND |  
|  
|  
+-----+  
|Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back |  
+-----+
```

4. Choose an account or a range of accounts and press F10. A prompt will appear asking you which issue type you wish to report on

```
+-----+  
|Which Issue Type Do You Want to Report On? |  
+-----+
```

5. Type the issue type number(s) for the issue type(s) you wish to include or type ALL to include all issue types in the report. Press ENTER
6. You are prompted to include a tolerance range. This ability allows you to display only those accounts that violate a given tolerance range so you can focus only on those accounts that need additional research

```
+-----+  
|Do you wish to select a Tolerance|  
+-----+  
|          NO          |  
|          YES         |  
+-----+
```

7. Select NO to report on all accounts. Select YES to select a tolerance range and report only on accounts that fall outside the tolerance

If YES is selected, the next prompt will ask the user to select the type of tolerance range:

- **ABSOLUTE PERCENT:** A specific tolerance range based on the model target. For example, if the target allocation for a security is 5% of a sleeve and a tolerance of 2% is selected, the report will not display accounts that hold 3-7% of the security in the sleeve
- **PERCENT RELATIVE:** A tolerance relative to the model target. For example, if the target allocation for a security is 10% of a sleeve and a tolerance of 10% is selected, the report will not display accounts that hold 9-11% of the security in the sleeve. In this example, the tolerance band is +/- 1% since 1 is 10% of 10
- **STANDARD DEVIATION:** A tolerance based on the a selected number of standard deviations based on the average of the selected group of accounts

8. Choose the appropriate tolerance level. You are prompted to choose a column by which to sort the report

9. Choose the appropriate sort option. The report generates:

```

CROSS REFERENCE BY ISSUE TYPE
SORT: ACCT NUMBER
COMMON STOCKS                TYPE:28
AS OF: 08/05/04

-----
MODEL: MVCMDM
-----
ACCOUNT          COST          MKT VALUE  % CASH  UNR.  G/L  % G/L  % PORT
-----
820  MULTIPLE STRATEGY PORTFOL  3,183,589  4,157,726  *****  974,137  30.60  514.37
830  MULTIPLE STRATEGY PORTFOL  3,183,589  4,157,726  *****  974,137  30.60  514.37
840  MULTIPLE STRATEGY PORTFOL  3,183,589  4,157,726  *****  974,137  30.60  514.37
850  MULTIPLE STRATEGY PORTFOL  3,183,589  4,157,726  *****  974,137  30.60  514.37
860  MULTIPLE STRATEGY PORTFOL  3,183,589  4,157,726  *****  974,137  30.60  514.37
870  MULTIPLE STRATEGY PORTFOL  3,183,589  4,157,726  *****  974,137  30.60  514.37
880  MULTIPLE STRATEGY PORTFOL  3,183,589  4,157,726  *****  974,137  30.60  514.37
890  MULTIPLE STRATEGY PORTFOL  3,183,589  4,157,726  *****  974,137  30.60  514.37
900  MULTIPLE STRATEGY PORTFOL  3,183,589  4,157,726  *****  974,137  30.60  514.37
910  MULTIPLE STRATEGY PORTFOL  3,183,589  4,157,726  *****  974,137  30.60  514.37
920  MULTIPLE STRATEGY PORTFOL  3,183,589  4,157,726  *****  974,137  30.60  514.37
930  MULTIPLE STRATEGY PORTFOL  3,183,589  4,157,726  *****  974,137  30.60  514.37
940  MULTIPLE STRATEGY PORTFOL  3,183,589  4,157,726  *****  974,137  30.60  514.37
950  MULTIPLE STRATEGY PORTFOL  3,183,589  4,157,726  *****  974,137  30.60  514.37
960  MULTIPLE STRATEGY PORTFOL  3,183,589  4,157,726  *****  974,137  30.60  514.37
970  MULTIPLE STRATEGY PORTFOL  3,183,589  4,157,726  *****  974,137  30.60  514.37
980  MULTIPLE STRATEGY PORTFOL  3,183,589  4,157,726  *****  974,137  30.60  514.37
990  MULTIPLE STRATEGY PORTFOL  3,183,589  4,157,726  *****  974,137  30.60  514.37
1001 MULTIPLE STRATEGY PORTFOL  3,183,589  4,157,726  *****  974,137  30.60  514.37
1002 MULTIPLE STRATEGY PORTFOL  3,183,589  4,157,726  *****  974,137  30.60  514.37
-----
TOTAL          63,671,776  83,154,525  *****  19,482,749  30.60  514.37
    
```

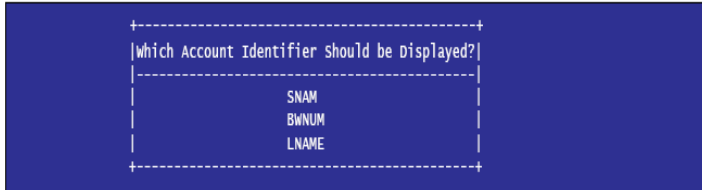
UMA Asset Mix Report

To run the UMA Asset Mix Report:

1. Select MSP ASSET MIX REPORT from the Reports menu. You are prompted to enter an “As of” date

AS OF DATE (MM/DD/YY) - HIT ENTER FOR 06/07/04 :

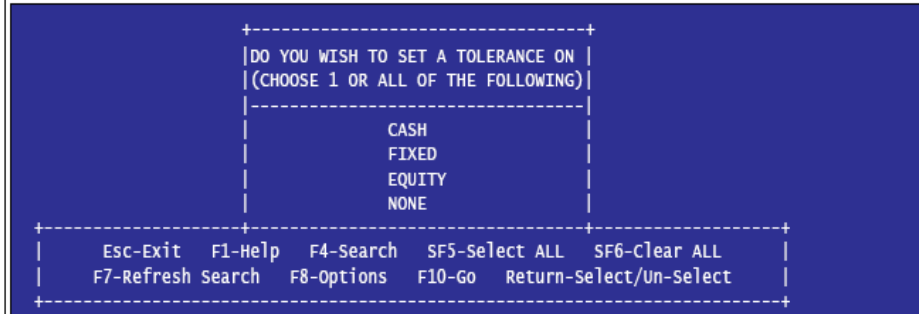
2. Enter the date of the last business day you wish to include in the report and press ENTER. The following prompt will appear:



- Choose the identifier that you want to appear in the report. You are prompted to choose a column to sort the report by



- Choose the appropriate sort option. You are prompted to choose the sort order
- Choose ASCENDING or DESCENDING as appropriate. You are prompted to set a tolerance range or ranges. This ability allows you to display only those accounts that violate given tolerance range(s) so you can focus only on those accounts that need additional research



- Highlight CASH, FIXED, or EQUITY and press ENTER to report only on accounts that fall outside the tolerance you will establish. Choose NONE if you do not want to use this option

If either CASH, FIXED, or EQUITY is selected, the next prompt will ask the user to select the type of tolerance range. This type of range will be set for all items selected.

- ABSOLUTE PERCENT:** A specific tolerance range based on the model target. For example, if the target allocation for a security is 5% of a sleeve and a tolerance of 2% is selected, the report will not display accounts that hold 3-7% of the security in the sleeve
- PERCENT RELATIVE:** A tolerance relative to the model target. For example, if the target allocation for a security is 10% of a sleeve and a tolerance of 10% is selected, the report will not display accounts that hold 9-11% of the security in the sleeve. In this example, the tolerance band is +/- 1% since 1 is 10% of 10

- STANDARD DEVIATION: A tolerance based on the a selected number of standard deviations based on the average of the selected group of accounts

7. Choose the tolerance type. You are then prompted to enter the tolerance for each selection

```
Please Set Tolerance For CASH:
Please Set Tolerance For FIXED:
Please Set Tolerance For EQUITY:
```

8. Input a number for each item and press ENTER after each entry. The model selection screen will open:

```
+-----+
|          SELECT MASTER MODELS BY SNAM OR MODEL PROFILE FIELDS          |
+-----+-----+
|FUNCTION: AND      |SEARCH:|
+-----+-----+
| 4 RECORDS FOUND  |
|                  |
|                  |
|                  |
+-----+-----+
|Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back |
+-----+-----+
```

9. Choose one model and press F10. To choose from a list of models, press F7, choose a model, and press ENTER. The account selection screen will open:

```
+-----+
|          SELECT ACCOUNTS BY SNAM, BNUM OR ACCOUNT PROFILE FIELDS          |
+-----+-----+
|FUNCTION: AND      |SEARCH:|
+-----+-----+
|22 RECORDS FOUND  |
|                  |
|                  |
|                  |
+-----+-----+
|Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back |
+-----+-----+
```

10. Choose an account or a range of accounts and press F10. A message will appear asking if you want to run the Report Error Trap
11. Type Y to run the Report Error Trap and N to skip this process. Press ENTER

The report generates. An example of the report is shown on the next page.

AS OF: 06/07/04 ACCOUNT SUMMARY REPORT AS OF: 06/07/04 ACCOUNT SUMMARY REPORT
SAMPLE ASSET MANAGEMENT SAMPLE ASSET MANAGEMENT

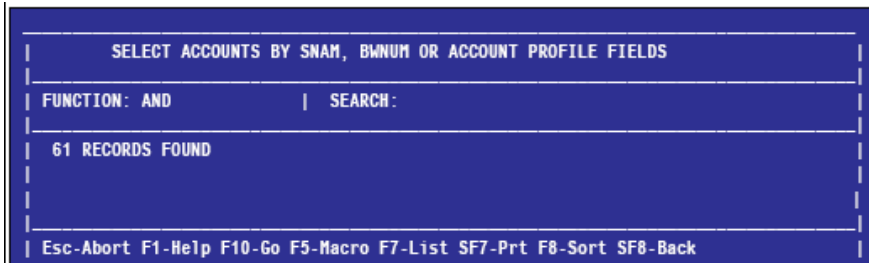
MSP MODEL: MVCHDT TARGETS: CASH=4.4972 5% FIXED=10. 5% EQUITY=85. 00275%
TOLERANCE OPTION: ABSOLUTE PERCENT TOLERANCE: CASH=1 FIXED=1 EQUITY=1

| ACCOUNT | CASH | FIXED | EQUITY | TOTAL | B/NUM | SNAM | CASH %PORT | FIXED %PORT | EQUITY %PORT | TOTAL |
|--------------|---------|-------|-----------|-----------|-------|--------|--------------|-------------|----------------|-----------|
| MSPTST | 282,668 | 0 | 1,076,965 | 1,359,633 | 0 | MSPTST | 282,668 20.8 | 0 0.0 | 1,076,965 79.2 | 1,359,633 |
| ALL ACCOUNTS | 282,668 | 0 | 1,076,965 | 1,359,633 | | | 282,668 20.8 | 0 0.0 | 1,076,965 79.2 | 1,359,633 |
| GRAND TOTALS | 282,668 | 0 | 1,076,965 | 1,359,633 | | | 282,668 20.8 | 0 0.0 | 1,076,965 79.2 | 1,359,633 |
| HIGH | 282,668 | 0 | 1,076,965 | 1,359,633 | | | 282,668 20.8 | 0 0.0 | 1,076,965 79.2 | 1,359,633 |
| LOW | 282,668 | 0 | 1,076,965 | 1,359,633 | | | 282,668 20.8 | 0 0.0 | 1,076,965 79.2 | 1,359,633 |
| MEDIAN | 282,668 | 0 | 1,076,965 | 1,359,633 | | | 282,668 20.8 | 0 0.0 | 1,076,965 79.2 | 1,359,633 |
| AVERAGE | 282,668 | 0 | 1,076,965 | 1,359,633 | | | 282,668 20.8 | 0 0.0 | 1,076,965 79.2 | 1,359,633 |
| STD | 0 | 0 | 0 | 0 | | | 0 0.0 | 0 0.0 | 0 0.0 | 0 |
| OBS | 1 | 1 | 1 | 1 | | | 1 1.0 | 1 1.0 | 1 1.0 | 1 |

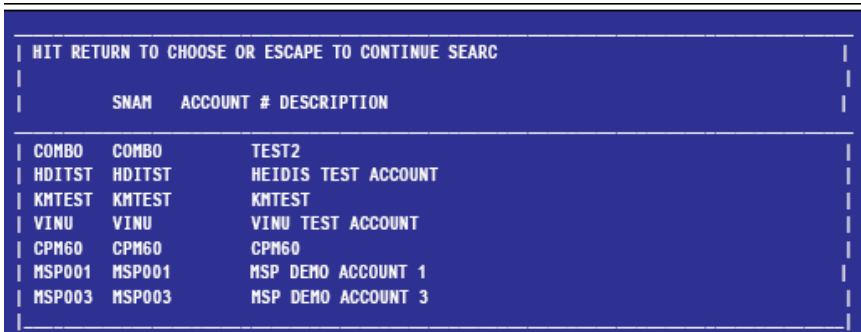
* Multiple areas of the account are outliers
[] indicates value is within tolerance

Downloadable Allocation Report

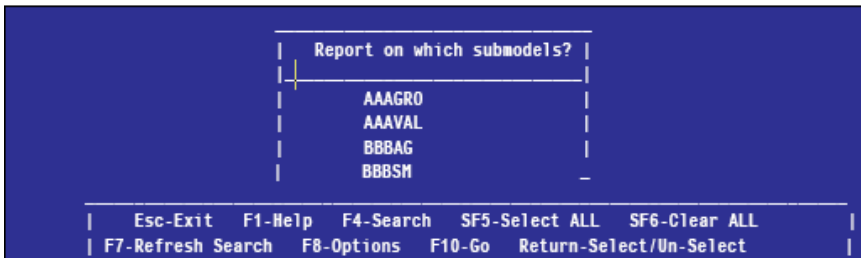
1. Select Downloadable Allocation Report from the Reports menu. The Select Accounts window opens



2. Enter an account. Type an account ID or select F7 to select from the list menu



3. Press Enter. The list of available submodels opens



4. Select a submodel
5. Press F10. A message shows the name of the report file

Top Holdings Report

The UMA Top Holdings Report allows master managers to view top holdings across selected accounts. In addition to displaying top holdings among all accounts, master managers can generate reports that show top holdings by submanagers or submodels.

Note: Please contact InvestCloud if you want to run this report as a batch process.

To run the top holdings report:

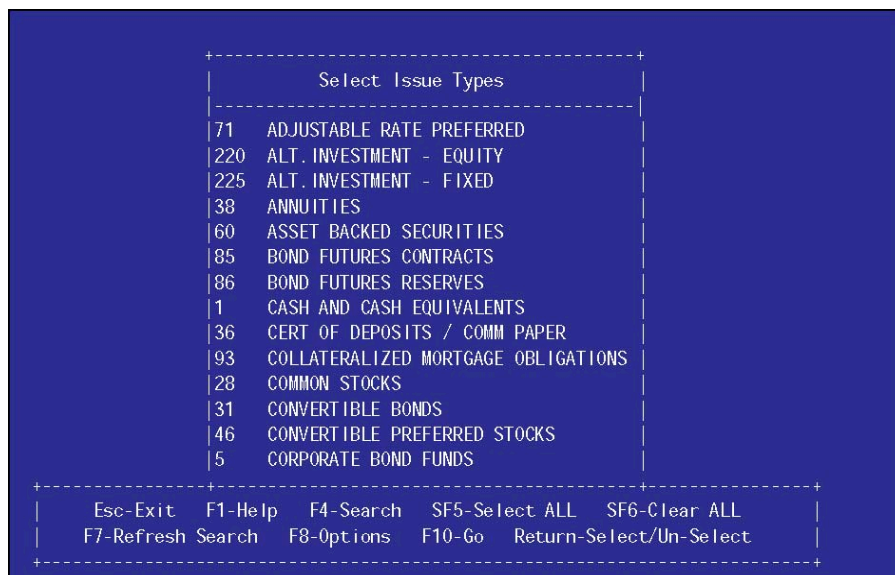
1. At the WHICH FUNCTION? type MSPRECWIMTOP or choose TOP HOLDINGS REPORT from the report menu. The following prompt will appear:

```
+-----+  
|AS OF DATE (MM/DD/YY) - HIT ENTER FOR 01/07/08 : |  
+-----+
```

2. Enter the report date in MM/DD/YY format and press ENTER. You are prompted for the number of positions to include:

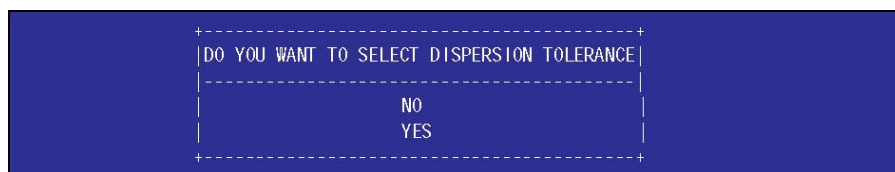
```
+-----+  
|HOW MANY POSITIONS WOULD YOU LIKE TO SEE? |  
+-----+
```

3. Enter number of positions to include on the report and press ENTER. You are prompted to specify which issue types to include in the report
4. To select an issue type, place the cursor on it and press ENTER. To select all issue types, press SHIFT+F5. To deselect a single issue type, place the cursor on it and press ENTER. To deselect all issue types, press SHIFT+F6
5. Press F10 to continue. The next prompt is dependent on whether you choose to include CASH AND CASH EQUIVALENTS



- If not selected, a prompt will ask whether cash should be included in the market value. Choose YES or NO as appropriate and press ENTER
- If selected, a prompt will ask whether to include cash as a separate position. Choose YES or NO as appropriate and press ENTER

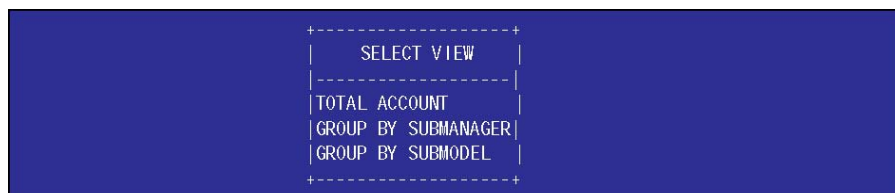
You are prompted to specify a Dispersion Tolerance. Dispersion Tolerance is the permissible limit of variation in a security holding between the total portfolio and individual accounts in the total portfolio. It is measured in basis points.



If you choose Yes, you are prompted to enter the tolerance level.



6. Type the tolerance level in basis points and press ENTER. You are prompted for a grouping preference for the report
7. Select the appropriate grouping for the report information and press ENTER



- TOTAL ACCOUNT. To view accounts irrespective of the submanager or submodel. This option invokes an Account Selection Screen where you use search criteria to specify accounts
- GROUP BY SUBMANAGER. To view a report on holdings managed by specified submanagers
- GROUP BY SUBMODEL. To view holdings in one or more submodels

The MSPRECWIMnnn.LIN and MSPRECWIMnnn.CSV report files generate.

8. To view the report, type BROWSE at the command prompt

BIG BUCKS MGMT LLC
AS OF: 01/07/2008

TOP 10 HOLDINGS
ISSUE TYPES: SUB
GROUP BY SUBMODEL

ACCOUNTS: RR EQ 99
NUMBER OF ACCOUNTS: 2

TOTAL ACCOUNT

| SECURITY DESCRIPTION | SIC CODE | TICK / CUSIP | TOTAL SHARES | PRICE/ SHARE | ORIGINAL COST | CURRENT VALUE | PORT OWNED | PCT PORT | +3 BP | -3 BP |
|----------------------|----------|--------------|--------------|--------------|---------------|---------------|------------|----------|-------|-------|
| CASH | | CASH-1 | 252812 | 1.00 | 252,812 | 252,812 | 2 | 7.12 | 1 | 1 |
| Pimco CP Opportunity | -2005 | PTY | 31956 | 14.37 | 211,549 | 203,560 | 1 | 5.73 | 1 | 0 |
| Ishares Lehman 3-7 Y | -2010 | IEI | 1792 | 107.33 | 0 | 174,415 | 1 | 4.91 | 1 | 0 |
| SPDR DJ Wilshire MID | -1910 | EMV | 6020 | 52.84 | 105,771 | 119,437 | 1 | 3.36 | 1 | 0 |
| vanguard SM-Cap Val | -1910 | VBR | 4965 | 60.47 | 105,755 | 116,529 | 1 | 3.28 | 1 | 0 |
| Exxon Mobil corp | -125 | XOM | 734 | 91.22 | 27,765 | 66,955 | 2 | 1.88 | 1 | 1 |
| Suncor Energy Inc | -125 | SU | 662 | 92.13 | 25,947 | 60,990 | 2 | 1.71 | 1 | 1 |
| Intl Business Mach | -870 | IBM | 1662 | 34.61 | 50,148 | 57,522 | 2 | 1.62 | 1 | 1 |
| General Elec Co | -345 | GE | 1528 | 102.18 | 53,017 | 55,283 | 2 | 1.55 | 1 | 1 |
| Health Care REIT | -740 | HCN | 680 | 45.22 | 15,000 | 55,230 | 1 | 1.55 | 1 | 0 |
| | | | | | 847,764 | 1,162,732 | 32.71 | | | |

Note: Due to space limitations, when dispersion tolerance is selected, the following columns appear only on the .CSV version of the report: HIGH %, HIGH % SNAM, LOW %, LOW % SNAM, AVE % and DIFF.

The report contains the following information:

| Column | Description |
|----------------------|---|
| Security Description | Security name or description. |
| SIC Code | Industry code |
| TICK / CUSIP | Security ticker |
| Total Shares | Total shares in all selected portfolios. |
| Price/Share | Security price per share on the report's As Of Date |
| Original Cost | Total cost of a security holding in all selected portfolios |

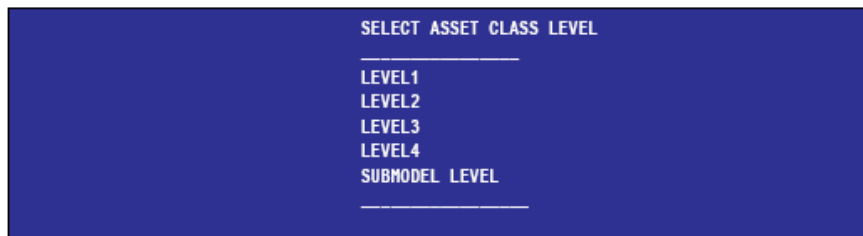
| Column | Description |
|---------------|--|
| Current Value | Total market value of a security holding in all portfolios on the report's As Of Date. |
| Port Owned | Number of portfolios in the selection holding the security on the report's As Of Date. |
| PCT Portfolio | Aggregate percentage of the holding across all selected portfolios. |
| +<#>bp | Number of portfolios where the security holding exceeds the PCT Portfolio by more than the specified tolerance. |
| -<#>bp | Number of portfolios where the security holding is less than the PCT Portfolio by more than the specified tolerance. |

UMA Asset Class Drift Report

The UMA Asset Class Drift report allows users to report drift on an asset class level. The report pulls in the Asset Class Drift table established in Administration Tools section of the Master Manager Menu.

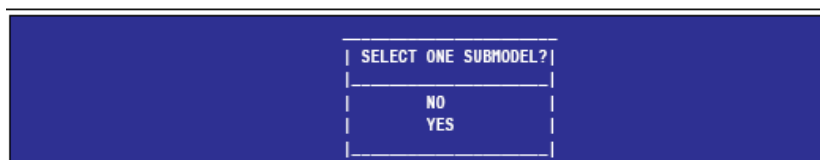
When you run the report, you will be prompted to select an asset class level. Select any one of the levels.

If level 1 through 4 is selected, the report will include all asset classes on that level and users will proceed directly to the account selection screen.

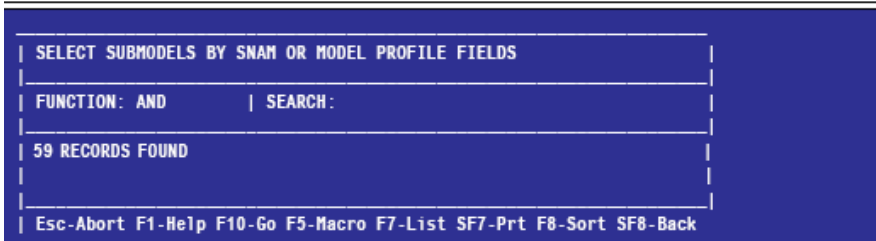


Submodel Level

If the Submodel Level is selected, there will be an option to run the report for all submodels or only one submodel.

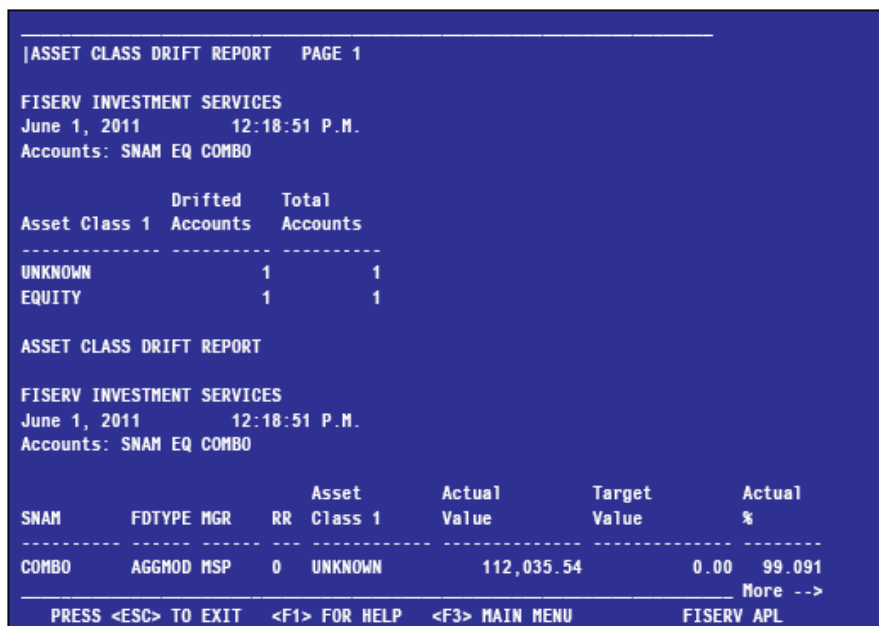


If YES option is selected, submodel selection screen will be displayed and you can select one submodel.



Select accounts and whether you want to include accrued interest.

1. Select one submodel by typing submodel short name or press F7 to selecting it from a list
2. Press F10
3. Select if you want to include accrued interest. Press Enter. The Asset Class Drift Report opens:



Report Layout

The report summary lists all asset classes of the selected level, the total number of accounts that include that asset class or submodel, and the number of accounts drifted beyond the tolerance.

The detail section of the report shows only those accounts where at least one asset class or submodel drifted beyond the tolerance. Drifted asset classes or submodels will be indicated by the word "YES" in the "DRIFTED" column. If an account has holdings not mapped to any asset class or valid submodel, they will be listed under "Unknown" asset class.

If the user selected to run the report for one submodel, only those accounts where that submodel drifted will be included in the report.

In addition to the printable report, two reports in .csv format will be created:

- assetcdriftXXX.csv - this report will include the same information as the printable report
- accountsXXX.csv - this report will list the account numbers for those accounts with drifted asset classes

- XXX stands for report number

Asset Class Drift Report printable report:

ASSET CLASS DRIFT REPORT PAGE 1

FISERV INVESTMENT SERVICES
June 1, 2011 12:46:09 P.M.
Accounts: SNAM EQ COMBO

| Asset Class 1 | Drifted Accounts | Total Accounts |
|---------------|------------------|----------------|
| UNKNOWN | 1 | 1 |
| EQUITY | 1 | 1 |

ASSET CLASS DRIFT REPORT

PAGE 2

FISERV INVESTMENT SERVICES
June 1, 2011 12:46:09 P.M.
Accounts: SNAM EQ COMBO

| SNAM | FDTYPE | MGR | RR | Asset Class 1 | Actual Value | Target Value | Actual % | Target % | Relative Drift | Absolute Drift | Drifted |
|-------|--------|-----|----|---------------|--------------|--------------|----------|------------|----------------|----------------|---------|
| COMBO | AGGMOD | MSP | 0 | UNKNOWN | 112,035.54 | 0.00 | 99.091 | 0.000 | 100.000 | 99.091 * | |
| COMBO | AGGMOD | MSP | 0 | EQUITY | 1,028.19 | 113,063.73 | 0.909 | 100.000 | -99.091 | -99.091 YES | |
| TOTAL | | | | | 63,671,776 | 83,154,525 | ***** | 19,482,749 | 30.60 | 514.37 | |

AUM Flex Report

The AUM Flex report provides UMA overlay managers and sponsors with enhanced options to view and analyze their assets under management for UMA accounts.

The report will allow users to produce one or multiple summaries by selected field(s) within the same report, as well as the detail section where the assets can be grouped by Account, Submodel or Submanager.

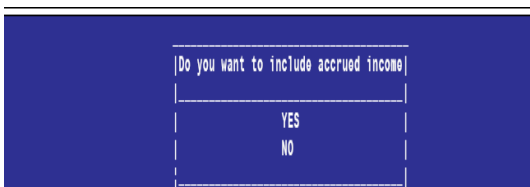
Running AUM Flex Report

To run the report:

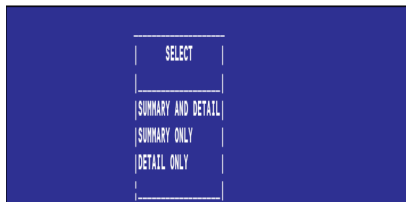
1. Select AUM FLEX REPORT option from MSP MASTERMANAGER > REPORTS menu. You are prompted to select a report format



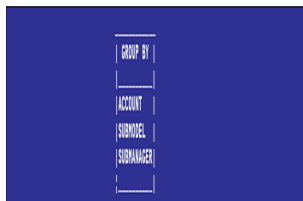
2. Select Printable to view report in APL, csv to produce a downloadable file or both to produce both and press ENTER
3. Select a date (or press Enter for today's date.) and press ENTER



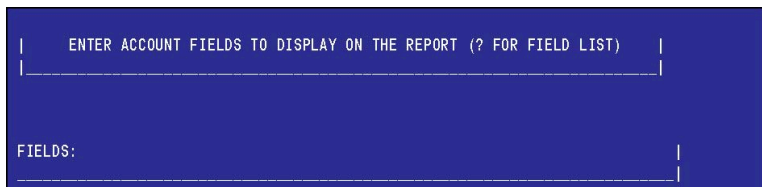
4. Select the option to include accrued income
5. Select whether to generate summary, detail or both sections



6. If the Detail section is selected, choose how the assets will be grouped. The options include Account, Submodel, and Submanager
7. If Summary and Detail or Detail Only are selected. The Group By option opens



8. Select a Group By option and press Enter. The Enter Account Fields to Display screen will open
9. Enter fields or type ? to view all available fields



Available account fields are displayed.

Notes:

- If a large number of fields are selected, not all of the fields may be viewable on the printable report
- All selected fields will be included in the .csv output file

```

HIT ESCAPE TO EXIT
|-----|
| ADM      AMTMTH  AUDIT   BANK    BASEAC  BASEAL  BEGDTE |
| BILLNO   BRKPCT  BWNUM   CHARAC  CLODT   COMBON  CSHDIF |
| CSHVAL   CUST1    CUST2   CUST3   CUST4   CUST5   CUST6   |
| CUST7    CUSTOD  DESBRK  DESFIX  DESPCT  DIFEQT  DIFFIX  |
| DISCRT   DISVOT  DOLEQT  DOLFIX  DTGBRK  DTCNO   FAMILY  |
| FDTYPE   FEEAGR  FISCAL  FIXED   FOFO    FRECY   INVGRP  |
| LNAME    MARG    MGR     MINUM   MMFUND  NAMES   NDATE   |
| OBJECT   OLDAC   OPEDT   PCTAVC  PCTDIF  PCTEQT  PCTFIX  |
| PCTXCS   PREBDT  PRELOS  QRTFEE  REBDT   REBID   REBMDL  |
| RECASH   RECEPT  RECLOT  RECPOS  REPFQY  RESID   RGLYPE  |
| RGLYPF   RGLYPT  RGLYTD  RGYPE  RGYPF   RGYPT   RGYTD   |
| RLGLPE   RLGLPF  RLGLPT  RLPE    RLPGF   RLPT    RLLPE   |
| RLLPF    RLLPT   RLTL    RLTL    RLTL    RLYPE  RLYPF   |
| RLYPT    RLYTD  RMGLPE  RMGLPF  RMGLPT  RMGPE  RMGPF   |
| RMGPT    RMLPE  RMLPF  RMLPT  RMTG    RMTGL  RMTL    |
| RR       RSGLPE  RSGLPF  RSGLPT  RSGPE  RSGPF  RSGPT   |
| RSLPE    RSLPF  RSLPT  RSTG    RSTGL  RSTL    SELLCD  |
| SOCIND   SOCSEC  SOURCE  SPECNU  STKUNV  SWEEP   TXLIAB  |
| TXSTAT   TXTOT   TXTOTL  TXTOTS  TYPCMB  UGIPE  UGIPF   |
| UGIPT    UGITD  UGLIPE  UGLIPF  UGLIPT  UGLITD  ULGLPE  |
|-----|

```

This screen is for reference. You can't select these fields to add them to your list. You have to type the field name into the "Enter account field" field.

10. Press Enter

All the fields you selected appear in the Select Sort Field screen. In this example the field selected was ADM.

```

(SELECT SORT FIELD)
|-----|
| ACCOUNT |
| ADM     |
| MARKET VALUE |
|-----|

```

11. Select a field to use for sorting the report and press Enter

12. Select Ascending or Descending and press Enter. If you selected Summary, the distribution fields option window opens

```

|-----|
|Select one or more distribution fields for the summary section|
|Select Account Master Fields|
|-----|
|          ADM          |
|          ANTMTH      |
|          AUDIT       |
|          BANK        |
|          BASEAC      |
|          BASEAL      |
|          BEGDTE      |
|          BILLNO      |
|          BRKPCT      |
|          BWNUM       |
|          CHARAC      |
|          CLODT       |
|          COMBON      |
|-----|
|-----|
| Esc-Exit  F1-Help  F4-Search  SF5-Select ALL  SF6-Clear ALL |
| F7-Refresh Search  F8-Options  F10-Go   Return-Select/Un-Select |
|-----|

```

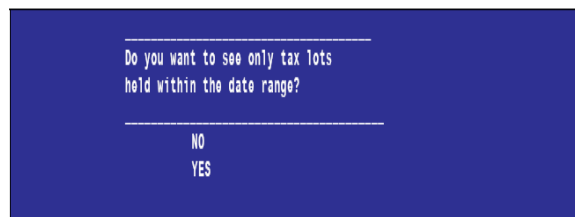
The detail section of the report shows market value per account and either account/submodel or account/submanager, depending on the selection. In addition, the report will show the selected Account Master fields on each row.

| Accounts Assets Under Management Report | | | | | |
|---|-----------|-------|--------|-----|--------|
| 2010 | | | | | |
| 99 | | | | | |
| IBMOD | | VALUE | SNAM | MGR | FDTYPE |
| IBONE | SUBMODEL1 | 10000 | A11111 | ABC | MODEL1 |
| IBTWO | SUBMODEL2 | 20000 | A11111 | ABC | MODEL1 |
| IBTHR | SUBMODEL3 | 30000 | A11111 | ABC | MODEL1 |
| IBONE | SUBMODEL1 | 20000 | A11111 | ABC | MODEL1 |
| IBTWO | SUBMODEL2 | 50000 | A11111 | ABC | MODEL1 |
| IBTHR | SUBMODEL3 | 60000 | A11111 | ABC | MODEL1 |

Security Cross Reference Report

The Security Cross Reference Report allows the viewing of holdings for selected securities or groups of securities.

When you select this report the following screen will open.

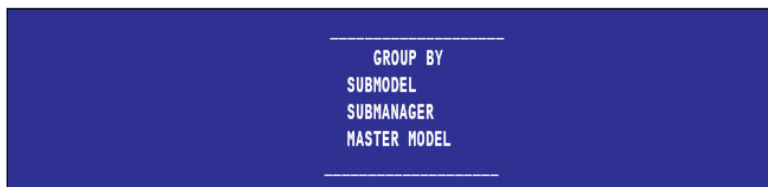


1. Select tax lots held within a date range or not
2. Select whether to include closed lots
3. Enter beginning and ending dates
4. Enter valuation date
5. Select search criteria, choices are SPECIFIC SECURITIES OR SECURITY MASTER FIELDS

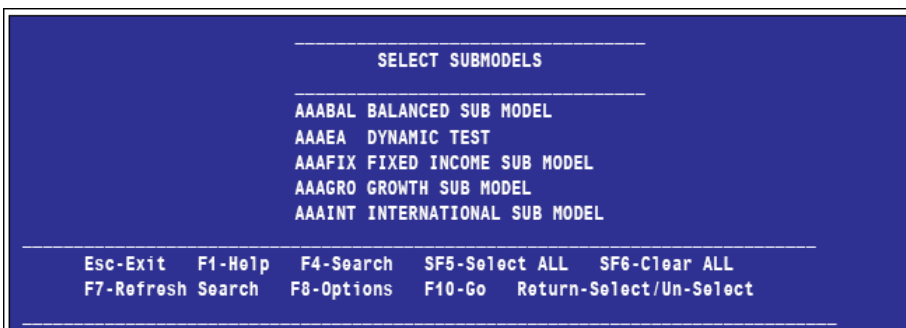


Once selected, you are prompted to enter a security identifier or security fields.

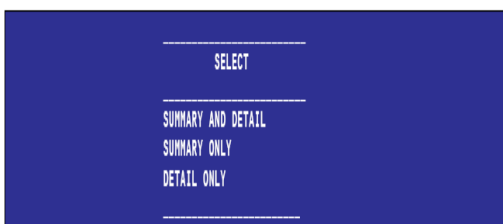
6. Group data by Submodel, submanager or master model



7. Select submodels and Press F10



8. Select to include Summary and Detail report sections, Summary Only or Detail Only



9. If the Detail section is selected, choose how to group the assets. The options include Account, Submodel, and Submanager
10. Select report format, printable, csv or both
11. Choose whether to collapse tax lots
12. Select fields to include in the Detail Section of the report

If printed report is selected, and displaying all fields exceeds 132 characters, a warning is displayed. Selected YES will allow the report to be generated. All fields will be displayed on screen but the printed version will be cut off.

13. Select the sort field for the Detail report
14. Select additional sorts. The Select Accounts screen will open

About the Generated Reports

The Security Cross Reference report will be generated after the accounts are selected.

- If Printable report was selected, go to the BROWSE REPORTS menu to view the report. The report name is UMASECXREF.XXX where XXX stands for report number

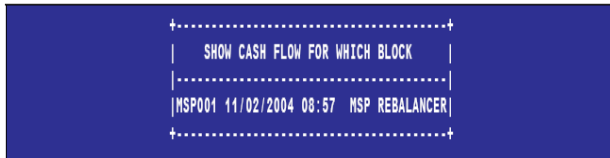
In the printable report, summary and detail will be collated into one report.

- If .csv was selected, separate summary and detail reports will be produced

.CSV reports will be called umasecxrefsumXXX.csv for summary and umasecxrefdetXXX.csv for detail.

Show Cash Flows From Rebalance Report

1. Select SHOW CASH FLOWS FROM REBALANCE from the Reports menu. You are prompted to choose a block



2. Choose the block with the cash flows you would like to view. The report is generated

| BWNUM | MODEL | BOD | AMOUNT | BOD% | TRADES&ADJ | CASHFLOW | RESULT | RES% |
|----------|--------|-----------|--------|-----------|------------|-----------|--------|------|
| 10000001 | SUBABC | 1,259.38 | 0.149 | 0.00 | 0.00 | 1,259.38 | 0.149 | |
| 10000001 | SUBDEF | 871.13 | 0.103 | 0.00 | 0.00 | 871.13 | 0.103 | |
| 10000001 | SUBGHI | 6,454.26 | 0.765 | 0.00 | 0.00 | 6,454.26 | 0.765 | |
| 10000001 | SUBJKL | 10,315.31 | 1.222 | 56.32 | 0.00 | 10,371.63 | 1.229 | |
| 10000001 | SUBMNO | 22,589.24 | 2.676 | -2,302.98 | 0.00 | 20,286.26 | 2.403 | |
| 10000001 | TOTAL | 41,489.32 | 4.915 | -2,246.66 | 0.00 | 39,242.66 | 4.649 | |
| 10000002 | SUBABC | 970.36 | 0.332 | 0.00 | 0.00 | 970.36 | 0.332 | |
| 10000002 | SUBDEF | 3,027.10 | 1.037 | 0.00 | 0.00 | 3,027.10 | 1.037 | |
| 10000002 | SUBGHI | 189.16 | 0.065 | 0.00 | 0.00 | 189.16 | 0.065 | |
| 10000002 | SUBJKL | 2,449.63 | 0.839 | 0.00 | 0.00 | 2,449.63 | 0.839 | |
| 10000002 | SUBMNO | 2,673.83 | 0.916 | 14.16 | 0.00 | 2,687.99 | 0.920 | |
| 10000002 | SUBPQR | 6,638.56 | 2.273 | -831.87 | 0.00 | 5,806.69 | 1.988 | |
| 10000002 | TOTAL | 15,948.64 | 5.461 | -817.71 | 0.00 | 15,130.93 | 5.181 | |

View holdings grouped by sleeve using ****BWTXMSP**

The ****BWTXMSP** function runs a portfolio valuation report displaying holdings grouped by the sleeve.

Note: To run this report, a master manager must first have access to a submanager’s menu. For additional information on adding a master manager to the submanager mapping table, please refer to “EDIT ASSET CLASS DEFINITIONS. Allows the master manager to define asset and sub asset classes and assign them to submodels for drift reporting purposes. See “Establish Asset Classes”.

To run this function:

1. At the WHICH FUNCTION? prompt, type WINDON and select a MSP or UMA universe
2. At the WHICH FUNCTION? prompt, type ****BWTXMSP**. Press ENTER. You are prompted for the currency that the report should reflect



3. Type the currency abbreviation. Press ENTER

Note: You can view a list of current codes by typing nothing and pressing ENTER at the prompt.

You are prompted for an as of date.

4. Type the as of date in MM/DD/YY format. Press ENTER. You are prompted to specify an account or an account range
5. At the SEARCH FOR WHAT? prompt, type the account SNAM or the account range. Press ENTER
6. At the NEXT OPERATION? prompt, type any additional criteria to expand or restrict the account selection. Or type nothing to proceed with running the report. Press ENTER. The report runs

Note: While several report names will appear on the screen on the MSPTST.LBX file is accessible. An excerpt of this multi-page report is as follows:

| TOTAL EST. TAX: | | \$ 17,361.00 | | PAGE 1 | | | | |
|--|--------------------------------|------------------------------|---------------|--------------------------|---------------|----------------|---------------|------------|
| FISERV TRAINING ASSET MANAGEMENT | | PORTFOLIO EVALUATION FOR | | DOM JONES INDUSTRIAL AVG | | | | |
| PORTVUE - MSPTST.LBX | | MSPTST | | STANDARD & POORS 500 | | | | |
| RR: 50 | | AS OF DATE: February 7, 2007 | | 12666.87 | | | | |
| ACNUM: - | | | | 1450.02 | | | | |
| RUN: 02/08/07 11:16 A.M. | | | | | | | | |
| Total All Account Submodels | | | | | | | | |
| SECURITY DESCRIPTION | PURCHASE DATE | ORIGINAL COST | COST/UNIT | MARKET PRICE | CURRENT VALUE | % GAIN/(-LOSS) | ANNUAL INCOME | YTH/ YLD |
| CASH AND CASH EQUIVALENTS | | | | | | | | |
| CASH | | | | | | | | |
| | | 113,900.38 | | | 113,900 | 9.2 | 3,588 | 3.2 |
| COMMON STOCKS | | | | | | | | |
| 0 11,000 | CHECKFREE CORP NEW COM | (CHKFR) 03/07/03 | 220,000.00 | 20.00 | 42.62 | 468,820 | 38.0 | 248,820 |
| 0 1,000 | CHECKFREE CORP NEW COM | (CHKFR) 03/07/03 | 20,000.00 | 20.00 | 42.62 | 42,620 | 3.5 | 22,620 |
| 0 1,000 | CHECKFREE CORP NEW COM | (CHKFR) 03/07/03 | 20,000.00 | 20.00 | 42.62 | 42,620 | 3.5 | 22,620 |
| 13,000 | CHECKFREE CORP NEW COM | (CHKFR) | 260,000.00 | 20.00 | | 554,060 | 45.0 | 294,060 |
| 0 2,000 | CITIGROUP INC. | (C 8) 03/07/03 | 65,580.00 | 32.79 | 54.95 | 109,900 | 8.9 | 44,320 |
| 0 1,000 | DAIMLERCHRYSLER AG ORD | (DCX 7) 03/07/03 | 29,000.00 | 29.00 | 62.82 | 62,820 | 5.1 | 33,820 |
| 0 4,000 | FORD HTR CO DEL COM PAR \$0.01 | (F 9) 03/07/03 | 32,000.00 | 8.00 | 8.56 | 34,240 | 2.8 | 2,240 |
| 0 3,000 | I B H | (IBH 9) 03/07/03 | 231,000.00 | 77.00 | 99.54 | 298,620 | 24.2 | 67,620 |
| 0 2,000 | MICROSOFT CORP | (MSFT 9) 03/07/03 | 46,000.00 | 23.00 | 29.37 | 58,740 | 4.8 | 12,740 |
| COMMON STOCKS | | TOTAL | \$ 663,580.00 | | | \$ 1,118,380 | 90.8 | \$ 454,800 |
| GRAND TOTAL | | | \$ 777,480.38 | | | \$ 1,232,280 | 100.0 | \$ 454,800 |
| THE LAST DIGIT IN THE TICKER SYMBOL REPRESENTS THE NEXT DIVIDEND PAYMENT MONTH | | | | | | | | 15,246 1.2 |
| 0 INDICATES OPTIONABLE SECURITIES | | | | | | | | |
| TIME PERIOD: (FY 12/31) | | | | | | | | |
| REALIZED SHORT TERM GAIN/LOSS (35.0%): | | ---- | 2006 | | --2007 YTD-- | | POTENTIAL | |
| REALIZED SHORT TERM GAIN/LOSS (39.6%): | | \$ 0.00 | | | \$ 0.00 | | \$ 0.00 | |
| REALIZED LONG TERM GAIN/LOSS (15.0%): | | \$ 0.00 | | | \$ 0.00 | | \$ 454,800.00 | |
| REALIZED LONG TERM GAIN/LOSS (18.0%): | | \$ 0.00 | | | \$ 0.00 | | \$ 0.00 | |
| REALIZED LONG TERM GAIN/LOSS (20.0%): | | \$ 0.00 | | | \$ 0.00 | | \$ 0.00 | |
| REALIZED LONG TERM GAIN/LOSS (28.0%): | | \$ 0.00 | | | \$ 0.00 | | \$ 0.00 | |
| MAXIMUM 2007 TAX LIAB. 35.0% STG: | | | | | | | | |
| MAXIMUM 2007 TAX LIAB. 39.6% STG: | | | | | | | | |
| MAXIMUM 2007 TAX LIAB. 15.0% LTG: | | | | | | | \$ 68,220.00 | |
| MAXIMUM 2007 TAX LIAB. 18.0% LTG: | | | | | | | | |
| MAXIMUM 2007 TAX LIAB. 20.0% LTG: | | | | | | | | |
| MAXIMUM 2007 TAX LIAB. 28.0% LTG: | | | | | | | | |
| TOTAL EST. TAX: | | | | | | | \$ 68,220.00 | |

Viewing sleeve tags for tax lots using **BWTXMSPMRC

The **BWTXMSPMRC function runs portfolio valuation report with sleeve tags for each tax lot.

To run this function:

1. At the WHICH FUNCTION? prompt, type ****BWTXMSPMRC**. Press ENTER. You are prompted for an as of date

```
AS OF DATE (MM/DD/YY) - HIT ENTER FOR 02/05/07 :
```

2. Input the as of date in MM/DD/YY format. Or, type nothing to accept the default date. Press ENTER. You are asked for an account selection or an account range

```
SEARCH FOR WHAT? MSPTST  
1 RECORDS FOUND
```

3. At the prompt, input the account name or a search string specifying an account range. Press ENTER. You are prompted to run the Report Error Trap

```
NEXT OPERATION (HIT RETURN WHEN DONE, OR TYPE HELP):  
Run Report Error Trap (RET) ? Y
```

4. Type Y for Yes or N for no. Press ENTER. If you type Y, you are prompted to select a historical price file

```
HERE ARE THE AVAILABLE HISTORICAL PRICES:  
CLSEP   YSTRPR  PRVCP   PRTEMP  PR1979  PR1980  PR2005  
PRJAN   PRFEB   PRMAR   PRAPR   PRMAY   PRJUN   PRJUL  
PRAUG   PRSEP   PROCT   PRNOV   PRDEC   PRMID   PR1982  
PR1983  PR1984  PR1985  PR1986  PR1987  PR1988  PR1989  
PR1990  PR1991  PR1992  PR1993  PR1994  PR1995  PR1996  
PR1997  PR1998  PR1999  PR2000  PR2001  PR2002  PR2003  
PR2004  
USE WHICH OF THE ABOVE: CLSEP
```

5. Type the historical price set you wish to use at the USE WHICH OF THE ABOVE: prompt. Press ENTER. The following prompt will appear:

```
HANG ON, I'M LOOKING FOR THOSE PRICES NOW...  
CONTINUE WITH RET ? Y  
RUN REPRICE ? Y  
JUST THE SUPPLEMENTARY GLOSSARY ? Y
```

6. You receive the CONTINUE WITH RET ? prompt. If you type Y can reselect the historical price and run the reprice. Press ENTER

You receive two consecutive prompts if you type Y:

- At the RUN REPRICE prompt, type Y for Yes to run the reprice or type N for No. Press ENTER
- At the JUST THE SUPPLEMENTARY GLOSSARY prompt, type Y for Yes and N for No. Press ENTER

Based on your selections, you will receive a series of line editor interfaces that allow you to update the necessary information.

7. After making changes you are asked to confirm the running of the report. Type Y.

| FISERV TRAINING ASSET MANAGEMENT PORTVUE - MSPST.LBX RR: 50 ACUM: - RUN: 02/07/07 1:34 P.M. | | PORTFOLIO EVALUATION FOR MSPST | | | | PAGE 1 DOM JONES INDUSTRIAL AVG STANDARD & POORS 500 12666.31 1448.00 | | | |
|---|------------------------------------|-----------------------------------|----------------------|-------------|---------------|--|---------------------|-------------------|------------|
| | | AS OF DATE: February 6, 2007 | | | | | | | |
| SECURITY DESCRIPTION | PURCHASE DATE | ORIGINAL COST | COST/UNIT | 02/06 PRICE | CURRENT VALUE | % | GAIN/(-LOSS) | HSP TAG | YTH/YLD |
| CASH AND CASH EQUIVALENTS | | | | | | | | | |
| CASH | | | | | | | | | |
| | | 300,212.25 | | | 300,212 | 19.4 | | | 3.2 |
| COMMON STOCKS | | | | | | | | | |
| 0 1,000 | AMERICAN TELEPHONE & TELEGRAPH CO. | (T----2) 03/07/03 | 14,000.00 | 14.00 | 52.13 | 52,125 | 3.4 | 38,125 | MOREV 2.5 |
| 0 11,000 | CHECKFREE CORP NEM COM | (CKFR) 03/07/03 | 220,000.00 | 20.00 | 41.50 | 456,500 | 29.5 | 236,500 | SUBABC |
| 0 1,000 | CHECKFREE CORP NEM COM | (CKFR) 03/07/03 | 20,000.00 | 20.00 | 41.50 | 41,500 | 2.7 | 21,500 | SUB0B1 |
| 0 1,000 | CHECKFREE CORP NEM COM | (CKFR) 03/07/03 | 20,000.00 | 20.00 | 41.50 | 41,500 | 2.7 | 21,500 | XY2HVC |
| 13,000 | CHECKFREE CORP NEM COM | (CKFR) | 260,000.00 | 20.00 | | 539,500 | 34.8 | 279,500 | |
| 0 2,000 | CITIGROUP INC. | (C 8) 03/07/03 | 65,580.00 | 32.79 | 54.95 | 109,900 | 7.1 | 44,320 | SUB0B1 3.6 |
| 0 1,000 | DAIMLERCHRYSLER AG ORD | (DCK 7) 03/07/03 | 29,000.00 | 29.00 | 63.07 | 63,070 | 4.1 | 34,070 | SUB0B1 2.9 |
| 0 4,000 | FORD MTR CO DEL COM PAR \$0.01 | (F 9) 03/07/03 | 32,000.00 | 8.00 | 8.54 | 34,160 | 2.2 | 2,160 | SUB0B1 4.7 |
| 0 1,000 | HONEYWELL INTL INC COM | (HKN 9) 03/07/03 | 22,000.00 | 22.00 | 46.62 | 46,620 | 3.0 | 24,620 | MOREV 1.9 |
| 0 3,000 | I B M | (IBM 9) 03/07/03 | 231,000.00 | 77.00 | 99.85 | 299,550 | 19.3 | 68,550 | SUBABC 1.2 |
| 0 1,000 | LIZ CLAIRBORNE INC | (LIZ 6) 03/07/03 | 28,000.00 | 28.00 | 44.56 | 44,560 | 2.9 | 16,560 | MOREV 0.5 |
| 0 2,000 | MICROSOFT CORP | (MSFT 9) 03/07/03 | 46,000.00 | 23.00 | 29.51 | 59,020 | 3.8 | 13,020 | SUB0B1 1.2 |
| COMMON STOCKS | | TOTAL | \$ 727,580.00 | | | \$ 1,248,505 | 80.6 | \$ 520,925 | 1.1 |
| GRAND TOTAL | | | \$ 1,027,792 | | | \$ 1,548,717 | 100.0 | \$ 520,925 | 1.5 |
| THE LAST DIGIT IN THE TICKER SYMBOL REPRESENTS THE NEXT DIVIDEND PAYMENT MONTH 0 INDICATES OPTIONABLE SECURITIES | | | | | | | | | |
| TIME PERIOD: (FY 12/31) -----2006----- --2007 YTD-- POTENTIAL | | | | | | | | | |
| REALIZED SHORT TERM GAIN/LOSS(39.6%): | | | \$ 0.00 | | \$ 0.00 | | \$ 0.00 | | \$ 0.00 |
| REALIZED LONG TERM GAIN/LOSS(15.0%): | | | \$ 0.00 | | \$ 0.00 | | \$ 520,925.00 | | \$ 0.00 |
| REALIZED LONG TERM GAIN/LOSS(18.0%): | | | \$ 0.00 | | \$ 0.00 | | \$ 0.00 | | \$ 0.00 |
| REALIZED LONG TERM GAIN/LOSS(20.0%): | | | \$ 0.00 | | \$ 0.00 | | \$ 0.00 | | \$ 0.00 |
| REALIZED LONG TERM GAIN/LOSS(28.0%): | | | \$ 0.00 | | \$ 0.00 | | \$ 0.00 | | \$ 0.00 |
| MAXIMUM 2007 TAX LIAB. 39.6% STG: | | | | | | | | | |
| MAXIMUM 2007 TAX LIAB. 15.0% LTG: | | | | | | | \$ 78,138.75 | | |
| MAXIMUM 2007 TAX LIAB. 18.0% LTG: | | | | | | | | | |
| MAXIMUM 2007 TAX LIAB. 20.0% LTG: | | | | | | | | | |
| MAXIMUM 2007 TAX LIAB. 28.0% LTG: | | | | | | | | | |
| TOTAL EST. TAX: | | | | | | | \$ 78,138.75 | | |

Viewing accrued income using MSPREVIEWTOT

The MSPREVIEWTOT function runs an account review report showing accrued income.

To run this function:

1. At the WHICH FUNCTION? prompt, type MSPREVIEWTOT. Press ENTER. You are prompted to run the report on equities, fixed income securities, or all securities

EQUITY ZZXFIXED OR ALL?

2. Type E for equities, F for fixed income securities, or A for all. Press ENTER. You are prompted for the currency that the report should reflect

PRESENT REPORT IN WHICH CURRENCY?

3. Type the currency abbreviation. Press ENTER

You can view a list of current codes by typing nothing and pressing ENTER at the prompt.

You are prompted to specify report's sort order.

```
SORT BY 0=DESC 1=$GAIN 2=%GAIN 3=SIC 4=%VAL 5=INC GAIN($) 6=INC GAIN(%)? 1
```

4. Type the number associated with the criteria you want the report sorted according to

| Sort Criteria | Description |
|----------------|-----------------------------|
| 0=DESC | Security description |
| 1=\$GAIN | Gain in dollars |
| 2=%GAIN | Gain in % |
| 3=SIC | Industry code |
| 4=%VAL | % of portfolio value |
| 5=INC GAIN(\$) | Gain from income in dollars |
| 6=INC GAIN(%) | Gain from income in % |

You are prompted for a date range for the report at the next two prompts.

5. At the BEGINNING DATE (MM/DD/YY) prompt, accept the default date by typing nothing. Press ENTER
6. At the ENDING DATE (MM/DD/YY) prompt, accept the default date by typing nothing. Press ENTER
7. At the SEARCH FOR WHAT? prompt, type the account SNAM or the account range. Press ENTER
8. At the NEXT OPERATION? prompt, type any additional criteria to expand or restrict the account selection. Or type nothing to proceed with running the report
9. Press ENTER. The report runs

An excerpt of this multi-page report is as follows:

```

FISERV TRAINING ASSET MANAGEMENT          ACCOUNT REVIEW WITH INCOME          PAGE 1
PORTVUE- MSPST.XYZMNC.LAR                RUN FOR ALL
ACCOUNT NO: -                              MSPST
                                           FROM 02/07/07 TO 02/07/07
*****
                                           02/07/07 02/07/07 %
DJIAT 0.00 0.00 0.00
SP500T 0.00 0.00 0.00
*****

SECURITY DESCRIPTION      ---February 7, 2007---  --NET TRADES--  ---February 7, 2007---  TOTAL  TOTAL  INC  INCOME
-----                SHARES  PRICE  VALUE  SHARES  AMOUNT  SHARES  PRICE  VALUE % VAL  G/L%   G/L  G/L%   G/L
-----                -----
CHECKFREE CORP NEW COM    1000  42.620  42620                1000  42.620  42620 100.0
-----
TOTAL                    42620                42620 100.0

NOTES: Beginning and ending values include accrued income.
        Stock accruals are calculated for the 4 most recently
        announced dividends but not for earlier dividends.
        G/L percentages represent amount gained or lost divided
        by beginning value plus amount invested during period.
    
```

Viewing statistics on sleeves using MSPSLEEVESTATS

The MSPSLEEVESTATS function runs statistics on the total market value and number of sleeves in selected accounts.

To run this function:

1. At the WHICH FUNCTION? prompt, type MSPSLEEVESTATS. Press ENTER. You are prompted to specify an account or an account range

SEARCH FOR WHAT?

2. Type the account or account range. Press ENTER. You are prompted to refine the search, if necessary. Type additional criteria to refine the search or type nothing to run the search as is. Press ENTER

The report will appear on the screen and provides basic data including the number of sleeves, the number of accounts in the sleeves, and the dollar value of the sleeves:

```

NEXT OPERATION (HIT RETURN WHEN DONE, OR TYPE HELP):
There are 23 MSP accounts, totalling 56,208,277. :
Number of Sleeves  Number of Accounts  Value:
1 0
2 0
3 1 1,493,380.
4 0
5 22 54,714,897.
    
```

View security drift from a model for selected accounts using MSPAUDITDRIFT

The MSPAUDITDRIFT report shows security drift from the master model(s) for the selection of accounts.

This report includes the following features:

- Each account's linked master model is applied for determining security drift
- Sleeve tags are displayed on each report line
- The user has the option to display all drifted securities, model securities not held in the account or non-model securities held in the account
- The user has the option to include or exclude securities based on security master fields
- The user has the option to select security and cash drift tolerance on account or sleeve basis
- The user can select to display absolute or relative drift
- Targets and holdings are displayed based on account and sleeve market value
- The report shows account-level restrictions
- The report can be run online and in batch
- In addition to a printable report, a downloadable report will be produced in .csv format

Reporting with Restriction Replacement Securities

When the Restriction at Sleeve Level feature is enabled and the submodel Replacement Security restriction method is employed, this report recognizes the assigned submodel restriction replacement security when there are restriction violations for securities within the same submodel.

A replacement security entry is added to the UMA Multi Account Drift Report when there is at least one restricted modeled security in the assigned submodel.

Note: Refer to the Restriction at Sleeve or Account Level section within this document for details about submodel restriction replacement securities.

The assigned submodel replacement security is displayed within the report in place of the securities with restriction violations within the same submodel.

- The model %, actual %, and drift reported for the replacement security reflects the aggregate percent of the restricted securities
- If the replacement security is itself in the model, then the model % of the replacement security is included in the reported aggregate model %
- If the replacement security is in the submodel or in the account as a non-model holding, the actual % of the replacement security is included in the reported aggregate actual %
- Restriction replacement securities are identified within the report with an indicator
 - An asterisk “*” indicates the security is a restriction replacement and a non-model holding
 - An at sign “@” indicates the security a restriction replacement and is also a model holding
- The restriction replacement security is not reported:
 - When the replacement security is restricted
 - If the replacement security is cash (CASH-1)
 - When the sum of the restricted securities falls inside the specified drift tolerance

There are two options to begin:

Type MSPAUDITDRIFT at the WHICH FUNCTION? prompt

or

Select UMA MULTI ACCOUNT DRIFT REPORT from the Reports menu.

To run the report:

1. You are prompted to specify a report date

```
AS OF DATE (MM/DD/YY) - HIT ENTER FOR 09/18/09 :
```

2. Type the report date in MM/DD/YY format or type nothing to select the previous business day and press ENTER
3. You are prompted to choose one or more master models

```
SELECT MASTER MODELS BY SNAM OR MODEL PROFILE FIELDS
FUNCTION: AND      | SEARCH:
28 RECORDS FOUND
Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back
```

Type the model criteria and press ENTER or press F7 to choose models from a list.

```
HIT RETURN TO CHOOSE OR ESCAPE TO CONTINUE SEARCH
MODEL DESCRIPTION
GROVAL GROWTH AND VALUE MASTER MODEL
GROINT GROWTH AND INTERNATIONAL MASTER MODEL
FIXINT FIXED INCOME AND INTERNATIONAL MASTER MO
ALLMOD GRO/BAL/INT/FIX/VAL MASTER MODEL
RISK3 VAL/FIX/BAL MASTER MODEL
RISK4 INT/BAL/GRO/FIX MASTER MODEL
CONS3 CONSERVATIVE BAL/VAL/FIX
CONS4 CONSERVATIVE BAL/VAL/FIX/GRO
BALFIX BALANCED AND FIXED INCOME MASTER MODEL
```

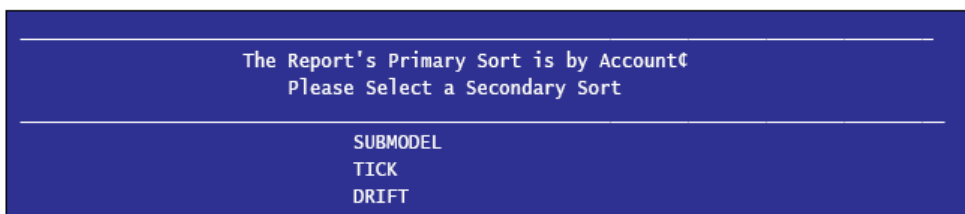
4. You are prompted to select accounts

From the account selection box, type the SNAM, BWNUM or account selection fields for one or more accounts and press Enter. Or, press F7 to choose from a list of accounts.

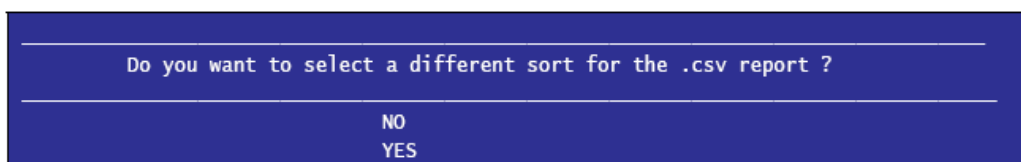
Press F10.

5. You receive a series of prompts asking to specify sort order and output format. The primary sort order for a printable report is always by account

Specify the secondary sort by submodel, ticker or drift.

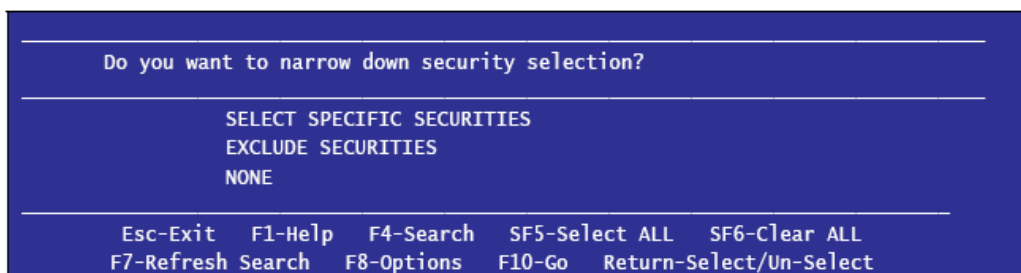


Select a sort order for the .CSV report.

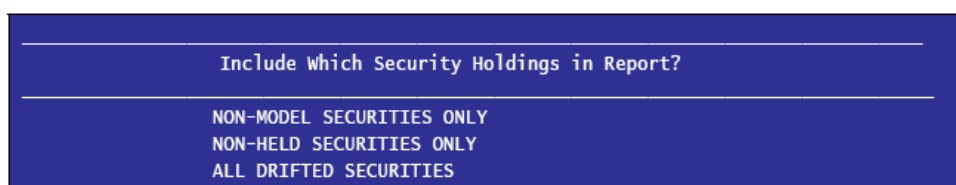


- Select Yes to change the order for both the primary and/or secondary sorts or
- Select No to use the same order as the printable version

Specify SELECT SPECIFIC SECURITIES or EXCLUDE SECURITIES or NONE as appropriate and press F10.

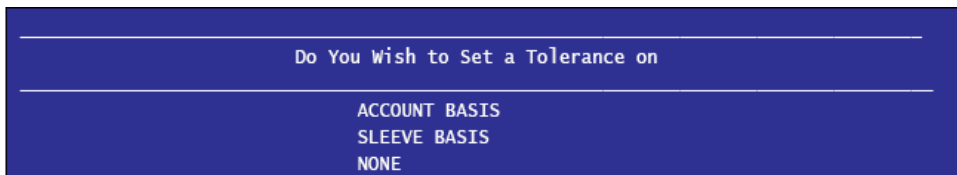


- a. If an option other than NONE is selected, you are prompted for search criteria
 - b. Enter a Security ID or a Security Master field
6. Press Enter. You are prompted to choose the type of holdings to include in the report



Choose the type of holding to include in the report.

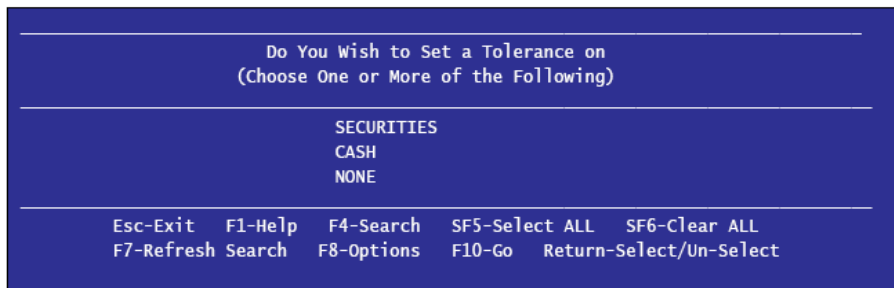
- NON-MODEL SECURITIES ONLY to include only securities that are held in the account but do not have a model target
 - NON-HELD SECURITIES ONLY to include only securities that have model targets but are not held in the account
 - ALL DRIFTED SECURITIES to include all securities
7. You are prompted to choose the basis for the drift tolerance



8. Choose either ACCOUNT BASIS or SLEEVE BASIS, or NONE if no basis is needed

If you choose a basis, then you are prompted to set a tolerance on securities or cash.

a. Choose SECURITIES, CASH, or NONE as appropriate

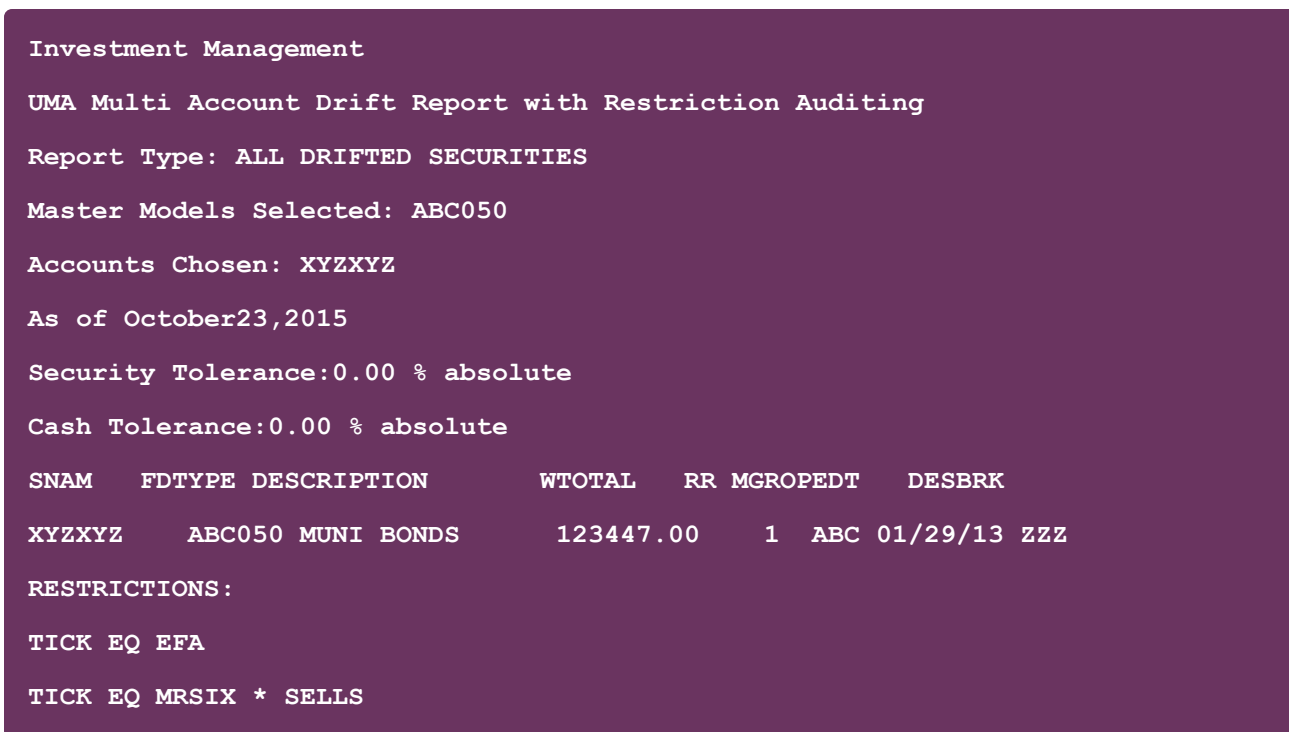


If you choose SECURITIES or CASH you are prompted for a drift tolerance. Enter the tolerance as a percent. This value will apply to all securities in the report.

9. You are asked if the drift is absolute or relative

Select ABSOLUTE or RELATIVE.

10. The report MSPAUDITDRIFT.LRP is created



```

$PCTSEC GTE2 * TICK EQ DODFX
          % in          Abs Drift Abs Drift
Sub      Master  % in Account  %in Sub % in Sleeve
ModelTick  ModelAccount Basis      Model Sleeve Basis      Units
SLVAAA CASH-1      0.21  0.14 -0.07      2.00  1.41 -0.59      10000.0000
SLVAAAABRMIX3.00  3.07  0.07      58.8057.10 -1.70      10000.0000
SLVAAA MHYIX 4.50  4.49 -0.01      42.0045.00  3.00      10000.0000
SLVAAAVSNGX2.00  2.16  0.16      39.2040.18  0.98      10000.0000
SLVAAA OHYFX3.00  2.71 -0.29      28.0027.17 -0.83      10000.0000
SLVBBB DXJ1.00  1.09  0.09      6.53  7.47  0.94      10000.0000
SLVBBB IVZ0.07  0.08  0.01      0.47  0.47  0.01      10000.0000
SLVCCCMATIX4.00  3.93 -0.07      26.1426.85  0.71      10000.0000
SLVCCSPY5.00  5.21  0.22      98.0095.71 -2.29      10000.0000
    
```

Sample Report

```

Report Type: ALL DRIFTED SECURITIES
Master Models Selected: ABC
Accounts Chosen: ABC
As of October      23,   2015
Security Tolerance: 0.00 % absolute
Cash Tolerance:    0.00 % absolute

SNAM      FDTYPE DESCRIPTION          WTOTAL  RR MGR  OPEDT DESBRK
ABC       ABC      MUNI BOND              123447.00  6  ABC   01/29/13 ABC

RESTRICTIONS:
TICK EQ EFA
TICK EQ MRSIX * SELLS
$PCTSEC GTE 2 * TICK EQ DODFX

          % in          Abs Drift          Abs Drift
Sub          Master % in Account %in Sub % in          Sleeve
Model        Tick      Model Account Basis      Model Sleeve Basis      Units

SLVAAA      CASH-1      0.21    0.14 -0.07          2.00  1.41  -0.59 10000.0000
SLVAAA      BRMIX       3.00    3.07  0.07          58.80 57.10  -1.70 10000.0000
SLVAAA      @ MHYIX     4.50    4.49 -0.01          42.00 45.00   3.00 10000.0000
SLVAAA      VSNGX       2.00    2.16  0.16          39.20 40.18   0.98 10000.0000
SLVAAA      OHYFX       3.00    2.71 -0.29          28.00 27.17  -0.83 10000.0000
SLVBBB      DXJ         1.00    1.09  0.09           6.53  7.47   0.94 10000.0000
SLVBBB      * IVZ       0.07    0.08  0.01           0.47  0.47   0.01 10000.0000

* indicates that the security is a Restriction Replacement and a non-model
holding
@ indicates that the security is a Restriction Replacement and a model holding
    
```

Sample report with submodel Restriction Replacement Securities

6.19 Unified Managed Account (UMA) Rebalancer

The UNIFIED MANAGED ACCOUNT Master Manager Rebalancer trading tool allows master managers to rebalance one or more securities within selected submodels with the assumption that the securities may, or may not, be held in the submodels at the time. Moreover, the tool minimizes the number of trades and shares traded within an account when a security is held in multiple submodels.

Also see: [Minimum and Rounding Tables and the UMA Master Manager Rebalancer](#).

Using these selections, the system rebalances the securities to the target percentage for selected accounts.

The optional netting process takes place at the commit and minimizes the trading of multiple submodel securities. This process offsets, or “nets trades”, based on the original trades resulting from the security rebalancing process. At the time of commit, the netting process runs, netting the original trades with the netting trades, minimizing the number of shares traded.

The UMA Nightly Batch Rebalancing process automatically checks the consecutive number of days for drift to trigger a rebalance.

Submodel Allocation (Standard). This rebalancing method ensures that the submodel allocations in the master model are met. The rebalancer trades the securities with the largest amount of drift first, and works its way down to the securities with smaller amounts of drift.

Once the submodel allocations are met, the rebalancer stops trading securities. For this reason, there may be some securities that are not traded and may still be out of line with their individual targets. For example, an account with a 46/37/17 allocation trades until it returns to its master model allocation of 40/40/20, even though there may be some securities that are not traded.

The Submodel Allocation (Standard) method keeps submodel allocations in line, while reducing the number of necessary trades. The number of trades is affected by the Overcompensating levels found in the Drift/ Rebalancing Rules screen for each account—the larger the Overcompensating number, the less trading that is needed to return portfolios to the submodel targets. This option is ideal for maintenance draft rebalancing of existing accounts.

Submodel Allocation (Standard) - Satisfy Cash Target First. Rebalance by creating only enough trades to ensure that each account meets its sub-model allocation target by satisfying the cash first.

This option supports raising/investing cash due to systematic additions or withdrawals.

Security Allocation (Thorough). This rebalancing method ensures that the individual security allocations found in the master model are met. The rebalancer generates the maximum number of trades, since its goal is to realign each security in the account with its target found in the master model. This option is best used when the manager wants each security in the account to match up as closely as possible with the master model, or when a new account is opened that already holds some securities (that is, not 100% cash).

This option is ideal for the initial rebalancing of new accounts to ensure that all securities within the submodels are traded.

Submodel/Security Allocation (Two-Pass). An enhanced UMA rebalancing feature, referred to as Two-Pass, uses different logic to calculate trades. Depending on configuration parameters, trading can occur when the Rebalancer detects sleeves that have drifted beyond the specified drift tolerance, and at the same time, securities within those sleeves that have drifted beyond a designated threshold. Since both conditions are considered before rebalancing occurs, the number of trades will be reduced and trading costs will be controlled.

The rebalancing process depends on selected configuration options. Trading will occur according to the instructions specified during setup. To set the configuration options, contact Customer Operations at InvestCloud.

The table below explains the available options when sleeves have or have not drifted beyond the designated thresholds.

| Drift Evaluation | Evaluation Results | Configuration Option |
|---|--|---|
| <p>1. Evaluation of drift tolerance occurs at the submodel level.</p> | <p>Configuration settings determine the next step:</p> <ul style="list-style-type: none"> The sleeve has drifted beyond the drift tolerance thresholds set at the submodel level. <p>OR</p> | <p>The selected option determines how the rebalancer proceeds.</p> <ul style="list-style-type: none"> Trade drifted securities in drifted sleeves. |
| | <ul style="list-style-type: none"> The sleeve has not drifted beyond the drift tolerance thresholds set at the submodel level. | <ul style="list-style-type: none"> Drift evaluation stops. No trading or rebalancing. Evaluate position (security) drift. |
| <p>2. Drift evaluation determines that the sleeve did not drift beyond its tolerance threshold.</p> <p>However, the prior configuration option specifies that drift evaluation continues at the security level.</p> | | <p>The selected option determines if drifted securities are traded, or sleeves are rebalanced:</p> <ul style="list-style-type: none"> Trade drifted securities in all sleeves. Rebalance all sleeves with drifted securities. |

Discretionary or excluded sleeves are taken into account during submodel drift evaluation. However, securities in discretionary or excluded sleeves are not traded.

Also see:

[Drift/Rebalancing Rules](#)

[Submodel-Level Position Tolerance Table](#)

Mutual Fund Accounts (MFA)

In addition to processing UMA accounts, the UMA Rebalancer can process accounts designated as single sleeve MFA accounts.

Note: The following features are available upon request. To activate contact your InvestCloud Account Manager.

Block Naming

This feature allows the user to assign a unique block name.

If enabled, a prompt is displayed before trades are generated where a 6-character block name can be entered. For firms with custom block naming, this feature is not available.

- If a block name is not entered, to ensure trades are not discarded a prompt is displayed:

Are you sure you want to discard all trades? No/Yes?

- Select Yes to discard all trades
- Select No and enter a new block name
- If the block name entered already exists, a message is displayed:

DO YOU WANT TO APPEND TO EXISTING BLOCK XXX?" Yes/No.

- Select Yes to append the trades to the existing block
- Select No and enter a new name

Block Title

This feature allows the user to assign a block title.

If enabled, a prompt is displayed before trades are generated where a block title can be entered. If no block title is entered the default block title is used.

Using the UMA Rebalancer

1. From the UMA Master Manager screen select UMA Master Manager (or UMA Sub Manager). The Welcome to the MSP Control Menu will appear

WELCOME TO THE MSP CONTROL MENU

SELECT DESIRED OPTION

ESC TO EXIT

ADMINISTRATION TOOLS

ACCOUNT MAINTENANCE

MODEL MAINTENANCE

TRADING

MUTUAL FUND ADVISORY TRADING TOOL

REPORTS

BROWSE REPORTS

HELP

2. Select Trading. The Select Desired Option screen displays

SELECT DESIRED OPTION

```
ESC TO EXIT
```

```
-----  
UMA REBALANCER
```

```
MSP SECURITY REBALANCER / MULTI-WHATIF
```

```
SWAP TOOL
```

```
GLTM TOOL
```

```
SET SUPERVISOR STATUS
```

```
BLOCK STATUS
```

```
ACCOUNT
```

```
ADJUSTER
```

```
SUBMODEL CASH ADJUSTER
```

```
SELL UNTAGGED LOTS
```

```
TBA SWAP TOOL
```

```
BROWSE REPORTS
```

```
HELP
```

3. Select UMA Rebalancer. The Select Desired Account Option screen will appear

```
=====
```

```
UNIFIED MANAGED ACCOUNT REBALANCER
```

```
SELECT DESIRED ACCOUNT OPTION
```

```
ESC TO EXIT
```

```
=====
```

```
SELECT ACCOUNTS
```

```
ALL ACCOUNTS
```

```
=====
```

4. Select either Select Accounts or All Accounts. The Select Desired Model Option displays

```
=====
```

```
UNIFIED MANAGED ACCOUNT REBALANCER
```

```
SELECT DESIRED MODEL OPTION
```

```
ESC TO EXIT
```

```
=====
ALL UMA MODELS
```

```
SELECT UMA MODELS
=====
```

5. Select either All UMA Models or Select UMA Models
6. If you chose Select Accounts, the SELECT ACCOUNTS BY SNAM, BNUM OR ACCOUNT PROFILE FIELDS screen will display

```
=====
SELECT ACCOUNTS BY SNAM, BNUM OR ACCOUNT PROFILE FIELDS
=====
```

```
FUNCTION: AND          |SEARCH:
```

```
=====
9 RECORDS FOUND
=====
```

```
Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back
=====
```

1. Type in an account range or press F7 to choose a single account from a menu
2. Press F10 to save and process the selection
7. If you chose Select UMA Models, the SELECT MASTER MODELS BY SNAM OR MODEL PROFILE FIELDS screen displays

```
=====
SELECT MASTER MODELS BY SNAM OR MODEL PROFILE FIELDS
=====
```

```
FUNCTION: AND          |SEARCH:
```

```
=====
22 RECORDS F
=====
```

```
Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back
=====
```

1. Enter model information or press F7 to select from a list of models
2. Press F10 to continue to the next screen. The first UMA Rebalancer screen will open

```

UNIFIED MANAGED ACCOUNT REBALANCER

Accounts      : 4459 ACCOUNT(S)
Models       : ALL UMA MODELS
SubModels    : REBALANCE ENTIRE ACCOUNT
Market Value : TOTAL ACCOUNT
Target       : SECURITY ALLOCATION (THOROUGH)
Rules        : IGNORE DRIFT RULES

Create Tax Sensitive Trades      : YES
Apply Wash Sale                  : YES
Flow Cash For This Block         : NO
Desired % of Portfolio for Master Model : 100.000
Can Cash go Negative?           : NO
Buy/Sell Mode                    : SELL+BUY
Freeze Option                    : RESTRC
Minimum % cash to be left        : 0.00
Sort Rebalancing Report         : SUBMODEL+TICKER
Run Rebalancing Report for what % Accts : 100
Create Trade Exception Report?   : YES
Cash From RESTR Securities       : PRORATE ACROSS ALL

=====
F1 - Help   F3 - Abort   F9 - Cycle   F10 - Go
    
```

| Field | Description |
|----------|---|
| Accounts | <p>Enables you to select specific account ranges by name</p> <p>SELECT ACCOUNTS- Enables you to choose the accounts to be rebalanced. When this option is chosen, you will be prompted to choose accounts via a search screen.</p> <p>ALL ACCOUNTS - Rebalances all accounts.</p> |

| Field | Description |
|--|--|
| Models | Enables you to limit the selected account range based on the master model associated with it. |
| | SELECT MSP MODELS - Choose accounts based on the master models associated with them. If you choose this option, you will need to fill in the Select Master Models by SNAM screen. |
| | ALL MSP MODELS - Accounts associated with any master model are used to rebalance portfolios. |
| SubModels | Enables you to rebalance selected sleeves on the master manager level instead of an entire portfolio. This allows the master manager to rebalance one or more selected sleeves across multiple accounts without rebalancing all sleeves. |
| | REBALANCE ENTIRE ACCOUNT is the default selection and allows you to rebalance all sleeves. |
| Market Value | REBALANCE USING SPECIFIC SLEEVES allows you to rebalance selected sleeves while having access to all account cash. If you choose this option, you will use the Select Submodels By SNAM Or Model Profile Fields screen. |
| | TOTAL ACCOUNT (Default). If this is the selected value, trades will be calculated for all sleeves using total account basis. When the calculations are completed, trades for the excluded sleeves are not proposed. |
| | INCLUDE ONLY SELECTED SUBMODELS. If this is the selected value, only the market value of included sleeves will be used as a basis for calculating trades and drift. |
| | MAINTAIN ACTUAL SLEEVE ALLOCATION: To be used in conjunction with the above Submodel option, REBALANCE USING SPECIFIC SLEEVES. Selecting this value provides the option of rebalancing multiple sleeves at the same time without affecting the asset allocation at the Master Model level. |
| | When this option is selected, the model weightings of each security within each sleeve selected will be as follows: |
| $\text{Security Weighting} = (\text{Sleeve Weighting}) \times (\text{Model Weighting})$ | |
| where | |
| $\text{Sleeve Weighting} = \frac{\text{Actual Market Value of Sleeve}}{\text{Sum of Market Value of All Sleeves Selected}}$ | |
| Notes: | |
| <ul style="list-style-type: none"> When all sleeves are included, Rebalancer produces the same result regardless of the answer to this prompt | |

| Field | Description |
|--------|--|
| | <ul style="list-style-type: none"> • When run in batch, all Rebalancer prompts are included in the control job • The systematic process retains the Trade Method selected by the user when there are excluded sleeves |
| Target | <p>Determines the method by which the portfolios are rebalanced</p> <p>SUBMODEL ALLOCATION (STANDARD) assures that the submodel allocations in the master model are met (for Blank sleeve or Non-model Sleeve).</p> <p>SECURITY ALLOCATION (THOROUGH) assures that the individual security allocations in the master model are met (for Blank sleeve or Non-model Sleeve).</p> <p>SUBMODEL ALLOCATION (STANDARD -SATISFY CASH FIRST) assures that the sub-model allocations in the master model are met, starting with satisfying cash first (for Blank sleeve or Non-model Sleeve).</p> <p>SUBMODEL/SECURITY ALLOCATION (TWOPASS)</p> <p>(see explanation above of this enhanced rebalancing feature)</p> |
| Rules | <p>When SECURITY ALLOCATION (THROUGH) is selected:</p> <p>IGNORE DRIFT RULES rebalances a portfolio even if it does not violate any drift tolerance</p> <p>APPLY SUBMODEL-SPECIFIC DRIFT rebalances a portfolio based on the drift tolerance stored in the master model. (Only one submodel within a master model is required to be in violation of the drift tolerance for a portfolio to be rebalanced to the master model.)</p> <p>When SUBMODEL ALLOCATION (STANDARD) is selected:</p> <p>IGNORE DRIFT RULES rebalances a portfolio even if it does not violate any drift tolerance</p> <p>APPLY STANDARD ACCOUNT-LEVEL DRIFT rebalances a portfolio based on the original drift rules stored in the master manager Account Maintenance menu.</p> <p>When SUBMODEL ALLOCATION (STANDARD-SATISFY CASH) is selected:</p> <p>IGNORE DRIFT RULES: Sleeve drift tolerance is set to zero for all sleeves.</p> <p>APPLY STANDARD ACCOUNT-LEVEL DRIFT: Drift tolerance values specified on the Rebalancer Rules screen are used to determine drift. If specified, account-level rules take priority over default rules. Only absolute drift is supported. Users can set different values for large and small sleeves.</p> <p>When SUBMODEL/SECURITY ALLOCATION (TWOPASS) is selected:</p> <p>IGNORE DRIFT RULES: Sleeve drift tolerance is set to zero for all sleeves.</p> |

| Field | Description |
|------------------------------------|--|
| | <p>APPLY STANDARD ACCOUNT-LEVEL DRIFT: Drift tolerance values specified on the Rebalancer Rules screen are used to determine drift. If specified, account-level rules take priority over default rules. Only absolute drift is supported. Users can set different values for large and small sleeves.</p> <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;"> <p>Note: STANDARD methods only recognize ACCOUNT rules for Drift and THOROUGH only recognizes SUBMODEL rules for drift when run ad-hoc.</p> </div> |
| <p>Create Tax Sensitive Trades</p> | <p>YES. If selected, a tax filtering screen is displayed. This screen can be used for setting additional tax filtering criteria for selecting the tax table.</p> <p>NO. If selected, the tax table is ignored and selling priority (FOFO) is used on an account level. No versus purchase (VP) dates will be populated in the block. If necessary, swapping tax lots between sleeves will occur during the nightly process so that selling priority is applied on the account level.</p> <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;"> <p>Note: Clients with tax sensitive UMA trading enabled, i.e. tax lot swapping, who also use GLTM tools should be aware that GLTM tools do not support tax lot swapping. It is not recommended to use GLTM tools on the same date as the tools that support tax lot swapping.</p> </div> |
| <p>Apply Wash Sale</p> | <p>YES. The tool will check and remove trades violating the wash sale rule. If a user set additional wash sale filters in the Tax Table and selected to use the table, rules defined in the table will be used in addition to the standard wash sale rule.</p> <p>NO. Trades will not be checked for wash sale rule Violations.</p> |
| <p>Desired % Portfolio for</p> | <p>The percent of the portfolio that will be rebalanced according to the master model. For example, you Master Model can leave 10% of the market value of the account in cash by rebalancing to only 90% of the model.</p> <p>This feature is useful when there is no cash in the submodels since it lets the master manager prevent the overspending of cash by maintaining a certain percentage of cash to allow for fluctuations in execution prices.</p> <p>The master manager may also rebalance more than 100 percent of an account to use additional cash.</p> |
| <p>Can Cash go Negative?</p> | <p>Option to allow cash to go negative. This is needed if you want to rebalance to more than 100% of the model (i.e., 110% to spend an additional 10% in cash).</p> |
| <p>Buy/Sell Mode</p> | <p>Sets limits on the types of transactions that can occur:</p> <p>BUY ONLY allows the rebalancer to only purchase securities.</p> <p>SELL ONLY allows the rebalancer to only sell securities.</p> |

| Field | Description |
|--|--|
| | <p>SELL+BUY allows the rebalancer to both sell and purchase securities.</p> <p>BUY UNOWNED/ SELL NON-MODEL the rebalancer is restricted to buying securities that exist in submodels but are unowned in the account and selling securities that are owned in the account but do not exist in submodels.</p> <p>The level of unowned buys is contingent upon available cash taking into account all minimum cash parameters.</p> |
| Freeze Option | <p>Ability to unfreeze all restricted lots.</p> <p>RESTRC allows restrictions to override the purchase or selling of securities.</p> <p>UNFREEZE ALL allows the rebalancer to override restrictions.</p> |
| Minimum % cash to be left | <p>Minimum amount of cash that should remain in the account, as a percentage of the total account market value, after balancing.</p> |
| Sort Rebalancing Report | <p>The sort order of the Rebalancing Report.</p> <p>SUB-MODEL sorts the report according to submodel code.</p> <p>TICKER sorts the report according to each security's TICK.</p> |
| Run Rebalancing Report for what% Accts | <p>To control the amount of reports produced by the rebalancer, use this field to specify which percentage of reports you want run before rebalancing. Producing fewer reports will increase the speed of rebalancing large groups of accounts.</p> <p>If less than 100 percent is selected, the system randomly chooses accounts on which to report.</p> |
| Create Trade Exception Report | <p>YES</p> <p>NO</p> |
| Cash From RESTR Securities | <p>Allows you to select additional investment options for restricted securities. This enhancement allows you to define how cash, made available from a restricted purchase or sale of a security should be redistributed (prorated) across the sleeve.</p> <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p>Note: To enable this functionality, please contact InvestCloud.</p> </div> <p>CASH. Default value. The cash will be left in the account.</p> <p>If a security cannot be sold due to a restriction, targets of all unrestricted securities will be prorated down.</p> <p>If a security cannot be purchased due to a restriction, the cash that should have been used to purchase restricted security will not be allocated to any other security purchase.</p> |

| Field | Description |
|--|--|
| | <p>PRORATE ACROSS ALL. Cash will be prorated among all unrestricted model securities.</p> <p>If a security cannot be sold due to a restriction, targets of all unrestricted securities will be prorated down.</p> <p>If a security cannot be purchased due to a restriction, the cash that should have been used to purchase restricted security will be prorated across all non-restricted model security based on those securities targets. A new target is calculated as Old Target + Old Target/sum of unrestricted securities*total target of restricted securities.</p> <p>PRORATE ACROSS THE SAME SIC CODE. - Cash will be prorated among all model securities that have the same SIC code as restricted security.</p> <p>If a security cannot be sold due to a restriction, targets of all unrestricted securities with the same value in the selected field will be prorated down.</p> <p>If a security cannot be purchased due to a restriction, the cash that should have been used to purchase restricted security will be prorated across all securities in the model that have the same value in the selected field.</p> <p>If there are no securities with the same value in the selected field (SIC, RA69, or SIC2), then the restricted cash will remain in cash.</p> |
| | <p>Note: SIC2 and RA69 will only be available to those directories where those two fields are an available option.</p> |
| Cash From RESTR Securities (continued) | <p>PRORATE ACROSS THE SAME SIC2 CODE. Cash will be prorated among all model securities that have the same SIC2 code as a restricted security.</p> <p>If a security cannot be sold due to a restriction, targets of all unrestricted securities with the same value in the selected field will be prorated down.</p> <ul style="list-style-type: none"> •If a security cannot be purchased due to a restriction, the cash that should have been used to purchase the restricted security will be prorated across all securities in the model that have the same value in the selected field. <p>The additional pro-rated transactions will be applied to any of the models selected in the rebalancers.</p> <p>If this functionality is enabled, the default setting applied will also apply to overnight rebalancing, if applicable.</p> <p>PRORATE ACROSS THE SAME RA69 CODE. Cash will be prorated among all model securities that have the same RA69 code as restricted security.</p> <p>If a security cannot be sold due to a restriction, targets of all unrestricted securities with the same value in the selected field will be prorated down.</p> |

| Field | Description |
|-------|--|
| | <p>If a security cannot be purchased due to a restriction, the cash that should have been used to purchase restricted security will be prorated across all securities in the model that have the same value in the selected field.</p> <p>The additional pro-rated transactions will be applied to any of the models selected in the rebalancers.</p> <div style="border: 1px solid gray; padding: 10px; margin: 10px 0;"> <p>Note: If configured for the Restriction at Sleeve or Account Level feature, this run-time screen prompt is disabled. The restriction method defined at the account level or sleeve level is applied instead. See “Using Restriction at Sleeve or Account Level” in this document for details.</p> </div> <p>If this functionality is enabled, the default setting applied will also apply to overnight rebalancing, if applicable.</p> <p>Make your selections, and press F10 to continue. Depending on your selections, the following screens will appear. Please refer to each screen’s section for additional information on using it.</p> |

3. Make the appropriate selections, then press F10
8. Using the Select Submodels By SNAM Or Model Profile Fields screen

If you chose REBALANCE USING SPECIFIC SLEEVES in the Submodels field from the Unified Managed Account Rebalancer screen, the following screen displays.

Note: If you chose REBALANCE ENTIRE ACCOUNT, this screen will not appear.



```
=====
Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back
=====
```

9. To use the Select Submodels By SNAM Or Model Profile Fields screen:
 - a. Select the submodel(s) you wish to rebalance by entering the name or names, or press F7 to view a list of available master models. Choose the submodel(s) from the list and press ENTER
 - b. Press F10 to save and process the selection
10. If Create Sensitivity Trades is set to YES, the UMA Tax Refiltering screen displays

```
=====
UMA TAX FILTERING

Sells-tax term: Any tax term
and Sells-gains or losses: Gains & Loss
and Purchase date is between 19000101 and 20120611 inclusive

Do not sell short-term losses that rollover in 0 days
Do not sell short-term gains that rollover in 0 days

Apply tax table : Yes

=====

Cost is between 0.00 and 0.00 inclusive

Or tax liability is greater than or equal to 0.00 as a % of Cost

Sell Priority: Account FOFO
=====
```

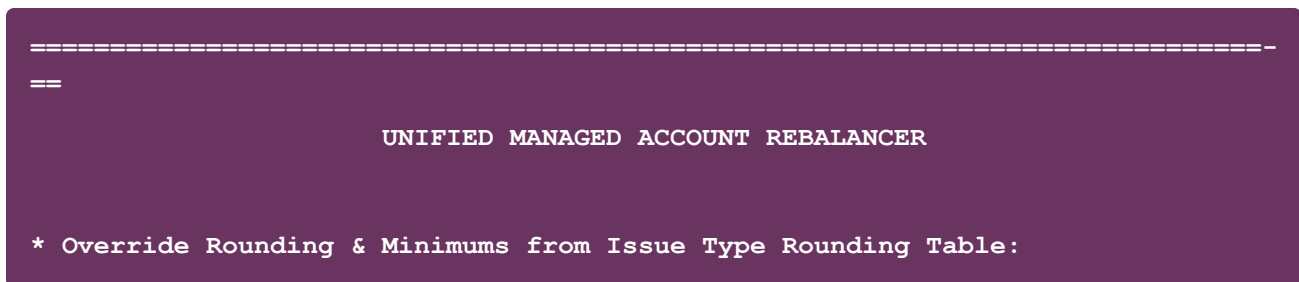
F1 - Help F3 - Abort F9 - Cycle F10 - Go

| Field | Description |
|---|---|
| Sells-tax term | Any tax term Short term only Long term only |
| Sells-gains or Losses | Gains & losses Losses only Gains only |
| And/Or | And - inclusive of Or - exclusive of |
| Date range | Input dates in YYYYMMDD format. |
| Short-term losses and gains rollover days | Number of days until a short term gain will roll over to a long term gain. |
| Apply Tax Table | Yes- This will activate the settings within the Tax Table. See “Establishing a gain/loss filter for trades across all sleeves of an account”. No - Selling priority method (FOFO) is applied on the account level, with no other tax sensitive inputs, unless defined on this screen. |
| Cost or %Gain/ Loss is between X and Y amounts | Specify a cost or a gain or loss percentage range for selling a tax lot. |
| And/Or | And - inclusive of Or - exclusive of |
| And tax liability is greater than or greater than or equal to or less | Select the tax liability range. First, select if the tax liability will be equal to / less than or equal to than Or Equal To a specified value. This value may be a percentage or dollar value. Press <F1> to view the possible choices for determining this value: % of Cost % of MV |

| Field | Description |
|---------------|---|
| | \$ Value |
| | \$ Value/Unit |
| % of | Cost Gain Non |
| Sell priority | <p>Specifies the priority for the selling of tax lots. Setting the selling priority on the tool screen will override the setting within the tax table.</p> <p>Account FOFO - From account master field.</p> <p>FIFO - First in, first out.</p> <p>LIFO - Last in, first out.</p> <p>MINTAX - Minimum tax.</p> <p>HICOST - High cost.</p> <p>AVCOST - Average cost.</p> <p>MAXTAX - Maximum taxable amount.</p> <p>HCOSTST - High cost, short-term.</p> <p>HCOSTLT - High cost, long-term.</p> <p>If Apply Tax Table is set to YES:</p> <p>The Sell Priority defined in the Tax Table is used by default (the initial setting in the UMA Tax Filtering screen is ignored).</p> <p>If the Tax Table setting for Sell Priority needs to be overridden at run time, select the Sell Priority option in the Tax Filtering Screen (even if the desired option is displayed by default).</p> |

- a. Fill in appropriate information. Then press F10. The second UNIFIED MANAGED ACCOUNT REBALANCER screen displays

11. If UMA (not single-sleeve MFA) accounts were selected, the following screen displays



```

Round Equity Lots by:          -1   Minimum Eq Lots:          -1
Round Fixed Income Lots by:    -1   Minimum FI Lots:          -1
Round Mutual Fund Buys ($):    -1.00 Minimum MF Buys:          -1.00
Round Mutual Fund Sales(sh):  -1.0000 Minimum MF Sales:         -1.0000

* Override Minimums from Drift Rules:

Minimum trade is the greater of $   -1 or -1.00% of the market value
of the account, except for full liquidation.

# Set Miscellaneous Minimum Rules:

Minimum percent change   0.000% of total account
Minimum trade as a % of current position:   0.000%
Minimum trade as a % of security target :   0.000%

* Leave as -1 to use values from Table or Rules
# Will use greater of all minimums

=====
F1 - Help   F3 - Abort   F9 - Cycle   F10 - Go
=====

```

This screen allows you to establish the rounding parameters for rebalancing. Parameters set here will override Issue Type Rounding Table values.

| Field | Description |
|----------------------------|---|
| Round Equity Lots by | Sets the minimum trade block size, in dollars. |
| Minimum Eq Lots | Minimum number of shares to trade when equities are traded. |
| Round Fixed Income Lots by | Increment, in shares, for rounding when a trade block is created. |
| Minimum FI Lots | Minimum original face value amount that a fixed income lot must be before it is added to the trading block. |

| Field | Description |
|------------------------------|--|
| Round Mutual Fund Buys (\$) | Increment to which mutual fund securities are rounded in dollars and cents, for buys. |
| Minimum MF Buy (\$) | Minimum amount, in dollars and cents that a mutual fund lot must be before it is added to the trading block. |
| Round Mutual Fund Sales (\$) | Increment to which mutual funds securities are rounded, in shares, for sells. |
| Minimum MF Sales | Minimum number of shares to trade when mutual funds are traded. |

- a. Press F10 to execute the changes or press F3 to exit the screen without making any changes
 - For fixed income securities and equities, to use the defaults from the Issue Type Rounding Table and from the Drift Rules screen, leave the selections as “-1.”
 - For mutual funds, leaving the “-1” value will invoke the Standard Rounding Table for mutual funds and the Issue Type Rounding Table for other security types
- b. If MFA Single Sleeve Accounts were selected (managed account platform), the following screen displays:

```

=====
                                UNIFIED MANAGED ACCOUNT REBALANCER

Accounts      : 140 ACCOUNT(S)

Models       : ALL UMA MODELS

The following Prompts apply to MFA Single Sleeve Accounts ONLY!

The Restriction Method may be assigned at the Manager Level.  If a
manager has already assigned the Restriction Method at the Manager
Level, then the restriction method assigned at the Manager Level
will override the restriction assigned here!

Rebalance Trigger : ALWAYS REBALANCE
    
```

```

Restriction Method : USE RESTRICTION METHOD DEFAULTS

MFA Block Title   :

=====
F1 - Help      F3 - Abort      F9 - Cycle      F10 - Go
=====
    
```

12. Select the Rebalance Trigger field and press F9 to cycle through the options
13. Select the Restriction Method and press F9 to cycle through the options
14. Select the MFA Block Title field and type a title name
15. Press F10
 - a. A message will appear that reads: Initializing... Rebalancing Will Begin Shortly
 - b. Messages appear that track the rebalancing actions

Note: Running the UMA Rebalancer also generates a Trade Exception Report (UMAPROBS).

The Trade Exception Report shows the accounts and securities that were excluded from rebalancing or that have adjusted trades.

16. If SUBMODEL/SECURITY ALLOCATION (TWO PASS) was selected as the Target, and Account-Level or Submodel-Specific Drift was selected as the Rules in the first rebalancer screen, the Override Submodel Drift parameter will be displayed on the second rebalancer screen. If the user specifies a value, it will override the selected Rules option and be used to evaluate the drift

```

UNIFIED MANAGED ACCOUNT REBALANCER

* Override Rounding & Minimums from Issue Type Rounding Table:
  Round Equity Lots by:          -1      Minimum Eq Lots:          -1
  Round Fixed Income Lots by:    -1      Minimum FI Lots:         -1
  Round Mutual Fund Buys ($):    -1.00   Minimum MF Buys:        -1.00
  Round Mutual Fund Sales(sh):  -1.0000 Minimum MF Sales:       -1.0000

* Override Minimums from Drift Rules:
  Minimum trade is the greater of $  -1 or -1.00% of the market value
  of the account, except for full liquidation.
* Override Submodel Drift: Submodel Drift: -1.00% Drift Type: RELATIVE

# Set Miscellaneous Minimum Rules:
  Minimum percent change  0.000% of total account
  Minimum trade as a % of current position:  0.000%
  Minimum trade as a % of security target :  0.000%

  * Leave as -1 to use values from Table or Rules
  # Will use greater of all minimums

F1 - Help      F3 - Abort      F9 - Cycle      F10 - Go
    
```

- If the Minimum table is used, the screen will have a prompt to use the table and all fields will have the word TABLE by default instead of numbers
- The type of drift selected on the first screen determines whether or not the prompt to override sleeve drift is displayed

To set the Override Submodel Drift parameter:

After setting parameters in the first Unified Managed Account Rebalancer screen, press F10.

The above window is displayed:

Specify the Override Submodel Drift parameter. The default value is -1.00.

- If the default value is not modified, the selected Rules option (account-level, submodel-specific or none) is used to evaluate the drift
- If the default value is modified, it is used as the upper and lower drift thresholds for all sleeves during the rebalance process. Users can enter values between 0 and 100 with up to two decimals.

Specify the Drift Type: Relative (default) or Absolute.

To run the enhanced rebalancer, press F10.

Trade Exception Report

The Trade Exception Report shows the accounts and securities that were excluded from rebalancing or that have adjusted trades. The report shows:

- Accounts excluded from nightly rebalancing
- Orders that were adjusted or deleted because an account parameter or setting was violated
- Orders violating trade minimums
- Accounts that have been adjusted to avoid negative cash or to meet the minimum cash requirement
- Accounts that did not meet systematic withdrawal amounts
- Liquidate Specific Fund purchases for a non-model security
- Liquidate Specific Funds sales that have proceeds missing from EDPORT
- The list of blocks created by the current Rebalancer run
- If TWOPASS was selected, the following is presented:
 - Accounts that were excluded from rebalancing
 - Accounts that violated cash floor and cash ceiling thresholds
 - Trades removed due to violation of the cash floor threshold
 - Minimum Violations

TWOPASS Exception Report (sample)

UMA Rebalancer Exceptions Report
Report Created: 03/01/12 1:57 P.M.

The following accounts were excluded from sleeve/Security rebalancing

| Account Number | Account Name | Reason |
|----------------|--------------|-------------------------------|
| A11111 | Jane Doe | No drifted sleeves |
| A22222 | John Doe | All sleeves are discretionary |

UMA Rebalancer Exceptions Report
Report Created: 03/01/12 1:57 P.M.

The following trades were cancelled due to cash floor violation

| Account Number | Sleeve | Side | Security | Shares | MV, \$ | Cash Floor, \$ | Account Cash, \$ |
|----------------|--------|------|----------|--------|---------|----------------|------------------|
| A11111 | SUBONE | Buy | ABC | 100 | 100,000 | 1,000 | 2,000 |
| A11111 | SUBTWO | Buy | DEF | 200 | 20,000 | 1,000 | 2,000 |
| A22222 | SUBONE | Buy | 123456 | 1000 | 5,000 | 2,000 | 1,000 |

Accounts Violating Cash Floor

| Account Number: | Account Name: | Cash Floor, \$ | Account Cash, \$ |
|-----------------|---------------|----------------|------------------|
| A22222 | John Doe | 2,000 | 1,000 |
| A33333 | John Jones | 2,000 | 1,000 |

Accounts Violating Cash Ceiling:

| Account Number: | Account Name: | Cash Ceiling, \$ | Account Cash, \$ |
|-----------------|---------------|------------------|------------------|
| B22222 | Mary Smith | 1,000 | 2,000 |
| B33333 | Sally Green | 2,000 | 3,000 |

Multi- Account Select Option

This feature allows users to select more than one MFA and UMA account.

6.20 Sleeve Tags

MFA sleeves in single-sleeve accounts on the managed account platform have sleeve tags. Sleeve tags are added automatically when using ad hoc or nightly trading functions for such accounts and can be viewed in the Block Order Status.

A Sleeve column has been added to the Block Status Edit window. For more information on Block Order Status see the [Block Status](#) section of the Trading chapter.

Chapter 7: Master Manager Utilities

This chapter describes the utilities available to the master manager. These utilities may be accessible through typing the function name at the command prompt.

7.1 Converting UMA accounts to a new master model using MSPCONVERT

When converting Separately Managed Accounts to UMA accounts, or when changing master models for UMA accounts, use the MSPCONVERT to access menu that allows you to:

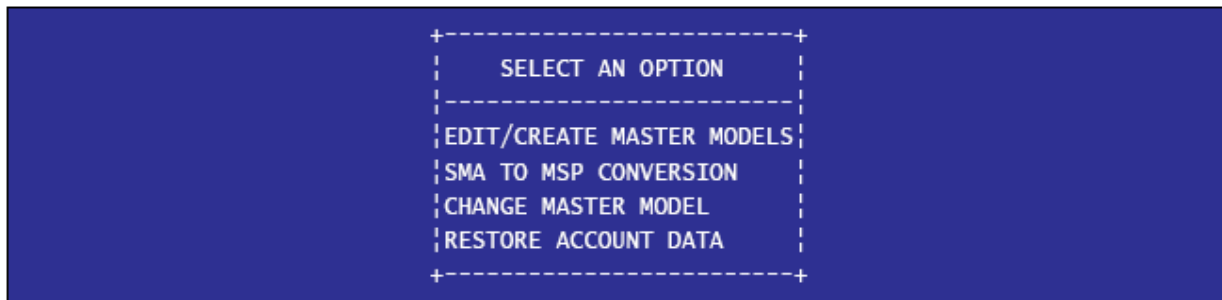
- Edit and create master models
- Convert SMA accounts to UMA accounts
- Change the master model associated with an account
- Reverse changes made to an account

To convert an account to a master model:

1. At the prompt, type WINDON and load the correct MSP universe

Important: THE CORRECT MSPUNIVERSE MUST BE LOADED OR THE MSPCONVERT FUNCTION WILL NOT WORK PROPERLY.

2. After selecting the correct MSP universe, type MSPCONVERT at the prompt. You are presented with the Select An Option screen



Creating and editing master models

To create and edit master models, select EDIT/CREATE MASTER MODELS.

Converting SMA accounts to UMA accounts

To convert SMA accounts to UMA accounts,

1. On the Select An Option screen, select SMA TO MSP CONVERSION

```

+-----+
|                                     |
|             CONVERT SMA ACCOUNTS TO MSP ACCOUNTS             |
|                                     |
| Date to begin recalculating performance: 12/31/2006          |
|       New performance wall date: 01/31/2007                 |
|                                     |
|           New master model: SAMPLE ASSET MANAGE MMBAL       |
|                                     |
| Account selection:  MGR NE MSP                               |
|                   and                                       |
|                   and                                       |
|                   and                                       |
|                   and                                       |
|                   and                                       |
|                   and                                       |
|                   and                                       |
|                                     |
+-----+
| F1 - Help   F3 - Abort   F9 - Cycle   F10 - Go             |
+-----+

```

2. In the Date to begin recalculating performance field, type the start date for a final non-UMA performance posting in MM/DD/YYYY format. This should be a month-end date

Notes:

- This will be the last time performance can be posted prior to the date of conversion to UMA. In the New performance wall date field, type the date for the new wall date. This should be the last day of the prior month
- Once the account is a UMA account, the wall date is necessary to prevent sleeve performance sectors from having start dates prior to the date that the account was converted. Also, this will prevent historical performance from being recalculated and posted prior to the wall date

3. Tab to the New master model field. Use F1 to select the master model name to apply to the group of accounts being converted
4. In the Account Selection fields, type the appropriate search criteria to select accounts for conversion. Press F10. An Account Selection screen will open
5. Confirm or edit the account selection at the account selection box, and press F10
6. At the Are you sure you wish to continue? prompt, select YES. A conversion screen will open:



7. At the Add submodel tags to existing tax lots? field, select an option:

| Option | Details |
|--------|---|
| No | Do not automatically apply sub model tags to open, untagged lots. |
| Yes | <p>When choosing yes, specify one of the following:</p> <p>Run MSPMAPLOTS to automatically apply submodel tags to open untagged lots based on the master model using the MSPMAPLOTS function.</p> <p>Run MSPMAPLOTSPCT to automatically apply sub model tags to open, untagged lots based on the master model using the MSPMAPLOTSPCT function.</p> |

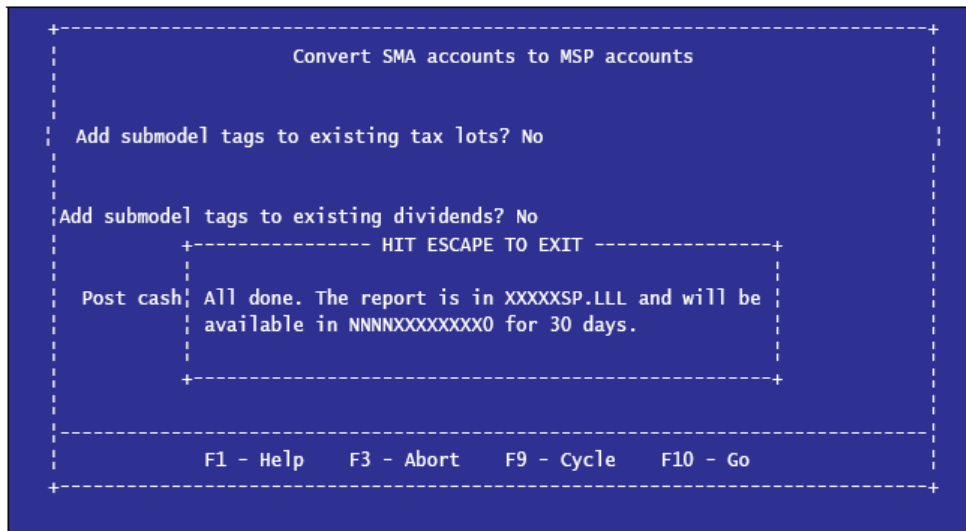
8. At the Add submodel tags to existing dividends? field, select the desired option:

- No. Do not automatically apply sub model tags to untagged cash transactions
- Yes. Run MSPSPLITDIVSNEW to automatically apply submodel tags to untagged cash transactions using the MSPSPLITDIVSNEW function

9. At the Post cash flows to the general ledger? prompt, select the desired option:

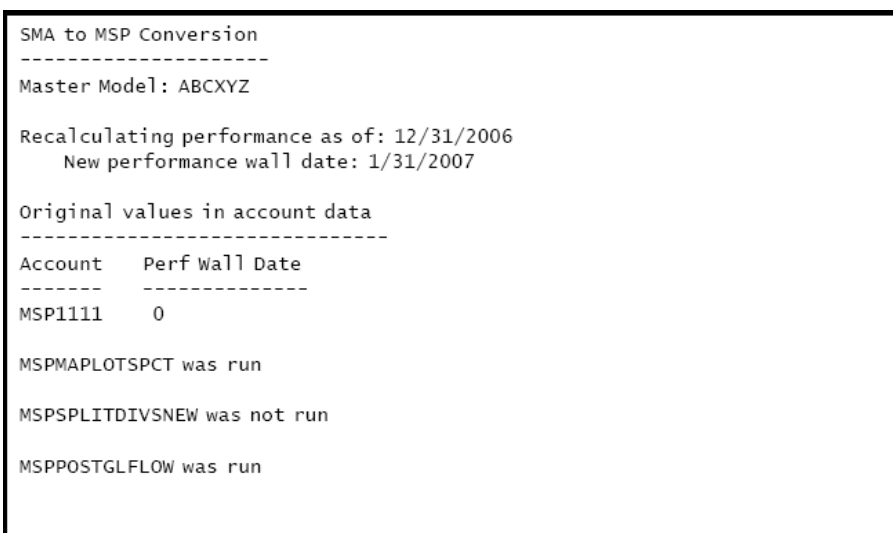
- No. Do not automatically flow cash among sleeves
- Yes. Run MSPPOSTGLFLOWS and automatically flow cash among sleeves to adjust sleeve cash buckets to be as close to target as possible

10. Press F10. The selected processes will run, and the file name of the audit report displays

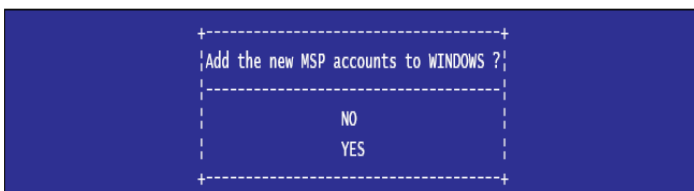


11. Press ESC or F3 to exit the screen

The report will be display indicating the processes that were run on the selected accounts.



You are prompted to add the new UMA accounts to Windows.



12. At the Add the new MSP accounts back to WINDOWS? prompt, select NO or YES as appropriate

- YES. If you need to trade the account(s) the same day, add them to Windows
- NO. If you do not need to trade the account(s) until the next day, choose NO to save system resources, especially if the number of accounts is large

7.2 Split Untagged Cash Transactions

Use the MSPSPLITGLTRANS utility at the WHATNEXT? prompt to allocate untagged EDGL transactions by sleeve level market value.

Respond to the prompts for Beginning Date and Ending Date.

Follow screen instructions to define the accounts to be included.

The Untagged Audit Report, UNTAGGED.LRP (sample below), is generated.

```

XYZ COMPANY                                     PAGE 1
04/15/14  8:54 A.M.
                Untagged Cash Transactions Audit Report
                -----
Date           Type           New Amount    Sleeve      Description
-----
Snam = A12345
-----
20140328      FEEADV           0.48         XYZ120      *1Q14 Mutual Fund Fe
20140328      FEEADV           1.40         XYZ121      *1Q14 Mutual Fund Fe
20140328      FEEADV           1.41         XYZ122      *1Q14 Mutual Fund Fe
20140328      FEEADV           0.35         XYZ123      *1Q14 Mutual Fund Fe
20140328      FEEADV           0.42         XYZ124      *1Q14 Mutual Fund Fe
20140328      FEEADV           0.35         XYZ125      *1Q14 Mutual Fund Fe
20140328      FEEADV           0.48         XYZ126      *1Q14 Mutual Fund Fe
20140328      FEEADV           0.35         XYZ127      *1Q14 Mutual Fund Fe
20140328      FEEADV           0.34         XYZ128      *1Q14 Mutual Fund Fe
20140328      FEEADV           1.40         XYZ129      *1Q14 Mutual Fund Fe
    
```

PRESS <ESC> TO EXIT <F1> FOR HELP <F3> MAIN MENU CHECKFREE APL

Changing the master model associated with an account

Change a master model associated with an account or a group of accounts by choosing CHANGE MASTER MODEL from the MSPCONVERT menu to access the following screen:

```
CHANGE THE MSP MASTER MODEL FOR ...

Date to begin recalculating performance: 12/31/2006
New performance wall date: 01/30/2007

Original master model: SAMAST-V/G BAL BLEND SA
New master model: SAMAST-V/G BAL BLEND ST
Linked model: Select link option

Account selection: CHARAC EQ MSP
                  and FDTYPE EQ {ORIGINAL MASTER MODEL}
                  and
                  and
                  and
                  and
                  and
                  and
                  and

F1 - Help   F3 - Abort   F9 - Cycle   F10 - Go
```

To change the master model associated with an account:

1. Verify that date listed in the Date to begin recalculating performance: field is correct. The default date is the last day of the previous month
2. In the New performance wall date field, type the date that should be the wall date for each converted account. This should be last day of the prior month

Note: Once the account is a UMA account, the wall date is necessary to prevent sleeve performance sectors from having start dates prior to the date that the account was converted to UMA. Also, this will prevent historical performance from being recalculated and posted prior to the wall date.

3. In the Original master model field, press F1 to select the original master model that will be converted to a new master model

Note: If a linked master model is selected below, this will be the master model whose historical allocations will be used for historical performance and cash allocations.

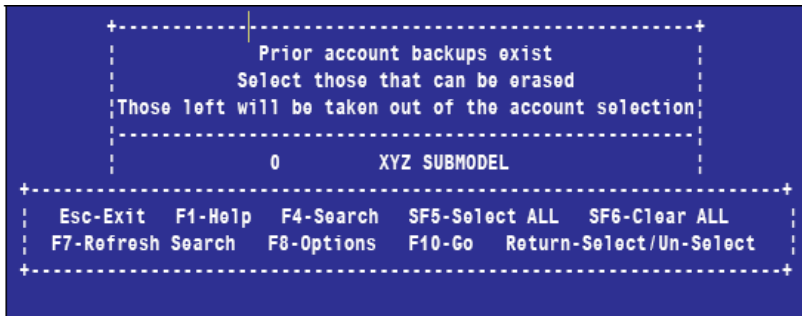
4. In the New master model field, press F1 to select the new master model short name that should be applied to the group of accounts being converted. If a linked model is selected, this will be the master model whose current allocations will be used
5. At the Linked model field, press F1 to select either CREATE A NEW LINKED MODEL or DO NOT USE A LINKED MODEL

CREATE A NEW LINKED MODEL

1. Follow the prompts to attach the selected accounts to linked master model based on the original master model and new master model listed above



2. Enter a 3 letter model suffix and a description for the model
 - The system takes into account backups prior to conversion so it can be restored later if needed. So, if you previously converted, or attempted to convert, an account you will receive this prompt:



3. Select the accounts to override the backup and proceed by pressing ENTER. Press F10 to continue

DO NOT USE A LINKED MODEL:

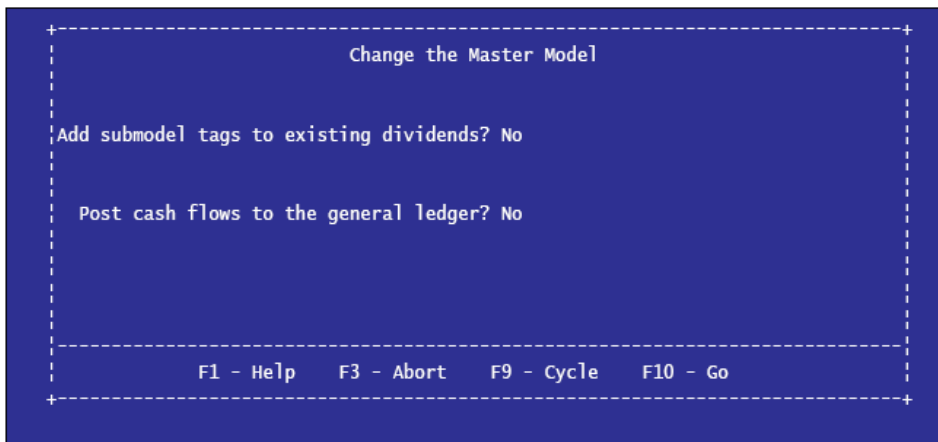
1. Attach the selected accounts directly to the new master model listed above
2. In the Account Selection field, type the account selection for conversion. Press F10

Confirm or edit the account selection at the account selection box, and press F10. At the Are you sure you wish to continue? prompt, select Yes. The Account Selection Screen opens to refine accounts selection. The following screen displays:

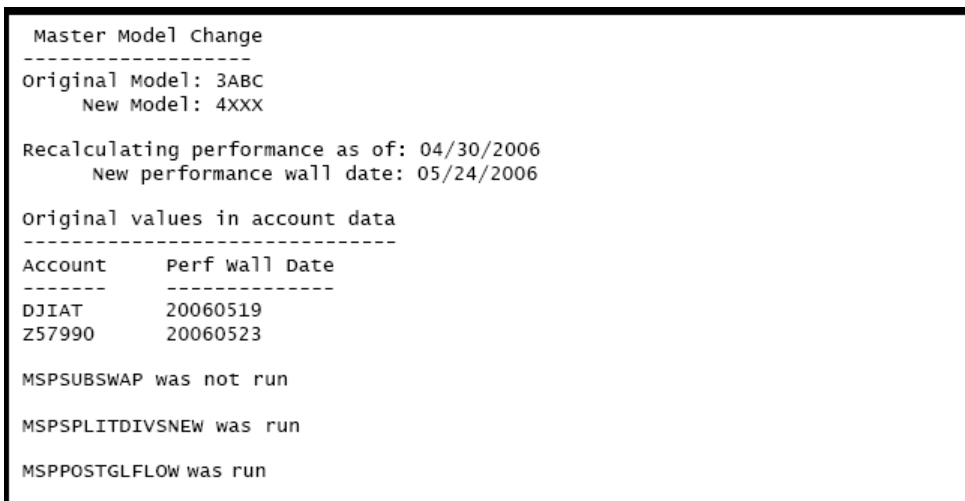


3. If the original and new masters model have different submodels the Swap submodel tags in existing tax lots? field will display

- No. MSPSUBSWAP will not run and the tax lots will be tagged to old submodels
 - Yes. MSPSUBSWAP will run and a screen will display which allows you to select new sleeves for each old sleeve
4. At the Add submodel tags to existing dividends?, select the desired option:
- No. Do not automatically apply sub model tags to untagged income cash transactions
 - Yes. Run MSPSPLITDIVSNEW to automatically apply submodel tags to untagged income cash transactions using the MSPSPLITDIVSNEW function
5. At the Post cash flows to the general ledger? Prompt, select the desired option:
- No. Do not automatically flow cash among sleeves
 - Yes. Run MSPPOSTGLFLOWS to automatically flow cash among sleeves to adjust sleeve cash buckets based on the selected cash flow method



6. Press F10 to continue. The selected processes will run, and the file name of the audit report will be displayed
7. Press ESC or F3 to exit the screen. The report will be displayed indicating the processes that were run on the selected accounts

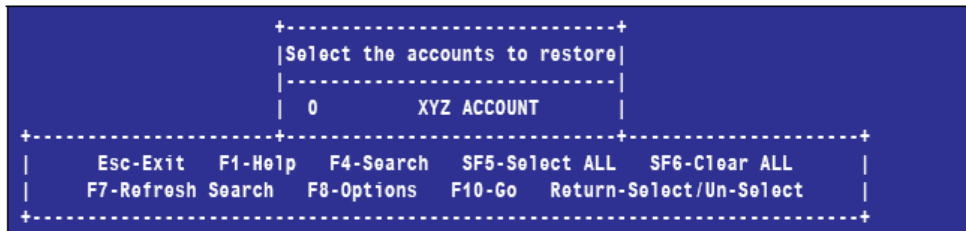


8. At the Add the modified MSP accounts back to WINDOWS ? prompt, select Yes or No as appropriate
 - YES. If you need to trade the account(s) the same day, add them to Windows
 - NO. If you do not need to trade the account(s) until the next day, choose NO to save system resources, especially if the number of accounts is large

Reversing changes made to an account

To temporarily restore account data, choose RESTORE ACCOUNT DATA from the MSPCONVERT menu. Accounts can be restored no later than the end of the next business day after conversion.

1. Select an account by moving a cursor to the line and pressing ENTER. Conversely, do the same for a selected account to deselect it



Note: The data needed to restore an account back to its original state is available for only one business day.

- To select all accounts, press SHIFT+F5
 - To de-select all accounts, press SHIFT+F6
2. Press F10 to continue. A message will be displayed indicating that all accounts have been restored
 3. Press ESC or F3 to exit the message. At the Add the modified accounts back to WINDOWS ? prompt, select Yes or No as desired

7.3 Adding submodel tags to tax lots

When securities are recorded into a portfolio, some may already be part of one or more submodels. For instance, the securities may be in a new account funded with securities, or the securities may be in an existing account that receives in securities.

Given these situations, there are a couple of functions to assign tax lots and properly tag securities with submodel tags:

MSPMAPLOTS. Use the MSPMAPLOTS function to automatically tag all units of model securities with the matching submodel code. Tags may be applied directly to EDPORT or through a TRADESNEW batch depending on the setup.

MSPMAPLOTSPCT. Use the MSPMAPLOTSPCT function, which has similar capabilities as MSPMAPLOTS, to more accurately tag tax lots by only tagging enough of a security to meet the model target. This helps prevent a sleeve from being overweight in any security. Excess shares remain untagged so that they can be easily sold. Tagging is done through a TRADESNEW batch, and the original number of tax lots may increase.

Using MSPMAPLOTS

The MSPMAPLOTS function tags untagged tax lots to the appropriate sleeve based on the account's model. The function can process the accounts that the manager selects online, or it can run overnight in a control job for a predefined account selection.

- The function can process the accounts that the manager selects online or it can run overnight in a control job for a pre-defined account selection
- The function can be run from a command prompt, or it can be added to the master manager's menu system by their account manager
- The function can allow the launch of the MSPMOVEPOS function which moves individual securities between sleeves in the same account. Tags can be added directly to EDPORT or tagging transactions can be posted via TRADESNEW with corresponding receive and deliver entries. This improves traceability for audit trail and sleeve performance contribution calculations. Contact InvestCloud if you want to tag transactions using TRADESNEW
- If you tag transactions using the TRADESNEW function, non-modeled securities can be tagged to a predefined transitional sleeve when the function is run in batch. Contact InvestCloud if you want this functionality

Notes:

- Contact InvestCloud if you want this functionality
- All open tax lots must have a submodel tag. Any untagged lots will be sold during the rebalancing of the master model

To run MSPMAPLOTS from the WHICH FUNCTION:? prompt:

1. Type MSPMAPLOTS at the command prompt, and press ENTER. (Alternatively, select this command from your menu.) The following prompt displays:

```
WHICH FUNCTION:? MSPMAPLOTS
MSPMAPLOTS (PUBLIC)

1585 ACCOUNTS CURRENTLY ON FILE
SEARCH FOR WHAT?
```

2. Type the search expression that describes the accounts you want to select. For example, RR EQ 40 selects accounts where the RR field is equal to the value 40. Then, press ENTER

The xxxMSPCONV.LSD file is generated and you are prompted to add the accounts in this file into Windows. The following prompt displays:

```
MANMSPCONV.LSD
ADD THESE ACCOUNTS BACK INTO WINDOWS?
```

3. Type Y. The status of each account's mapping changes posts to the screen and are written to a file called xxxMSPCONV.LSD (where "xxx" is the three-letter name of your home directory)

To view the report later, type BROWSE plus the file name at the command prompt.

4. To add the selected accounts, without viewing the report, into Trading/Windows to reflect the new sleeve tags, type YES and proceed to the next step

Otherwise, type NO and view the report using the BROWSE function. And, after reviewing the report, repeat steps 1-3.

5. Press ENTER to start the process

```
Building Accounts that Meet the Criteria: MSPTST CIFRMI MSP1 MSP2 MSP3 MSP4 MSP
1598 ACCOUNTS CURRENTLY ON FILE
23 RECORDS FOUND
Shared Memory segment /sa/man/XREF.SHRD.0102 is ready
SETTING UP AC MATRIX
SETTING UP SECURITY MATRIX
SAVING DATA 01/06/04 12:32 P.M.
REFRESHING INFODEX GAIN/LOSS FIELDS
Calculating Current Year Fields. Please Wait...
PROCESSING 23 OF 23
Windows Universe for Accounts MSPTST MSP1 MSP2 MSP3 MSP4 MSP5 MSP6 MSP7 M
WHICH FUNCTION?
```

Note: When MSPMAPLOTS is run from the command line and selected accounts have untagged non-model securities, you are prompted to run MSPMOVEPOS. For details, refer to “Moving a position, or positions with MSPMOVEPOS”.

Using MSPMAPLOTSPCT

MSPMAPLOTSPCT looks at all untagged lots in an account, and determines which percentage of each lot should be held in the account. The tool then creates a TRADESNEW batch that delivers out from the account the necessary number of shares and receives those same shares back into the account’s proper sleeve. This allows master managers to reverse the lot mapping though DELBATCH if necessary.

Example

For instance, if a 200-share lot of IBM is held untagged in an account and MSPMAPLOTSPCT is run, the function process will determine how many IBM shares should be held. If IBM is held in two strategies - Growth and Value - the tool will create two separate transactions. If Growth needs 100 shares and Value needs 50 shares, the tool creates a trade batch that delivers 150 shares from the untagged lot and receives in two lots - one of 100 shares for Growth and another 50 shares for Value. The remaining 50 shares will remain untagged. If the master manager chooses to undo the changes created by this function, they simply delete the batch.

To run MSPMAPLOTSPCT:

1. Type MSPMAPLOTSPCT at the WHICH FUNCTION? prompt. A search prompt opens:

```
WHICH FUNCTION? MSPMAPLOTSPCT
18126 ACCOUNTS CURRENTLY ON FILE
SEARCH FOR WHAT? FDTYPE EQ CSMSTR
3442 RECORDS FOUND
NEXT OPERATION (HIT RETURN WHEN DONE, OR TYPE HELP):
```

2. Input the search criteria to include the appropriate account or accounts

The tool creates a TRADESNEW batch that delivers out the number of shares from the account needed for retention and receives those same shares back into the proper sleeve or sleeves.

If it is necessary to reverse the lot mapping, use DELBATCH.

7.4 Using MSPREVERSEMAPLOTS to remove submodel tags

On occasion, it may be necessary to remove submodel tags from positions in a UMA account. Use the MSPREVERSEMAPLOTS function to:

- Automatically remove submodel tags from all open tax lots
- Collapse any open tax lots that were split when MSPMAPLOTS was run

Note: This function was designed primarily for reversal of submodel tagging on new accounts that were tagged using MSPMAPLOTS. Thus, it removes the tags directly from EDPORT without using batch posting. In addition, since MSPREVERSEMAPLOTS is designed for use on new accounts, it will not affect closed lots, and it will not remove submodel tags from cash transactions in the general ledger.

To run this function:

1. Type MSPREVERSEMAPLOTS at the WHICH FUNCTION? prompt. Press ENTER. A message will appear indicating the number of accounts
2. Type the account selection at the SEARCH FOR WHAT? prompt. Press ENTER

A prompt will appear giving you the option to produce a report listing open tax lots for each account. The report shows all untagged tax lots for each account.

3. Answer YES or NO as desired. A separate report is produced for each account

A prompt will appear asking you to confirm whether or not the open lots should be untagged:

Post results of MSPREVERSEMAPLOTS to EDPORT?

- Answer YES or NO as desired
- Selecting the option to produce a report but not allowing the function to untag the lots will allow the user to review the report before going ahead with untagging the lots

7.5 Adjusting submodel cash balances in real-time

There are two functions available for flowing cash between sleeves, Sleeve Reallocation Tool and MSPPOSTGLFLOWS.

Sleeve Reallocation Tool

This tool gives Master Managers the ability to realign sleeves as close as possible to a master model by flowing cash between over-weighted and under-weighted sleeves. All sleeves or selected sleeves can be chosen. If only specific sleeves are selected there are multiple allocation methods that can be used when the total drift between over-weighted and under-weighted sleeves do not sum to zero.

Sleeves are realigned to a master model by creating cash movements between sleeves using transaction types MSPDLV and MSPRCV. The user has the ability to update trading sleeve cash balances with these cash movements, post them to EDGL nightly, both, or just display the proposed cash movements.

This tool serves as a replacement to MSPPOSTGLFLOWS. It is a InvestCloud best practice recommendation that reallocation of sleeve cash should be done using the Sleeve Reallocation Tool as this tool can post all cash movements for specific sleeves prior to trading instead of afterward. Also, it uses MSPPOSTGL to post transactions to EDGL, thus providing an audit trail, which does not exist when using MSPPOSTGLFLOWS.

APL's trading tools are ideally suited for cash and positions to be consistent within the trading environment. By having consistent values afforded by this utility, any of the trading tools can be used, such as the Master Manager Rebalancer, Strategy Rebalancer or Account Adjuster. Also, this utility provides immediate transparency to the user, where they can see the resulting sleeve balances and values and then trade against them. Finally, this utility improves the timing of flowing cash with multi-sleeve security trading, as well as synchronization with both routines using values based on previous or intra-day prices.

Notes:

- If configured, clients that run the UMA Nightly Rebalancer in batch have the Sleeve Reallocation Tool process run automatically prior to rebalancing. See "UMA Nightly Rebalancing" for details
- MSPPOSTGLFLOWS is disabled for clients enabled for the Sleeve Reallocation Tool (except when run within the MSPSUBSWAP tool)

Using the Sleeve Reallocation Tool

1. Select the Sleeve Reallocation Tool option from the Master Manager trading menu
2. The standard account search box is displayed. Select one or more accounts. Press F10 - GO to continue
3. At the next prompt, choose to reallocate cash in all sleeves or selected sleeves

```
Do You Want to Reallocate All Sleeves or Selected Sleeves?
```

```
All Sleeves  
Selected Sleeves
```

- a. If All Sleeves is chosen, the system proceeds to the next step
- b. If Selected Sleeves is chosen:
 - The standard master manager/sub-manager model selection utility is displayed. Select one or more sub-models

- Next, two prompts are displayed to define how over-weighted sleeves should be reduced and how under-weighted sleeves should be increased. Select an option for each

| How Should Overweighted Sleeves Be Reduced? |
|---|
| Prorate Overweighted Sleeves Based on Absolute Drift |
| Prorate Overweighted Sleeves Based on Target Allocation |
| Bring Selected Sleeves to Target; Prorate Excess Cash Based on Master Model |
| Reduce Overweighted Sleeves Equally |
| Reduce Most Overweighted Sleeves by Absolute Drift First |
| Reduce Least Overweighted Sleeves by Absolute Drift First |
| Reduce Most Overweighted Sleeves by Relative Drift First |
| Reduce Least Overweighted Sleeves by Relative Drift First |

| How Should Underweighted Sleeves Be Increased? |
|---|
| Prorate Underweighted Sleeves Based on Absolute Drift |
| Prorate Underweighted Sleeves Based on Target Allocation |
| Bring Selected Sleeves to Target; Prorate Excess Cash Based on Master Model |
| Increase Underweighted Sleeves Equally |
| Increase Most Underweighted Sleeves by Absolute Drift First |
| Increase Least Underweighted Sleeves by Absolute Drift First |
| Increase Most Underweighted Sleeves by Relative Drift First |
| Increase Least Underweighted Sleeves by Relative Drift First |

Allocation Method Term Definitions:

- Absolute Drift = Target Allocation + or - tolerance
- Target Allocation = Exact Target Allocation %
- Relative Drift = Target Allocation + or - target allocation / tolerance
- Equally = Allocate in the same proportion between sleeves
- Prorate = Distribute proportionately
- Bring Selected Sleeves to Target; Prorate Excess Cash Based on Master Model:

This allocation method brings all selected sleeves back to target then allocates any excess cash across all sleeves. Cash is prorated based on the cash allocation defined in the associated master model.

Actual cash and cash drift are not considered when allocating excess cash.

The effect of allocating excess cash across all sleeves is to bring the selected sleeves above or below target. Additionally, sleeves not selected for reallocation are impacted.

This method aligns with how the system normally distributes cash across accounts based on sleeve targets.

Note: The amount of cash to prorate/transfer is dictated by whether there is excess or insufficient cash allocation across the selected sleeves.

- Excess allocation occurs when the sum of the differences between target allocation and current allocation is positive
- Insufficient allocation occurs when the sum of the differences between target allocation and current allocation is negative

4. The Select Posting Method prompt is displayed. Choose one of the options

```

Select Posting Method
Adjust Windows Cash and Post to EDGL Tonight
Adjust Windows Cash Without Posting to EDGL Tonight
Display Adjustments Only. Do Not Update Windows or EDGL
    
```

Choose to:

- Update trading sleeve cash balances and post the cash movements to the General Ledger (EDGL) overnight
 - Update trading sleeve cash balances without posting the cash movements to the General Ledger (EDGL) overnight
 - Only display the cash movements. Neither update trading sleeve cash balances nor post the adjustments to the General Ledger (EDGL) overnight
5. The system determines cash movements (reallocations) based on option selections
- If updating trading sleeve cash balances was opted for, any MSPRCV and MSPDLV adjustments generated are posted to the Intraday Cash Adjuster
 - If posting adjustments to the general ledger overnight was opted for the POST field in the Intraday Cash Adjuster for the MSPRCV and MSPDLV adjustments generated is populated with “YES”, otherwise the field is populated with “NO”
6. An effects report called REALLOC.LRP is produced and displayed

If no selected sleeves are linked to the selected accounts a message, “No Reallocations Necessary” is displayed in the body of the report.

REALLOC.LRP report contains the following header and column information:

| Header | |
|--------------------------------|--|
| Report creation date and time. | |
| Options selected for rebalance | All sleeves or selected sleeves If selected sleeves, methods used to reduce over-weighted sleeves and increase the under-weighted sleeves |
| Report Columns: | |
| Account ID | ID used to identify accounts in the trading environment |

| Header | |
|-----------------|---|
| Sleeve Code | If reallocating all sleeves, all sleeves in a given account and all sleeves in the associated model are displayed. Otherwise, only the selected sleeves that are also in the given account or associated model are displayed. |
| Current Value | Market value of the sleeve, inclusive of accruals. |
| Current Percent | Current allocation. |
| Target Value | Target allocation multiplied by the total account value. |
| Target Percent | Target Allocation. |
| Ending Value | Value of sleeve after proposed adjustment. |
| Ending Percent | Sleeve allocation after proposed adjustment. |
| Change Value | Ending Value - Current Value. |
| Change Percent | Ending Percent - Current Percent. |
| Starting Cash | Current sleeve level cash. |
| Ending Cash | Sleeve level cash after proposed adjustment. |

```

DEMO DIRECTORY
03/11/14  8:44 P.M.
UMA Allocation Results
-----
Rebalancing Selected Sleeves
Excess Allocation Method : Reduce Overweighted Sleeves Equally
Insufficient Allocation Method : Increase Underweighted Sleeves Equally
    
```

| Account | Sleeve Code | **** Current Value | **** Pct | **** Target Value | **** Pct | **** Ending Value | **** Pct |
|----------|-------------|--------------------|----------|-------------------|----------|-------------------|----------|
| ACCOUNT1 | SLV1H | 14,163 | 3.91 | 14,401 | 3.98 | 14,401 | 3.98 |
| ACCOUNT1 | SLV1U | 6,393 | 1.77 | 6,383 | 1.76 | 6,383 | 1.76 |
| ACCOUNT1 | SLV1Z | 11,036 | 3.05 | 11,159 | 3.08 | 11,159 | 3.08 |
| ACCOUNT1 | SLV2A | 53,439 | 14.77 | 53,667 | 14.83 | 53,667 | 14.83 |
| ACCOUNT1 | SLV2B | 22,829 | 6.31 | 23,114 | 6.39 | 23,114 | 6.39 |
| ACCOUNT1 | SLV2E | 48,607 | 13.43 | 47,472 | 13.12 | 47,472 | 13.12 |
| ACCOUNT2 | SLV2P | 40,710 | 11.25 | 41,423 | 11.45 | 41,423 | 11.45 |
| ACCOUNT2 | SLV2R | 25,205 | 6.97 | 25,705 | 7.10 | 25,705 | 7.10 |
| ACCOUNT2 | SLV2T | 46,808 | 12.84 | 46,242 | 12.78 | 46,242 | 12.78 |

```

UMA Allocation Results
-----
Rebalancing Selected Sleeves
Method : Reduce Overweighted Sleeves Equally
Insufficient Allocation Method : Increase Underweighted Sleeves Equally
    
```

| Current Pct | **** Ending Value | **** Pct | **** Change Value | **** Pct | Starting Cash | Ending Cash |
|-------------|-------------------|----------|-------------------|----------|---------------|-------------|
| 3.98 | 14,401 | 3.98 | 238 | 0.07 | 5 | 244 |
| 1.76 | 6,383 | 1.76 | -10 | 0.00 | 0 | -10 |
| 3.08 | 11,159 | 3.08 | 123 | 0.03 | 9 | 132 |
| 14.83 | 53,667 | 14.83 | 228 | 0.06 | 43 | 271 |
| 6.39 | 23,114 | 6.39 | 285 | 0.08 | 0 | 285 |
| 13.12 | 47,472 | 13.12 | -1,135 | -0.31 | 0 | -1,135 |
| 11.45 | 41,423 | 11.45 | 712 | 0.20 | 0 | 712 |
| 7.10 | 25,705 | 7.10 | 499 | 0.14 | 11 | 510 |

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MSPPOSTGLFLOWS

The MSPPOSTGLFLOWS tool allows you to adjust submodel (sleeve) cash balances on the fly for any number of accounts. Using MSPPOSTGLFLOWS, you can flow cash to bring cash or sleeve weights closer to the target based on selected flow method.

Note: It is an InvestCloud best practice recommendation that reallocation of sleeve cash be done using the Sleeve Reallocation Tool. This tool can post all cash movements for specific sleeves prior to rebalancing and uses MSPPOSTGTL to post transaction to EDGL, thus providing an audit trail, which does not exist when using MSPPOSTGLFLOWS. This tool can serve as a replacement to MSPPOSTGLFLOWS.

For additional information about the Sleeve Reallocation Tool see the “Sleeve Reallocation Tool” section.

MSPPOSTGLFLOWS is disabled for clients enabled for the Sleeve Reallocation Tool (except when run within the MSPSUBSWAP tool).

Note: Run MSPPOSTGLFLOWS at the time the account is added to the UMA Universe for the initial allocation of cash across the submodels.

There are six cash flow options:

- Flow cash and attempt to correct any sleeves with negative cash
- Flow cash to attempt to bring sleeves to their cash targets
- Flow cash to bring sleeves to their overall target
- Flow cash to redistribute it based on the percentage of cash within the sub model, relative to the master model allocation
- Flow cash based on the total cash value in the account and redistribute it across the sleeves based on percentage of cash in the master model
- Flow cash from overweight sleeves to underweight sleeves to bring total sleeve weight to model target

Note: To change your default selection, please contact InvestCloud.

Using MSPPOSTGLFLOWS

To run the MSPPOSTGLFLOWS function:

1. Type MSPPOSTGLFLOWS at the WHICH FUNCTION? Prompt. You are prompted for a date

```
+-----+
| FLOW CASH FOR WHAT DATE? |
+-----+
```

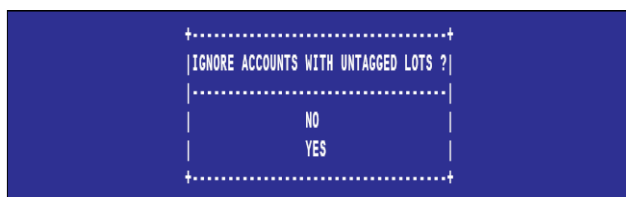
2. Input the date in MM/DD/YYYY format for which you want to flow cash and press ENTER. Or, simply press ENTER to use the current date. You are asked how you want to flow cash

```
+-----+
| HOW DO YOU WANT TO FLOW CASH |
+-----+
| CASH TARGET |
| PRORATE CASH |
| CASH NOT NEGATIVE |
| SLEEVE TARGET (OLD) |
| SLEEVE MARKET VALUE TARGET (NEW) |
| CASH PERCENT |
| DEFAULT CONFIGURATION |
+-----+
```

3. Choose the appropriate cash flow option and press ENTER

| Cash Flow Option | Description |
|----------------------------------|---|
| CASH TARGET | This method will move cash from the most overweight sleeve(s) to the most underweight sleeve(s) until the cash target within the model has been reached. If there is excess cash in the account after all the cash targets are met for the individual sleeves, the residual cash will remain in the sleeve in which it currently resides. If there is not enough cash in the overweight sleeve(s) to bring all underweight sleeves to target, only cash that exceeds target in the overweight sleeve will be moved. |
| PRORATE CASH | This method will total the cash value of the account and redistribute it based on the percentage of cash within the sub model, relative to the master model allocation. |
| CASH NOT NEGATIVE | This method will only flow cash to a sleeve with a negative balance to bring it up to zero. If none of the sleeves have negative cash, cash will not be moved. |
| SLEEVE TARGET (OLD) | This method will total the cash value in the account and redistribute cash across the sleeves based on the % field in the Master Model Allocation. |
| SLEEVE MARKET VALUE TARGET (NEW) | This method will move cash from overweight to underweight sleeves to bring total sleeve weight to the model target. If overweight sleeves have excess securities, running MSPPOSTGLFLOWS may make cash in those sleeves negative. Thus, it is necessary to create sales for these sleeves to cover the negative sleeve cash. |
| CASH PERCENT | This option will total the cash value in the account and redistribute it across the sleeves based on the CASH % field in the master model. |
| DEFAULT CONFIGURATION | Use the default set up for your directory. |

You are prompted to ignore accounts with untagged lots.



- Choose YES to ignore accounts with untagged lots or NO to include accounts with untagged lots. The Account Selection Screen opens:

```
+-----+
| SELECT ACCOUNTS BY SNAM, BNUM OR ACCOUNT PROFILE FIELDS |
+-----+
| FUNCTION: AND      | SEARCH: |
+-----+
| 21 RECORDS FOUND  |
|                   |
|                   |
|                   |
+-----+
| Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back |
+-----+
```

5. Type the account selection and press F10
6. Once the account or accounts are selected, the following prompt displays:

```
+-----+
| Are Master Manager trades for today a requirement for processing Cash Flows ? |
+-----+
|                                     NO |
|                                     YES |
+-----+
```

7. Choose YES to only flow cash for accounts that have executed trades. Type NO to flow cash for all accounts selected:
8. Depending on the number of accounts selected, one of the following prompts is presented:
 - If 999 or fewer accounts were selected:

```
You are about to run MSPPOSTGLFLOWS for xxx accounts.
Do you wish to continue?
NO
YES
```

- If 1000 or more accounts were selected:

```
You are about to run MSPPOSTGLFLOWS for xxxx accounts. Running this function
for a large number of accounts will impact system performance for all users.
Do you wish to continue?
NO
YES
```

9. Select NO to end this workflow and return to the WHAT NEXT prompt
10. Select YES to allow the process to continue

Note: The tool creates MSPRCV and MSPDLV transactions in the general ledger.

- MSPRCV indicates a receive into a sleeve
- MSPDLV indicates a deliver out of a sleeve

All transactions are tagged with the appropriate submodel tag. Also, because these transactions post in EDGL for the selected accounts, it is necessary to rebuild these accounts in the Trading/Windows system to reflect the new flows.

Flowing Cash for Sleeves with Master Manager Trades

A configuration parameter determines if this option is available. To enable this feature, contact Customer Operations at InvestCloud.

When this enhancement is enabled, a Yes/No prompt is displayed:

FLOW CASH FOR TRADED SLEEVES ONLY.

Selecting YES causes cash to be flowed for only those sleeves with Master Manager trades.

To flow cash, at least one trade for the sleeves must be executed.

If an account has only one traded sleeve, cash will not be flowed.

Cash flows will not be generated if the sum of all cash for the traded sleeves is negative.

Selecting NO causes cash to be flowed for all sleeves in the account.

Note: Contact InvestCloud if you want to automatically run this function overnight for all accounts with trades created on that day with master manager tools.

General cash management in respect to MSPPOSTGLFLOWS

When flowing cash during the rebalance process, the calculated cash flows are stored separately. If blocks are combined, the cash flows originally calculated remain intact.

- To delete cash flows created at the time of rebalance, use the option to DELETE CASH FLOWS from the MSP Trading Menu, selecting the appropriate accounts
- Committed blocks with cash flows will have the cash flow values reflected in the CASH FLOW REPORT, located under the master manager Reports Menu

Notes:

- Adjusting a transaction within a block will not recalculate the cash flows for the impacted accounts. For a more accurate cash flow, it is recommended that you delete flows for the entire account and run the trading scenario, excluding such transactions

- Accounts in which cash flows have been calculated on the fly using the FLOW CASH AT REBALANCE option will not be processed through MSPPOSTGLFLOWS during the nightly batch run. Only those flows calculated intraday will be reflected in the accounts the following day. Cash flows will be stored in a file and posted to the General Ledger overnight. Changes in the trading block that was used to generate cash flows, such as modifying or deleting trades, will not affect cash flows after they are created. Contact InvestCloud to enable this
- Splitting Blocks during Commit Process

A feature is available on request to separate (split) blocks by mutual fund, non-mutual fund (e.g., ETF/equity) orders, and fixed income orders during the commit process. Fixed income mutual fund orders will be included in the mutual fund block.

For accounts in which the master model had changed, but sleeve cash remains in an old sleeve which is no longer part of the current master model, the new version of MSPPOSTGLFLOWS will pick up that cash value and redistribute it across the current cash targets based on the cash allocation configuration method.

MSPPOSTGLFLOWS will only be run in the nightly process for those accounts which had trades created by a master manager during the day.

- Trades are considered a “master manager transaction” if a user in the master manager menu touches a block or uses a trading tool from that menu
- All blocks from the sub manager menu will not be eligible for flowing cash unless a master manager user touches the block
- To force MSPPOSTGLFLOWS to run, please run the function from the WHICH FUNCTION? prompt

Note: If you wish to adjust the current cash allocation method set up, please contact Client Services.

Avoiding BLANK sleeve tags to avoid “floating” cash

Securities with a BLANK UMA sleeve tag are included in the total value of the account when calculating target cash allocations. To exclude these values from the calculations, please set these securities to unsupervised assets.

To create the most accurate cash flow calculations in the account, please tag all securities and cash transactions that are currently tagged with a BLANK or invalid sleeve tag. Cash with a BLANK tag is built into the trading platform and allocated across the account based on the cash allocation configuration method. However, this cash is not truly tagged in EDGL and is therefore considered to be “floating” cash. This “floating” cash has the potential to move to other sleeves within the account whenever cash is calculated. To avoid this cash movement, please tag it to the appropriate sleeve.

Pending Mutual Fund Orders and MSPPOSTGLFLOWS

If clients have opted for the Pending Mutual Fund Order feature, flows generated with MSPPOSTGLFLOWS take into account eligible, unexpired Pending Mutual Fund orders so that sub-manager (sleeve) cash amounts are properly reflected.

The redistribution of cash by MSPPOSTGLFLOWS, when run as part of the nightly batch process, is adjusted to reflect the Pending Amount for master manager mutual fund trades which have been identified as mutual fund pending orders.

The Pending Amount is calculated by adding up (netting) pending mutual fund buys and sells for each sleeve of an account using the closing NAV on trade date.

Only pending orders from the date specified when MSPPOSTGLFLOWS is run in batch are included in the calculation (preventing duplicate flows).

Accounts with pending orders where cash was flowed between sleeves are listed in the MSPPOSTGLFLOWS report.

When MSPPOSTGLFLOWS is run intra-day from EXPERT or the trading environment only executed trades are considered. Trades from unexecuted blocks, which include pending order blocks, are not considered.

Contact your InvestCloud representative for comprehensive details and configuration options for the Pending Mutual Fund Orders feature.

Example Cash Flow with Pending Mutual Fund Orders

The MSPPOSTGLFLOWS includes the Pending Amount when redistributing the cash for master manager mutual fund trades.

1. A UMA account with a market value of \$100,000 and new pending orders has the following characteristics

| Master Model Allocation | | | | |
|-------------------------|----------|--------|------------------------------|--------------------------|
| Sleeve | Sleeve % | Cash % | Target % of CASH-1 in sleeve | Target \$ cash in sleeve |
| Sleeve 1 | 60% | 80% | 4% | \$4,000 |
| Sleeve 2 | 40% | 20% | 2% | \$2,000 |

11. The Pending Amount for each sleeve is calculated by adding up pending order sells and buys for each sleeve of the account using the current NAV

Mutual Fund Pending Orders

| SIDE | TICK | \$AMOUNT | SLEEVE |
|--------|-------|-----------|----------|
| SELL | MUTF1 | \$550.00 | Sleeve 1 |
| SELL | MUTF2 | \$200.00 | Sleeve 1 |
| BUY | MUTF3 | -\$250.00 | Sleeve 1 |
| TOTAL: | | \$500.00 | |

12. The Pending Amount is included in the Adjusted Cash in each sleeve

Current Allocation

| | Sleeve % | Cash in a sleeve | Pending Cash in a sleeve | Adjusted Cash in a sleeve | Cash % |
|----------|----------|------------------|--------------------------|---------------------------|--------|
| Sleeve 1 | 50% | \$4,500 | \$500 | \$5,000 | 102% |
| Sleeve 2 | 50% | (\$100) | \$0 | (\$100) | -2% |

13. Resulting cash flows for each flow method

| Cash Flow Method | Sub Model | Cash Flow | Resulting Cash |
|----------------------------|-----------|------------|----------------|
| Cash Target | Sleeve 1 | (\$1,000) | \$4,000 |
| | Sleeve 2 | \$1,000 | \$900 |
| Cash Not Negative | Sleeve 1 | (\$100) | \$4,900 |
| | Sleeve 2 | \$100 | \$0 |
| Sleeve Target | Sleeve 1 | (\$1,080) | \$3,920 |
| | Sleeve 2 | \$1,080 | \$980 |
| Prorate | Sleeve 1 | (\$1,733) | \$3,267 |
| | Sleeve 2 | \$1,733 | \$1,633 |
| Sleeve Market Value Target | Sleeve 1 | \$10,000 | \$15,000 |
| | Sleeve 2 | (\$10,000) | (\$10,100) |

7.6 Posting multiple transactions that include UMA tags

The MSPPOSTGL function allows you to post multiple general ledger transactions that include MSP tags. The function has a line editor version that works very similarly to POSTGL, and it also has a screen version which allows the user to tab from field to field.

MSPPOSTGL line editor version

1. Type MSPPOSTGL at the WHICH FUNCTION? prompt. The line editor will appear
2. You may type multiple transaction lines for multiple accounts as you would for the standard POSTGL function except that you must include the UMA sleeve tag in the MSP column which is just before the DESCRIPTION column

Notes:

- Due to screen space limitations, only the D in the DESCRIPTION column header can be seen on the screen
- All standard line editor commands such as [P, [Q, and [D function are available

```

AVAILABLE TRDTYS:
OPE OPESTL CLO RCV DLV TFR INT INTACC DIV INC FEEADV FEETAX DIVRVN TAXFEE DLVIN
C RCVINC PRI MEMO MSPRCV MSPDLV

(0) INCOME CASH LEDGER
(1) SNAM/BWNM TRDTY TICK SACUS/CUS DATE UNITS $ AMOUNT MSP D
(2) -----
(3) MSP1 DIV XYZ 1234 20031215 1000 200 SUBXYZ XYZ CORP
(4) MSP10 INT ABC04 9876 20031231 10000 400 XYZFIX ABC04 COUPON
    
```

MSPPOSTGL screen version

1. Type MSPPOSTGL at the WHICH FUNCTION? prompt
2. At the DO YOU WANT THE SCREEN VERSION ? prompt, type Y. The screen editor will appear. Tab from field to field. Press F9 to toggle between screen 1 and 2. Press F7 to view available trade types
3. Press ENTER after each transaction. You may type multiple transactions lines for multiple accounts. The description field is on screen 2

Note: Standard screen editor commands such as F3 and F10 function in this version.

```

SAMPLE ASSET MANAGEMENT           Income Cash Posting           Screen 1 of 2
01/15/04  5:21 P.M.           -----

```

| Account | Trade Type | Tick | Sacus/ Cusip | Trade Date | Amount | MSP |
|---------|------------|------|--------------|------------|--------|--------|
| MSP1 | DIV | XYZ | 1234 | 20031215 | 200 | SUBXYZ |

```

F-1 Help  F-3 Abort  F-6 Insert  SF-6 Delete  F-7 Trade Types  F-10 Save

```

```

SAMPLE ASSET MANAGEMENT           Income Cash Posting           Screen 2 of 2
01/15/04  5:21 P.M.           -----

```

| Account | Trade Type | Tick | Sacus/ Cusip | Description |
|---------|------------|------|--------------|-------------|
| MSP1 | DIV | XYZ | 1234 | XYZ CORP |

```

F-1 Help  F-3 Abort  F-6 Insert  SF-6 Delete  F-7 Trade Types  F-10 Save

```

7.7 Combining Fractional Shares to Create One Share

Fractional shares occur within sleeves due to corporate actions or due to the average cost tax lot dispersion method. Fractional shares cannot be traded on an exchange and must be removed from the sleeve. Due to the nature of UMA accounts, a cash-in-lieu disbursement may not be realized for fractional shares within a sleeve. This is because fractional shares may exist at the sleeve level but not at the account level. Therefore, the account as a whole does not hold fractional shares and is not entitled to a cash-in-lieu distribution.

When fractional shares of a security exist among multiple sleeves, either the MSPMOVEFRAC utility or the MSPMOVEFRACALL utility can be used to move fractional shares between sleeves, creating a full share.

Note: MSPMOVEFRACALL should be used to process a high volume of fractional shares - as it will expedite the activity.

If a high volume of fractional shares requires management on a regular basis, contact InvestCloud and request that MSPMOVEFRACALL be set up to run nightly in batch mode.

For a high volume of fractional shares that require management on an irregular basis, contact InvestCloud and request that MSPMOVEFRACALL be set up to run when needed.

MSPMOVEFRAC

The MSPMOVEFRAC utility searches the sleeves within a selected account range for specified securities. If the fractional shares across the sleeves total one share, the shares from the sleeves with the smaller percentage of the security are delivered out to the sleeve with the largest percentage of the share. If more than one sleeve holds an equal allocation of the share, the security is delivered to one sleeve.

If the total of the fractional shares across the sleeve does not equal one, a warning displays stating that "FRACTIONAL SHARES DO NOT TOTAL 1. CANNOT PERFORM REQUESTED TASK FOR THOSE ACCOUNTS."

The deliver and receives of the security are posted to the account based on the delivery cash value of the security. The proceeds from the sleeve receiving the security will flow to the sleeve delivering out the security.

Using MSPMOVEFRAC

1. Enter MSPMOVEFRAC at the WHICH FUNCTION? prompt. A prompt to enter a trade date is displayed

```
TRADE DATE (MM/DD/YY) - HIT ENTER FOR 11/23/04 :
```

2. Enter the trade date in MM/DD/YY format

```
25000 ACCOUNTS CURRENTLY ON FILE  
SEARCH FOR WHAT?
```

3. Enter the parameters for the account range for the sleeve or sleeves in which to check for fractional shares and press ENTER. A confirmation will appear indicating the number of records found

```
3 RECORDS FOUND  
NEXT OPERATION (HIT RETURN WHEN DONE, OR TYPE HELP) :
```

4. To add additional parameters to narrow the search and selection, enter them at the NEXT OPERATION (HIT RETURN WHEN DONE, OR TYPE HELP): prompt and press ENTER. Or, type nothing to accept the original search results and press ENTER
5. At the next prompt, list the securities for fractional share processing. Press F10 when done

```
12/02/15 11:04 A.M.                                F-3 To Quit
                                                    F-10 to Continue

                        Security List of
                        -----

Security      Description      Price
-----
XYZ           XYZ CORP           20.0000000

F-7 To Refresh CLSEP For Securities
F-8 To Select Securities by Characteristic
```

6. At the next prompt, enter Y to confirm the list or N to return to the security list

```
Are You Sure This List Is Correct ?
```

7. If fractional shares that are eligible to move are found, resulting TRADESNEW batches are posted and the report, MSPMOVEFRAC.LRP is generated

8. A prompt to build the account(s) back into WINDOW's is displayed. Enter Y or N, press ENTER

```
REBUILD THESE ACCOUNTS FOR WINDOWS ?
```

MSPMOVEFRACALL

The MSPMOVEFRACALL utility searches for sleeves within selected UMA accounts with open tax lots or positions with fractional shares as of the selected date.

When fractional shares are found in UMA sleeves but not in the account in total, the fractional shares are moved between sleeves.

There are two methods that can be applied when moving the fractional shares. Fractional shares can be moved at the sleeve level or at the tax lot level.

Sleeve Level Method

At the sleeve level, fractional shares are moved between sleeves to ensure sleeves hold full shares. This method is used if VSP (.vs purchase) trading (for tax purposes) is not required. Ensuring sleeves hold full shares does not mean that tax lots will hold full shares.

Tax lot Level Method

This method finds open tax lots for the same security with the same purchase date in different sleeves where the tax lot in each sleeve holds a fractional share but the total account does not.

If found, fractional shares are moved between sleeves to ensure tax lots within a sleeve hold full shares. This method is used if tax lots will be sold by means of a Gain/Loss trading tool. Ensuring tax lots hold full shares does not mean that sleeves will hold full shares.

- Deliver from sleeve:

Fractional shares in sleeves that are not in the current master model allocation are considered for moving first.

If there are no non-model sleeve fractional shares, then fractional shares from the largest tax lot are moved first. If the largest tax lot is less than the fractional share amount, the next largest tax lot is moved. This process continues until sufficient tax lots, or pieces of tax lots, are delivered from the sleeve.

- Receiving sleeve:

The first alphabetical sleeve holding the security is used as the sleeve to receive the fractional shares. However, priority is given to sleeves that are in the current master model allocation.

- The as of date specified is used as the trade date for the RCV and DLV transactions
- The purchase date and cost basis of the fractional shares being delivered are carried over from the delivering sleeve to the receiving sleeve
- The versus purchase date is included in the deliver transactions to ensure tax lot disbursement rules defined at the account level are not employed
- The receive and deliver transactions are posted to EDPORT with the BRKIN and BRKOUT fields populated with MSPFRC

Note: Mutual funds and factorable securities are excluded from the MSPMOVEFRACALL process.

Using MSPMOVEFRACALL

1. Enter MSPMOVEFRACALL at the WHICH FUNCTION? prompt
2. A prompt to select a method is displayed
 - Enter 1 to move shares between sleeves using the sleeve level method
 - Enter 2 to move shares between sleeves using the tax lot level method

```
WHICH FUNCTION: ? MSPMOVEFRACALL
This Utility Can Be Used in The Following Two Ways.

1. Method one involves moving fractional shares between sleeves.
   This will ensure sleeves have full shares but does not ensure that
   tax lots have full shares. This method is ideal if tax lot
   selling (aka: versus-purchase trading) is not required.

2. Method two involves moving fractional shares between tax lots.
   This will ensure tax lots have full shares but does not ensure that
   sleeves have full shares. This is because fractional shares will
   only be moved across sleeves if the purchase date is the same.
   This method is ideal if tax lot selling will be employed via
   a Gain/Loss trading tool.

Which Method Should Be Used to Move Fractional Shares?
```

3. At the next prompt, choose to:

- c. Enter Y to automatically generate and post the receive and deliver transactions to EDPORT
- d. Enter N to generate the transactions but not post them

Do you want to automatically post the resulting trades batch ?

- 4. Respond to the AS OF DATE (MM/DD/YY) prompt by either entering the as-of date in the indicated format, or by pressing Enter to accept the suggested date. This date is used as the RCV and DLV transaction date
- 5. Select accounts at the SEARCH FOR WHAT ? prompt. A confirmation is displayed indicating the number of records found
- 6. Press Enter to accept the search results
- 7. If there are fractional shares to move, a TRADESNEW batch is created (and posted if opted for)
- 8. The report MOVEFRAC.LRP and csv file MOVEFRAC.csv are generated

| XYZ COMPANY | | | | | | PAGE 1 |
|---|----------|---------|------|------|--------|--------|
| 04/15/14 8:44 A.M. | | | | | | |
| Fractional Share Receive/Deliver Audit Report | | | | | | |
| Snam | Account | Sacus | Tick | Side | Shares | Sleeve |
| A00041 | 12345678 | 0123456 | VOD | RCV | 0.4167 | XYZ124 |
| A00041 | 12345678 | 0123456 | VOD | DLV | 0.4167 | XYZ125 |
| A00041 | 12345678 | 0234567 | VZ | RCV | 0.1052 | XYZ124 |
| A00041 | 12345678 | 0234567 | VZ | DLV | 0.1052 | XYZ125 |
| A00042 | 23456789 | 0234567 | VZ | RCV | 0.1275 | XYZ127 |
| A00042 | 23456789 | 0234567 | VZ | DLV | 0.1275 | XYZ125 |
| A00043 | 34567890 | 0345678 | VOD | RCV | 0.7273 | XYZ127 |
| A00043 | 34567890 | 0345678 | VOD | DLV | 0.7273 | XYZ125 |

PRESS <ESC> TO EXIT <F1> FOR HELP <F3> MAIN MENU CHECKERFEE APL

7.8 Transferring positions between UMA and non-UMA accounts

Using the MSPJNLALL and MSPJNLSEC functions, you can transfer positions between UMA and non-UMA accounts. Typically, you would use MSPJNLALL to transfer all securities out of a UMA account and use MSPJNLSEC to transfer a specific security or securities to and from UMA and non-UMA accounts.

Note: Both screens use TAB functionality to move from column to column, F10 functionality to execute a change, and F3 functionality to escape. MSPJNLALL and MSPJNLSEC do not use line editor functions such as [Q and [P.

Using the MSPJNLALL function to transfer positions

To use the MSPJNLALL function to transfer positions between UMA and non-UMA accounts:

1. Type MSPJNLALL at the WHICH FUNCTION? prompt. The As of Date prompt opens:

```
WHICH FUNCTION? MSPJNLALL
AS OF DATE (MM/DD/YY) - HIT ENTER FOR 12/12/03 :
```

2. Type the end-date and press ENTER, or type nothing and press ENTER to include all dates prior to, and including, the previous business day. You are prompted to select an item to round:

```
SEARCH FOR WHAT? CTEST
1 RECORDS FOUND
NEXT OPERATION (HIT RETURN WHEN DONE, OR TYPE HELP):
Round each Position (P), each Tax lot (T), or each pos w/in MSP Sleeve (S):? S
```

3. Select P to round a position, T to round a tax lot, or S to round each position within a sleeve. You are prompted to select the desired percent to round to:

```
1 RECORDS FOUND
NEXT OPERATION (HIT RETURN WHEN DONE, OR TYPE HELP):
Round each Position (P), each Tax lot (T), or each pos w/in MSP Sleeve (S):? S
```

4. Input a number from 1 to 100. You are prompted to round the shares
5. Type Y or N as appropriate. You are prompted to include accruals in the market value
6. Type Y or N as appropriate. You are prompted to include either specific issue types or all holdings
7. Input either the issue types (ISSTYs) to include and press ENTER, or type nothing and press ENTER to include all ISSTYs. You are prompted to include only securities
8. Input the securities you wish to include and press ENTER, or type nothing and press ENTER to include all securities. You are prompted to enter the SNAM of the account you would like the securities moved to
9. Type the SNAM of the account you want to move the securities to. The MSPJNLALL screen will open:

```
SNM/AC AsOf      /TICK  SNM/AC Original Transfer MSP   MSP
From  Date      Shares  SACUS  To      PDate  Value  FROM  TO    Tick
CTEST 20031212  145.000 297346 CTEST2 20031106 5829.00 ABCLCP ABCLGC ADBE
CTEST 20031212  119.000 106988 CTEST2 20031106 7072.17 ABCLGC ABCLGC AMGN
CTEST 20031212   31.000  1127 CTEST2 20031106 2410.25 ABCLGC ABCLGC ARC--Z
CTEST 20031212  116.000 315712 CTEST2 20031106 2535.76 ABCLGC ABCLGC CCE
CTEST 20031212   50.000 8967321 CTEST2 20031106 1507.50 ABCLGC ABCLGC CMCSK
CTEST 20031212   71.000  2890 CTEST2 20031106 3014.66 ABCLGC ABCLGC CSC
CTEST 20031212   58.000 684274 CTEST2 20031106 1397.22 BLANK  BLANK  CSCO
CTEST 20031212 1362.000 684274 CTEST2 20031106 32810.58 ABCEQU ABCEQU CSCO
CTEST 20031212   43.000 7650719 CTEST2 20031106 3450.75 ABCLGC ABCLGC CVX
CTEST 20031212 2083.000  3619 CTEST2 20031106 47534.06 ABCLC  ABCLC  DIS
CTEST 20031212  109.000 289712 CTEST2 20031106 5212.38 ABCLGC ABCLGC HDI
CTEST 20031212   63.000  6198 CTEST2 20031106 1944.18 ABCLGC ABCLGC INTC
      F1-HELP F3-EXIT F6-INS/DEL F7-CHECKOUT F8-OPTIONS F10-SAVE
```

10. Make modifications if necessary. Press F10 to save

Transferring a security to another portfolio using MSPJNLSEC

The MSPJNLSEC function allows you to journal a security from one portfolio to another. This function:

- Preserves the original cost and purchase date of the security
- Posts a deliver date (DDATE) and deliver value (DPROC) to the original account
- Posts a receive date (RDATE) and receive value (RCOST) to the new account

To run MSPJNLSEC:

1. At the WHICH FUNCTION:? prompt, type MSPJNLSEC and press ENTER. The following opens:

```
WHICH FUNCTION: ? MSPJNLSEC
MSPJNLSEC (PUBLIC)

Do you wish to specify MSP sleeve names ?
```

2. Type Y to include the UMA tag column in the MSPJNLSEC editor. If you are transferring positions between non-UMA accounts, type N
3. Type in the appropriate data
 - Always include the MSP tag for UMA accounts
 - If the lot in the UMA account is untagged, type BLANK in the MSP column
 - If a non-UMA account is involved, leave the MSP column empty for that specific account
4. Press F10 to save

Note: The MSPJNLSEC is based on the function JNLSEC.

7.9 Posting dividends and splitting dividends between subaccounts

If you post dividends, coupon payments, or other cash transactions through a back office interface instead of using the POSTDIVS function, an additional function must be run to apply the appropriate sleeve tags to these transactions in the general ledger, i.e. EDGL. You may use either the MSPSPLITDIVS function or the MSPSPLITDIVSNEW function.

MSPSPLITDIVS relies on security master and other information to verify which transactions should be tagged, similar to the information used by POSTDIVS for verification. Use this function to tag dividends that come in for closed lots. There are several cases, however, in which it is not possible to maintain all the necessary information in the security master for this function to verify the transactions for tagging. This can result in certain cash transactions remaining untagged.

To mitigate this issue, use MSPSPLITDIVSNEW to tag all untagged EDGL transactions based solely on a security's tag in EDPORT. For example, if a coupon payment for a bond is posted by the back office interface, the new tool will check to see if the bond is held in EDPORT. If so, MSPSPLITDIVSNEW will automatically tag that payment in EDGL with the same tag used for that security in EDPORT.

If the security is held across multiple sleeves, the new tool will split the payment among the sleeves proportionately.

Note: MSPSPLITDIVSNEW can only tag cash transactions that were generated by tagged securities which are held as actual positions in EDPORT. Cash transactions related to untagged securities in EDPORT will be left untagged. Likewise, cash transactions generated by cash equivalents which are not held as positions in EDPORT will remain untagged.

Typically, MSPSPLITDIVS and MSPSPLITDIVSNEW run as a control jobs set up by InvestCloud. To establish either function as an automatic process, please contact InvestCloud. As a manual process, the functions serve to tag specific accounts that were excluded, for whatever reason, from the batch process.

Note: If you use the POSTDIVS functionality in APL, you do not need to run either of these functions.

MSPSPLITDIVS

MSPSPLITDIVS relies on Security Master and other information to verify which transactions should be tagged. MSPSPLITDIVS tags each dividend appropriately, including negative entries for foreign security withholdings.

To run MSPSPLITDIVS:

1. Type MSPSPLITDIVS at the WHICH FUNCTION? prompt. The following prompt will appear:

```
UPDATE DIVIDENDS TO ACCOUNT FILE(S) :  
BEGINNING DATE (MM/DD/YY) - HIT ENTER FOR 05/16/05 :
```

2. At the BEGINNING DATE (MM/DD/YY) - HIT ENTER FOR MM/DD/ YY: prompt, type the date range for the coupon and dividend payments that need to be tagged. A typical date range is five business days back, with yesterday's date as the most recent, to ensure that no payments are missed
3. Select the account range to include in this transaction and press ENTER. A message will appear indicating the number of accounts selected along with the NEXT OPERATION (HIT RETURN WHEN DONE, OR TYPE HELP): prompt

Press **ENTER** to run the report

The function then tags the dividend and coupon payments for each selected account when the tag for payment is BLANK. In the default set-up, the posting date of the payment must match the payment date according to the security set up in the Security Master for the function to tag the entry. The function tags payments based on the allocations in the master and submodels.

If a dividend or coupon payment posts for a security held in more than one sleeve, the payment is split according the allocations in the master and submodels.

Note: InvestCloud can adjust this function to tag payments with a range of days if the actual pay date does not match the pay date in the Security Master.

- To view the resulting report, run the BROWSE function from the WHICH FUNCTION? prompt and request the NODIVS.LSD file

```
FOR FOLLOWING INSTRUMENTS NO INTEREST WAS POSTED :
```

| SACUS | DESCRIPTION | DTDF |
|---------|-------------------------|--------------------|
| 1921284 | FLATHEAD VALLEY MT G.O. | 6.550% 07/01/00 DX |

- The following prompt will appear listing accounts that may be missing income payments. Please resolve as appropriate

```
INCOME PAYMENTS FROM THE FOLLOWING MAY BE MISSING:  
1651 BLUE RIDGE REAL ESTA  
2129578 FORD MOTOR CREDIT 8.  
2218607 CLAIRE COSTIGAN
```

MSPSPLITDIVSNEW

MSPSPLITDIVSNEW tags all untagged EDGL transactions based solely on a security's tag in EDPORT. If the security is held across multiple sleeves, the function will split the payment among the tagged securities proportionately. As with MSPSPLITDIVS, you can run MSPSPLITDIVSNEW from the command line or as a batch process.

To run MSPSPLITDIVSNEW:

- Type MSPSPLITDIVSNEW at the WHICH FUNCTION? prompt. The following prompt will appear:

```
BEGINNING DATE (MM/DD/YY) - HIT ENTER FOR 05/16/05 : 05/01/05
```

- Type beginning date for which untagged EDGL transactions should be tagged. All transactions from this date up through the current date will be tagged if they were generated by a security which is tagged in EDPORT

```
1624 ACCOUNTS CURRENTLY ON FILE  
SEARCH FOR WHAT?
```

- Type the account selection at the SEARCH FOR WHAT? prompt. Press ENTER. The NEXT OPERATION (HIT RETURN WHEN DONE, OR TYPE HELP): prompt will appear. Type any additional account selection criteria at this prompt. Press ENTER to continue

All eligible EDGL transactions will be tagged automatically.

7.10 Deleting and reposting flows between sleeves

In some instances, you may need to delete the cash flows for a particular day for a particular account. For example, some trading may generate flows between sleeves but if some trades occurred outside of APL, the proceeds may not post to the account until after nightly processing. Therefore, the flows calculated the previous night may not include the extra cash from the external trades.

To correct this, you need to delete the previous day's cash flows using the MSPGLFLOWSDEL function and rerun the process to update the cash flow information using the MSPPOSTGLFLOWS function.

Using MSPGLFLOWSDEL to delete cash flows

To delete flows between sleeves:

1. Type MSPGLFLOWSDEL at the WHICH FUNCTION? prompt. You are prompted to provide a date range:

```
BEGINNING DATE (MM/DD/YY) - HIT ENTER FOR 12/18/03 :  
ENDING DATE (MM/DD/YY) - HIT ENTER FOR 12/18/03 :
```

- The function will delete all MSPRCV and MSPDLV transactions within that date range. The search prompt will appear:

```
23 ACCOUNTS CURRENTLY ON FILE  
SEARCH FOR WHAT?
```

2. Input the search string at the Search for What? Prompt that will bring up the desired account or accounts. Once you select your accounts, the function will delete these transactions and provide you with the report file MSPDEL.LRP that shows all of the deleted transactions. No batch is created

Using MSPPOSTGLFLOWS to update cash flows

Once the MSPGLFLOWSDEL function is run, you must re-post the flows using the MSPPOSTGLFLOWS command.

To run MSPPOSTGLFLOWS:

1. Type MSPPOSTGLFLOWS at the WHICH FUNCTION? Prompt. The Search for What? prompt will appear
2. Input the search string at the Search for What? Prompt that will bring up the desired account or accounts. You will receive the following prompt:

```
Are Master Manager trades for today a requirement for processing Cash Flows ?
```

3. Type YES or NO as appropriate. The flows are recalculated

7.11 Swapping submodels and positions

On occasion, a master manager will need to move positions within a portfolio from one submodel to another; for example, when submanagers are removed or replaced. When doing this, it is not desirable to use the UNIFIED MANAGED ACCOUNT REBALANCER function, since this would create unnecessary sells and buys.

To avoid this problem, two functions enable you to move positions within a portfolio from one submodel to another using deliver and receive transactions.

- MSPMOVEPOS moves a single position or multiple positions of all issue types or security types
- MSPSUBSWAP moves all positions from one submodel to another

Moving a position, or positions, with MSPMOVEPOS

MSPMOVEPOS allows master managers to swap specific positions from one sleeve to another. With this function, the selected position is delivered out of the old sleeve and then re-tagged and received into the new sleeve. Afterwards, internal cash flows are posted between the old and new sleeves.

Note: When a tax lot is moved from one sleeve to another, cash in an amount equal to the tax lot value flows from receiving sleeve to the delivering sleeve. The tax lot value is based on the price selected by the user.

When securities are moved from/to a "Blank" sleeve or a transitional sleeve, cash is not flowed. The transitional sleeve is used, if configured, when an account has untagged securities or when securities do not match the model.

There are two general approaches to running MSPMOVEPOS, one where you select securities from submodel positions and the other where you select securities from account holdings.

Select securities from submodel holdings

1. Type MSPMOVEPOS at the WHICH FUNCTION? prompt and press ENTER

Note: This function may have been set up for access through your InvestCloud Windows menu system. You can verify this by contacting your account manager.

The following prompt will appear:

```
+-----+  
|AS OF DATE (MM/DD/YY) - HIT ENTER FOR 10/31/08 : |  
+-----+
```

2. Type the As Of Date for which the deliver and receive transactions are to be posted and press ENTER. Or, type nothing and press ENTER to accept the displayed date

Note: If a historic date is selected, only tax lots open as of the current date will be moved to the new sleeve. Tax lots sold after the selected date and principal pay down transactions for amortizing bonds that have been posted between the selected date and the current date will not be transferred to the new sleeve.

A prompt to select the securities by account or by submodel is displayed.

```
+-----+
| Do you want to select securities by accounts or by submodels? |
+-----+
|                               |
|                               |
|          SUBMODELS          |
|          ACCOUNTS          |
|                               |
+-----+
```

3. Choose SUBMODELS. Press ENTER

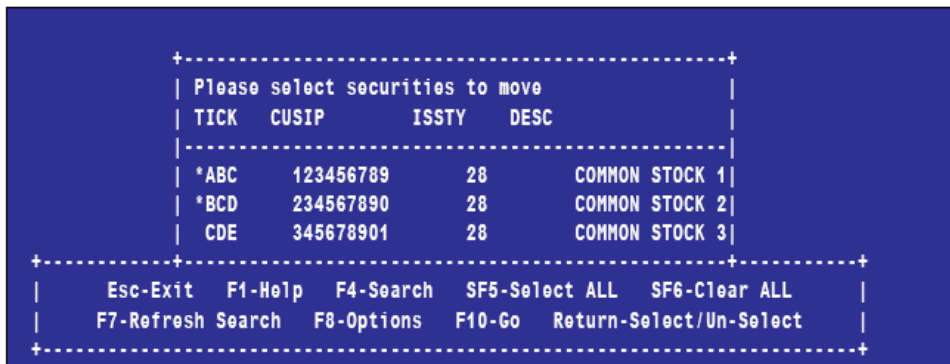
The list of submodels will be display. Select one submodel from which to move the securities.

```
+-----+
| Move positions from which submodel? |
+-----+
| SUBONE - MODEL ONE |
| SUBTWO - MODEL TWO |
| SUBTHR - MODEL THREE |
+-----+
```

4. Select one submodel from which to move the securities. You are prompted to specify a submodel to move the positions to

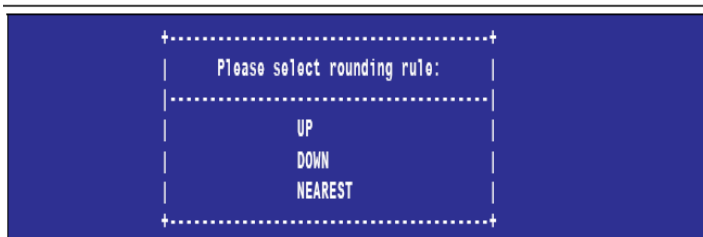
```
+-----+
| Move positions to which submodel? |
+-----+
| BLANK - BLANK |
| TMPCSH - TMPCSH |
| SUBTWO - MODEL TWO |
| SUBTHR - MODEL THREE |
+-----+
```

5. Select the submodel. The list of securities in the selected submodel will display



| Key | Description |
|-------|--|
| ESC | Exit |
| F1 | Display the help. |
| F4 | Search. Press F4. Type the criteria. Press ENTER. Select blocks. Press F10 for an Account Selection screen |
| SF5 | Select all submodels. |
| SF6 | Deselect all submodels. |
| F7 | Display all submodels again after the search. |
| F8 | Choose one of the following options: Search and INCLUDE All Matches Search and EXCLUDE All Matches Enter search string. Press ENTER. An X will appear beside blocks meeting the criteria. |
| F10 | Save your selection and execute the changes. |
| ENTER | Select or deselect. |

6. Select one or more securities by pressing ENTER. Press F10 to save the selection and proceed



7. Select the rounding rule to use and press ENTER. You are prompted to select the transfer price for each security. You are prompted to choose the rounding to use

| MOVE SECURITIES AT WHAT PRICE? | |
|--------------------------------|-------|
| SECURITY | PRICE |
| ABC | 23.6 |
| BCD | 53.33 |

8. Review the transfer price for each security. The security price will default to the closing price on the day of the transaction. Overwrite pricing information if changes are needed

Or, in the PRICE column, type the name of the Security Master price field to reference for the price. For instance, to select a closing price on the last business day, enter CLSEP.

If you choose a fixed income security, a prompt displays asking whether accrued interest should be calculated and added to the security price.

- Select YES if the price entered on the previous screen is the net price
- Select NO if the price selected on the previous screen is the full price

Note: Prices stored in the APL Security Master are net prices. Thus, select YES if using the default price.

9. Press F10 to save the pricing information. You are prompted to provide an account or an account range

| SELECT ACCOUNTS BY SNAM, BWNUM OR ACCOUNT PROFILE FIELDS | |
|--|---------|
| FUNCTION: AND | SEARCH: |
| -----S----- | |
| 8861 RECORDS FOUND | |
| Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back | |

10. Type in desired account range and press ENTER or, press F7 to choose an account from a menu. When all search criteria are listed, press F10
11. Depending on the number of trades selected, one of the following prompts is presented:
 - If 999 or fewer accounts were selected:

You are about to run MSPMOVEPOS for xxx accounts.

Do you wish to continue?

NO

YES

- If 1000 or more accounts were selected:

You are about to run MSPMOVEPOS for xxxx accounts. Running this function for a large number of accounts will impact system performance for all users.

Do you wish to continue?

NO

YES

12. Select NO to end this workflow and return to the WHAT NEXT prompt

13. Select YES to allow the process to continue

Tax lots matching selection criteria will be displayed on the details screen. Adjust values in %TOTAL TO MOVE or UNITS TO MOVE column to move only part of the tax lot. In SP column select P to indicate that %TOTAL TO MOVE value should be used or S to indicate that UNITS TO MOVE value should be used.

```

XYZ INVESTMENT MANAGEMENT                                F-3 To Quit
10/10/08 10:23 A.M.                                    F-5 Options
                                                         F-10 To Save

From SUBONE To BLANK

SNAM  PDATE      COST      AVAILABLE  %   TOTAL  UNITS S
-----  -----  -----  -----  ---  -----  TO MOVE P
TICK ABC CUSIP 123456789 COMMON STOCK 1

A11111 20050506      6610.50      65.0000  49.24  14.39  65.0000 P
A11111 20050510      1935.53      19.0000  14.39  14.39  19.0000 P
A11111 20080812      1796.04      18.0000  13.64  13.64  18.0000 P
A11111 20060831      1692.12      17.0000  12.88  12.88  17.0000 P
A11111 20070928      1300.25      13.0000   9.85   9.85  13.0000 P
A22222 20080814      52268.99     523.0000 100.00 100.00 523.0000 P
A22222 20080814      25484.88     255.0000 100.00 100.00 255.0000 P

TICK BCD CUSIP 1112223334 COMMON STOCK 2

A33333 20050511      1935.53      19.0000  14.39  14.39  19.0000 P
    
```

| Column | Description |
|--------|---------------------------------|
| SNAM | Account short name. (Read only) |

| Column | Description |
|-----------------|---|
| PDATE | Purchase date. (Read only) |
| COST | Cost basis of the tax lot. (Read only) |
| AVAILABLE UNITS | Units in the tax lot. (Read only) |
| % TOTAL | Percentage of the total security position in the account that this tax lot makes. (Read only) |
| % TOTAL TO MOVE | What the percentage of the tax lot should be moved if S/P is set to P. (Editable) |
| UNITS TO MOVE | How many units to move if S/P is set to S. (Editable) |
| S/P | Defines whether the value in percentage total to move or units to move field should be used. (Editable) |

14. Press F5 to view a list of additional editing options and use them if necessary

| Option | Description |
|--------------------|---|
| MOVE % OF POSITION | Specify the percent of a position for all accounts for the currently selected security. |
| RESTORE | Remove all changes made by the user on the screen and restore original values. |

15. Press F10 to save all changes. You are prompted to specify the sort order for the report



16. Choose SECURITY or ACCOUNT as appropriate and press ENTER. The report is displayed

```

XYZ INVESTMENT MANAGEMENT
09/10/08  3:15 P.M.

MOVED FROM: BLANK
As of: 09/10/08

ACCOUNT SECURITY  UNITS      PDATE    COST    PRICE  INCOME    VALUE    TO      I
A11111   ABC    3.0000   20050526 230.70  100.04   0.00    300.12  SUBONE
A11111   BCD    1.0000   20050526  76.90   10.09   0.00    10.09  SUBTWO

2 batches created and posted
Batch 101 created and posted
Batch 102 created and posted
    
```

Note: The report includes tax lots for both posted and unposted batches.

| Column | Description |
|----------------|---|
| ACCOUNT | Short name of the account that the holdings are moved from. |
| SECURITY | Security identifier, i.e. ticker. |
| UNITS | Number of units or shares. |
| PDATE | Purchase date. |
| COST | Cost basis. |
| PRICE | Current price. |
| ACCRUED INCOME | Accrued income amount will be displayed if the user selected to calculate it. |
| VALUE | Total value of the tax lot based on selected price. |
| MOVED TO | The sleeve where the tax lot is moved. |

Select securities from account holdings

1. Type MSPMOVEPOS at the WHICH FUNCTION? prompt and press ENTER

Note: This function may have been set up for access through your InvestCloud Windows menu system. You can verify this by contacting your account manager.

The following prompt displays:

```

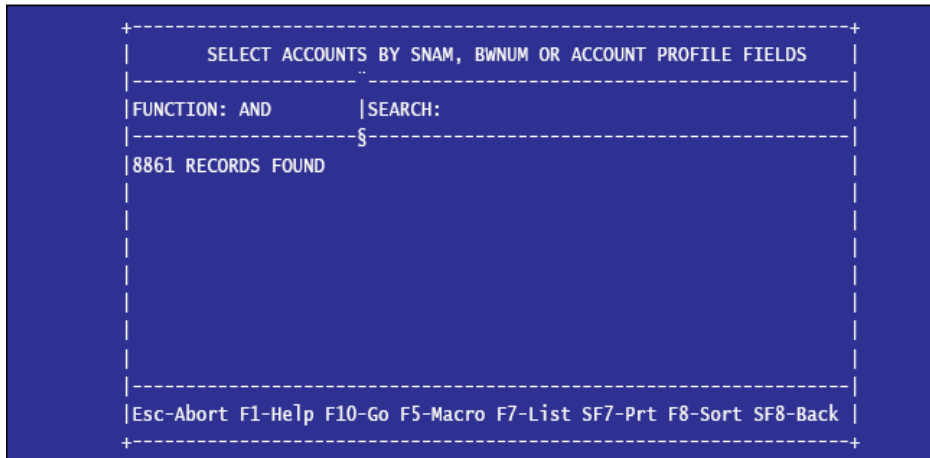
+-----+
|AS OF DATE (MM/DD/YY) - HIT ENTER FOR 10/08/08 : |
+-----+
    
```

2. Type the As Of Date for which the deliver and receive transactions are to be posted and press ENTER.
 Or, type nothing and press ENTER to accept the displayed date

If a historic date is selected, only tax lots open as of the current date will be moved to the new sleeve. Tax lots sold after the selected date and principal pay down transactions for amortizing bonds that have been posted between the selected date and the current date will not be transferred to the new sleeve.

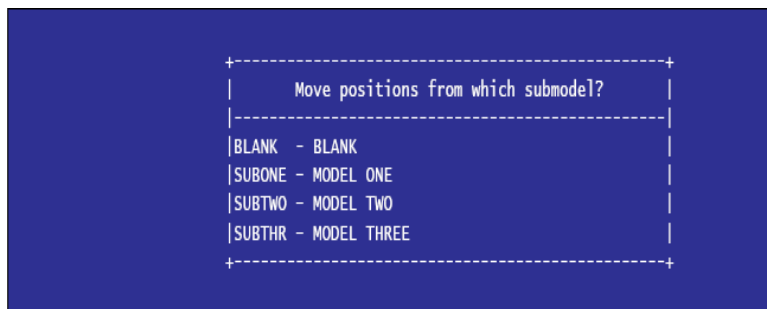
A prompt to select the securities by account or by submodel is displayed.

3. Choose ACCOUNTS. Press ENTER. The account selection screen displays



4. Type in desired account range and press ENTER. When all search criteria are listed, press F10. Or, press F7 to choose an account from a menu

The list of submodels included in the selected accounts will be displayed. If any of the accounts have untagged securities, BLANK will display as one of the options so that you can tag the securities. A transitional sleeve will display if configured and if selected accounts have any tax lots tagged to that sleeve.



5. Select one submodel from which to move the securities. Select BLANK to tag securities

You are prompted to specify a submodel to move the positions to.

| Key | Description |
|-----|-------------------|
| ESC | Exit. |
| F1 | Display the help. |

| Key | Description |
|-------|--|
| F4 | Search. Press F4. Type the criteria. Press ENTER. Select blocks. Press F10 for an Account Selection screen. |
| SF5 | Select all submodels. |
| SF6 | Deselect all submodels. |
| F7 | Display all submodels again after the search. |
| F8 | Choose one of the following options: Search and INCLUDE All Matches Search and EXCLUDE All Matches Enter search string. Press ENTER. An X will appear beside blocks meeting criteria. |
| F10 | Save your selection and execute the changes. |
| ENTER | Select or deselect. |

6. Select the submodel or submodels to move positions to. Press F10

The list of securities that have tax lots tagged to selected submodel in at least one of the selected accounts will be displayed.

```

+-----+
| Please select securities to move |
| TICK  CUSIP    ISSTY  DESC |
+-----+
| *ABC   123456789    28   COMMON STOCK 1 |
| *BCD   234567890    28   COMMON STOCK 2 |
| CDE    345678901    28   COMMON STOCK 3 |
+-----+
| Esc-Exit  F1-Help  F4-Search  SF5-Select ALL  SF6-Clear ALL |
| F7-Refresh Search  F8-Options  F10-Go    Return-Select/Un-Select |
+-----+

```

7. Select one or more securities by pressing ENTER
8. Press F10 to save the selection and proceed

You are prompted to choose the rounding to use.

```

+-----+
| Please select rounding rule: |
+-----+
| UP |
| DOWN |
| NEAREST |
+-----+

```

9. Select the rounding rule to use and press ENTER

- UP - Rounds up to the nearest increment
- DOWN - Rounds down to the nearest increment
- NEAREST - Uses 5/4 rounding. You are prompted to select the transfer price for each security

| MOVE SECURITIES AT WHAT PRICE? | |
|--------------------------------|-------|
| SECURITY | PRICE |
| ABC | 23.6 |
| BCD | 53.33 |

10. Review the transfer price for each security. The security price will default to the closing price on the day of the transaction

Or, in the PRICE column, type the desired price or the name of Security Master price field to reference for the price. For instance, to select a closing price on the last business day, enter CLSEP.

If you choose a fixed income security, a prompt displays asking whether accrued interest should be calculated and added to the security price.

- Select YES if the price entered on the previous screen is the net price. This is the default price. per the APL Security Master
- Select NO if the price selected on the previous screen is the full price

11. Press F10 to save the pricing information

Tax lots matching selection criteria will be displayed on the details screen with the SLEEVE column showing the destination sleeve. If only one destination sleeve was selected on the prior screen, this sleeve will be populated by default for all tax lots.

Adjust values in %TOTAL TO Mover UNITS TO MOVE column to move only part of the tax lot. In Column select P to indicate that %TOTAL TO MOVE value should be used or S to indicate that UNITS TO MOVE value should be used.

| XYZ INVESTMENT MANAGEMENT | | | | | | | | | | F-3 To Quit | |
|---------------------------|----------|----------|------------|-----------------|---------|---------|---|----------|---|--------------|--|
| 10/10/08 10:23 A.M. | | | | | | | | | | F-5 Options | |
| | | | | | | | | | | F-10 To Save | |
| From SUBONE | | | | | | | | | | | |
| SNAM | PDATE | COST | | AVAILABLE UNITS | % TOTAL | UNITS S | | | | | |
| ---- | ---- | ---- | ---- | ---- | ---- | TO MOVE | P | SLEEVE | | | |
| TICK | ABC | CUSIP | 123456789 | ABC | ISHARES | TR | | | | | |
| A11111 | 20050506 | 6610.50 | | 65.0000 | 49.24 | | | 65.0000 | P | SUBONE | |
| A11111 | 20050510 | 1935.53 | | 19.0000 | 14.39 | 14.39 | | 19.0000 | P | SUBONE | |
| A11111 | 20080812 | 1796.04 | | 18.0000 | 13.64 | 13.64 | | 18.0000 | P | SUBONE | |
| A11111 | 20060831 | 1692.12 | | 17.0000 | 12.88 | 12.88 | | 17.0000 | P | SUBONE | |
| A11111 | 20070928 | 1300.25 | | 13.0000 | 9.85 | 9.85 | | 13.0000 | P | SUBONE | |
| A22222 | 20080814 | 52268.99 | | 523.0000 | 100.00 | 100.00 | | 523.0000 | P | SUBONE | |
| A22222 | 20080814 | 25484.88 | | 255.0000 | 100.00 | 100.00 | | 255.0000 | P | SUBONE | |
| TICK | EFA | CUSIP | 1112223334 | EFA | ISHARES | TR | | | | | |

Note: If more than one destination sleeve is selected on the prior screen, select destination sleeve for each tax lot. Press F1 to view available sleeves.

| Column | Description |
|-----------------|---|
| SNAM | Account short name. (Read only) |
| PDATE | Purchase date. (Read only) |
| COST | Cost of basis of the tax lot. (Read only) |
| AVAILABLE UNITS | Units in the tax lot. (Read only) |
| % TOTAL | Percentage of the total security position in the account that this tax lot makes. (Read only) |
| % TOTAL TO MOVE | What the percentage of the tax lot should be moved if S/P is set to P. (Editable) |
| UNITS TO MOVE | How many units to move if S/P is set to S. (Editable) |
| S/P | Defines whether the value in the percentage total to move or unit to move field should be used. (Editable). |
| SLEEVE | Destination sleeve. (Editable) |

12. Press F5 to view a list of additional editing options and use them if necessary

| Option | Description |
|----------------------|---|
| MOVE % OF POSITION | Specify the percent of a position for all accounts for the currently selected security. |
| RESTORE | Remove all changes made by the user on the screen and restore original values. |
| SPLIT SLEEVES SCREEN | Split a tax lot between multiple sleeves. |
| | Move the cursor to the tax lot and select this option. Split sleeves screen display. |
| | Enter allocation to each sleeve in percent or units. Additional lines may be added as needed. |
| | Press F10 to save allocations and return to the main screen. |

13. Press F10 to save all changes

Example of splitting a tax lot between multiple sleeves

```

XYZ INVESTMENT MANAGEMENT                                F-3 To Quit
10/10/08 10:23 A.M.                                    F-5 Options
                                                         F-10 To Save

From SUBONE
                                                         %
AVAILABLE          % TOTAL          UNITS S
SNAM  PDATE      COST      UNITS  TOTAL TO MOVE  TO MOVE P SLEEVE
AAAA  AAAAA      AAAA      AAAAA  AAAAA AAAAAAA  AAAAAA A AAAAA
A11111 20050506    134.34      4.0000  36.36
                                           10.00      4.0000 P SUBONE
                                           15.00      P SUBONE
    
```

Moving all positions with MSPSUBSWAP

MSPSUBSWAP enables master managers to swap all positions and cash with using one-to-one, one-to-many, and many-to-many swaps. This function also allows you to select multiple master models and perform swaps, as well as tag and untag tax lots.

The function automatically delivers out all positions tagged with the old submodel and receives them back in tagged with the new submodel as of the current date. Internal cash flows are posted between the old and new submodels.

By default, MSPSUBSWAP requires a work space of 150,000. If the work space is inadequate, an error message will display indicating that you have insufficient memory. Contact InvestCloud to resolve this issue.

Populate the FACE field in EDPORT for factorable bonds to ensure that they swap correctly.

Important:

- Do not run MSPSUBSWAP for large number of accounts late in the day. Posting transactions for 1000 accounts takes three hours on average. (The exact time may fluctuate depending on the number of tax lots, selected sleeves, and server settings.) If the posting process does not finish before the end-of-day process starts, data may be lost or corrupted
- Do not trade an account until MSPSUBSWAP finishes and Windows rebuilds
- Do not make changes in EDGL or EDPORT until MSPSUBSWAP finishes

To run this function

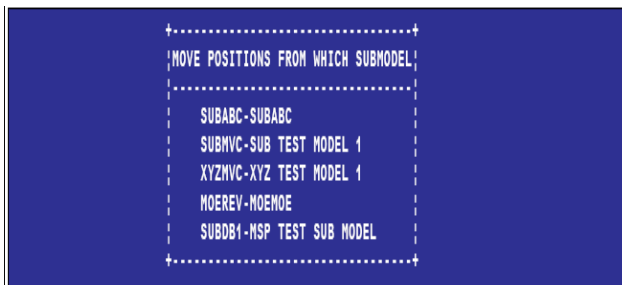
1. Type MSPSUBSWAP at the WHICH FUNCTION? prompt and press ENTER

Note: You may access this function through the InvestCloud Windows menu if it has been set up. You can verify this by contacting your account manager.

A model selection box opens.

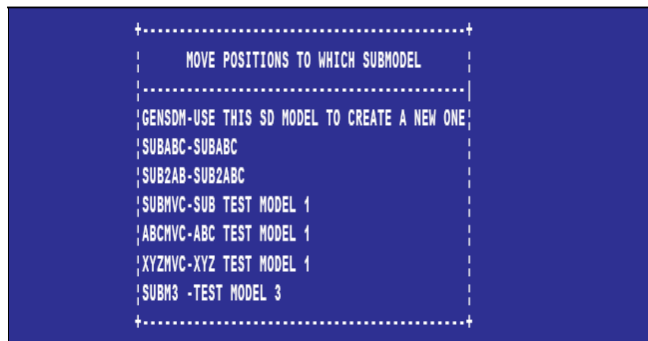


2. Type the short names of one or more master models. To select all master models, press F10 without entering any model names. Or, press F7 to view a list of models from which to choose. The MOVE POSITIONS FROM WHICH SUBMODEL selection box displays:



3. To select a submodel, move the cursor to it and press ENTER. An asterisk will appear beside each selected submodel. When all desired submodels are selected, press F10

If more than one submodel is selected, all assets in selected submodels will be added together for swapping. The MOVE POSITIONS TO WHICH SUBMODEL selection box displays:



4. To select a submodel, move the cursor to it and press ENTER. An asterisk will appear beside each selected submodel. When all desired submodels are selected, press F10

If more than one submodel is selected, a submodel allocation screen will display.

NO

YES

8. Select NO to end this workflow and return to the WHAT NEXT prompt
9. Select YES to allow the process to continue

MSPSUBSWAP uses the TRADESNEW function to create and post batches of transactions. This results in receive and deliver transactions for tax lots. New batches start after 30,000 transactions. MSPSUBSWAP uses MSPPOSTGL to move cash using a defined allocation. Flows are posted at the time of the swap.

Note: The deliver and receive values are determined by the previous business day's closing price (CLSEP) for each security.

Tagging Tax Lots Using MSPSUBSWAP

1. On the MOVE POSITIONS FROM WHICH SUBMODEL screen, select BLANK
2. Select one or more submodels on MOVE POSITIONS TO WHICH SUBMODEL screen
3. If more than one submodel is selected, enter the allocation for each submodel
 - All untagged tax lots will be prorated based on allocation and tagged to selected submodels regardless of whether these securities are in the submodels or not
 - If only one submodel is selected, all untagged tax lots will be tagged to that submodel
 - Untagged cash will not be tagged. It will continue to be allocated based on master model

Untagging Tax Lots Using MSPSUBSWAP

1. Select one or more submodels on the MOVE POSITIONS FROM WHICH SUBMODEL screen to untag all tax lots from these submodels
2. Select BLANK on the MOVE POSITIONS TO WHICH SUBMODEL screen. Tags of all tax lots in selected sleeves will be changed to BLANK
3. You will be prompted to run the MSPPOSTGLFLOWS function to reallocate cash

Note: As an alternative to having MSPSUBSWAP run MSPPOSTGLFLOWS to reallocate sleeve cash, run the Sleeve Reallocation Tool found on the Master Manager trading menu. This tool serves as a replacement to MSPPOSTGLFLOWS. For additional information about the Sleeve Reallocation Tool see the "Sleeve Reallocation Tool" section.

7.12 Checking for blank submodel tags

To check for accounts with blank submodel tags, use the MSPAUDIT function to produce a report listing tagless accounts. To run this report:

1. Type MSPAUDIT at the WHICH FUNCTION? prompt. You are prompted to enter a search string to specify an account or an account range

```
105899 ACCOUNTS CURRENTLY ON FILE  
SEARCH FOR WHAT? MGR EQ MSP
```

2. Type an appropriate search string and press ENTER. You are prompted to enter a Boolean operator such as “and,” “or,” or “not” plus another search string to further narrow the results. Input a string if necessary, otherwise type nothing and press Enter

You are prompted to include or exclude closed lots

```
NEXT OPERATION (HIT RETURN WHEN DONE, OR TYPE HELP): AND  
AND WHAT? RANDACCT 25  
25 RECORDS FOUND  
NEXT OPERATION (HIT RETURN WHEN DONE, OR TYPE HELP):  
Do you want to include CLOSED lots (Y/N) ? N
```

3. Type Y or N as appropriate to include closed lots. The report is written to the MANMSPAUDIT.LSD file. The WHICH FUNCTION? prompt will appear
4. Type BROWSE and press ENTER. The report file name, MANMSPAUDIT.LSD, will appear. Press ENTER at the BROWSE WHICH FILE prompt. The report will appear

```

MANMSPAUDIT.LSD      10/25/05  9:37 A.M.
*****
23 Accounts selected to be audited.....
-----+-----
MSP5 : mapped to MVCMDM
-----
      SACUS TICK          UNITS  PDATE          COST   RDATE   SDATE   DDATE
5 open tax lots untagged (non-REORG related)
4362927 C              150.5986 20020305      7160.96 20021108
4362927 C              150.6000 20020305      7160.96 20030429
4362927 C             2150.0000 20020621     88150.00 0
4362927 C              50.0000 20020621      2050.00 20030414
4362927 C             1000.0000 20020628     39190.00 0
5 open tax lots tagged with INVALID msp code (non-REORG related)
2045248 GUC             1000.0000 20020628     93030.00 0
5279159 HON             2500.0000 20020628     85075.00 0
5279159 HON             1000.0000 20021031      24210.00 0
351752 TIF              3500.0000 20020628     91105.00 0
1550959 T----Z         5500.0000 20020628     55165.00 0
-----
MSP9 : mapped to MVCMDM
-----
      SACUS TICK          UNITS  PDATE          COST   RDATE   SDATE   DDATE
5 open tax lots untagged (non-REORG related)
4362927 C              150.5986 20020305      7160.96 20021108
4362927 C              150.6000 20020305      7160.96 20030429
4362927 C             2150.0000 20020621     88150.00 0
4362927 C              50.0000 20020621      2050.00 20030414
4362927 C             1000.0000 20020628     39190.00 0
5 open tax lots tagged with INVALID msp code (non-REORG related)
2045248 GUC             1000.0000 20020628     93030.00 0
5279159 HON             2500.0000 20020628     85075.00 0
5279159 HON             1000.0000 20021031      24210.00 0
351752 TIF              3500.0000 20020628     91105.00 0
1550959 T----Z         5500.0000 20020628     55165.00 0
-----
MSPTST: mapped to MVCMDT
-----
      SACUS TICK          UNITS  PDATE          COST   RDATE   SDATE   DDATE
3 open tax lots tagged with INVALID msp code (non-REORG related)
5279159 HON             1000.0000 20030307     22000.00 0
44304 LIZ              1000.0000 20030307     28000.00 0
844 T----Z             1000.0000 20030307     14000.00 0
*****
No blank tags found for the following 2 accounts:
CIFRMI
MSPTS2
    
```

7.13 Using the TAGMSPCASH function to tag blank cash entries with submodel codes

The TAGMSPCASH function tags BLANK cash entries with an appropriate submodel code based on:

- Current weights or the sleeves, or
- Submodel allocation found in the master model,
- Cash allocation found in the master model

The function searches for any entries in the general ledger where the MSP field is blank and either:

- SACUS equals 13321, or
- TICK equals CASH-1 or CASH

The function gives the user the option to post directly to the general ledger, or to create a report, called TAGMSP.000, to view what the changes will be. TAGMSPCASH can be set up to run overnight as a batch function or it can be run intraday when necessary.

To run the function:

1. Type TAGMSPCASH at the WHICH FUNCTION? Prompt. You are prompted for a beginning date

```
WHAT NEXT (Sparky) ? TAGMSPCASH
TAGMSPCASH (PUBLIC)

BEGINNING DATE (MM/DD/YY)
```

2. Type the beginning date in MM/DD/YY format. You are prompted for an as of date

```
AS OF DATE (MM/DD/YY) - HIT ENTER FOR 12/26/06 :
```

3. Type the as of date in MM/DD/YY format and press ENTER. The default date is the previous business day. If this is the preferred date, type nothing and press ENTER. You are prompted for an account selection

```
1630 ACCOUNTS CURRENTLY ON FILE
SEARCH FOR WHAT?
```

4. Type the account or range of accounts and press ENTER. You are prompted for an allocation method:

```
ALLOCATION METHOD (C)URRENT (S)UBMODEL CAS(H)?
```

5. Input the following letter, as appropriate, and press ENTER

| Letter | Allocation Method |
|--------|-------------------|
|--------|-------------------|

Current Allocation Method

C This method requires the system to calculate the current sleeve weights (tagged cash + untagged cash prior to beginning date chosen by the user + securities) of an account. Then, break up untagged entries proportionally based on this allocation each time the function runs.

The function will use the allocations from the AS OF date selected. It is recommended that you use the last business day as the AS OF date. The function will not work properly if you select an AS OF date beyond the last change in the Master Model. To view the model's history, run an audit report as detailed in "Viewing the Audit Trail Report".

Submodel Allocation Method

S This method would simply take the submodel allocation in the Master Model assigned to the account, and break up the untagged entries using that allocation

Letter Allocation Method

Cash Allocation

H This methodology would simply take the cash allocation in the Master Model assigned to the account, and break up the untagged entries using that allocation

You are prompted to post changed EDGL

POST CHANGES TO EDGL? ?

6. Type Y for yes or N for no. A report called TAGMSP.NNN, where NNN is a sequential number beginning with 000, is created to display what the tagging tool did to each account after the function was run

The tool will create RCV and DLV transactions and post them to EDGL. Once transactions are posted to EDGL, cash cannot be automatically untagged.

An excerpt from a TAGMSP.000 report is as follows:

| FUNCTION : TAGMSPCASH | | UNTAGGED CASH IN EDGL | | | | | |
|----------------------------|---------|-----------------------|----------|----------|-------------|--------|--------------|
| RUNTIME : 12/27/06 4:10 PM | | | | | | | |
| BEGIN DATE: 01/01/03 | | | | | | | |
| AS OF DATE: 12/26/06 | | | | | | | |
| TYPE : CASH METHOD | | | | | | | |
| UNTAGGED | ENTRIES | BEFORE | TAGGING | | | | |
| TRDTY | TICK | SACUS | DATE | UNITS | \$ AMOUNT | MSP | DESCRIPTION |
| DLV | CASH-1 | 13321 | 20040324 | 0 | -5000000.00 | | *DELIVER OUT |
| AFTER | TAGGING | | | | | | |
| TRDTY | TICK | SACUS | DATE | UNITS | \$ AMOUNT | MSP | DESCRIPTION |
| DLV | CASH-1 | 13321 | 20040324 | 0 | -833333.33 | SUBABC | *DELIVER OUT |
| DLV | CASH-1 | 13321 | 20040324 | 0 | -333333.33 | SUBMVC | *DELIVER OUT |
| DLV | CASH-1 | 13321 | 20040324 | 0 | -166666.67 | XYZMVC | *DELIVER OUT |
| DLV | CASH-1 | 13321 | 20040324 | 0 | -166666.67 | SUBDB1 | *DELIVER OUT |
| DLV | CASH-1 | 13321 | 20040324 | 0 | -166666.67 | SUBT15 | *DELIVER OUT |
| DLV | CASH-1 | 13321 | 20040324 | 0 | -666666.66 | SUBABC | *DELIVER OUT |
| DLV | CASH-1 | 13321 | 20040324 | 0 | -666666.67 | SUBMVC | *DELIVER OUT |
| DLV | CASH-1 | 13321 | 20040324 | 0 | -333333.33 | SUBDB1 | *DELIVER OUT |
| DLV | CASH-1 | 13321 | 20040324 | 0 | -833333.33 | SUBABC | *DELIVER OUT |
| DLV | CASH-1 | 13321 | 20040324 | 0 | -666666.67 | SUBMVC | *DELIVER OUT |
| DLV | CASH-1 | 13321 | 20040324 | 0 | -166666.67 | SUBDB1 | *DELIVER OUT |
| DLV | CASH-1 | 13321 | 20040324 | 0 | 0.00 | SUBABC | *DELIVER OUT |
| DLV | CASH-1 | 13321 | 20040324 | 0 | 0.00 | SUBMVC | *DELIVER OUT |
| DLV | CASH-1 | 13321 | 20040324 | 0 | 0.00 | SUBDB1 | *DELIVER OUT |
| SNAM: MSP2 | | BNUM: 830 | RR: 45 | MGR: MSP | | | |

7.14 LOADMSPDATA

LOADMSPDATA is a UMA maintenance function that is entered at the WHATNEXT? Prompt. LOADMSPDATA can be run on-line or in batch mode. It loads master models, strategies, and sub model shells from a file.

What can be added or updated from the file?

The following can be added or updated from the file:

- New master model codes:
- Codes are added to accounts with no master model code in the MSP account field for master model designation
- New strategy codes:
- Codes are added to the EDIT STRATEGY LIST table
- New sub model “shells” opened with 100% cash

Notes:

- Securities allocations for the sub models must be added separately
- New master models with allocations
- Updates of existing master model allocations

Important: LOADMSPDATA will not load any MASTER MODELS if the SUB MANAGERS do not exist.

File Layout

Note: In the following tables, A = Alphabetic characters only, N = Numbers only, A/N = both Alphabetic and Numeric characters permitted.

Header Record

| Position | Type | Description |
|----------|------|--|
| 1-2 | A | Header code “HD” |
| | | YYYYMMDD |
| 3-10 | Date | <p>Notes:</p> <ul style="list-style-type: none"> • If running online, there is no date check • If running in batch, date must match the current business date |

Record Detail

| Position | Type | Description |
|----------|------|--|
| 1-12 | A/N | APL Account Identifier Enter either BNUM or DTCNO or SNAM |

| Position | Type | Description |
|----------|------|--|
| 13-18 | A/N | APL MASTER MODEL CODE |
| 19-58 | A/N | APL MASTER MODEL DESCRIPTION |
| 59-61 | A/N | APL STRATEGY CODE |
| 62-101 | A/N | APL STRATEGY DESC |
| 102-107 | A/N | APL SLEEVE CODE |
| 108-147 | A/N | APL SLEEVE DESC |
| | | APL SLEEVE PERCENT |
| 148-152 | N | <div style="border: 1px solid gray; padding: 5px;"> <p>Notes:</p> <ul style="list-style-type: none"> • Do not enter any decimal place • Example: For 6% enter: 00600 </div> |
| 153-200 | A/N | FILLER |

Trailer Record

| Position | Type | Description |
|----------|------|--|
| 1-3 | A | Trailer code "TRL" |
| 4-9 | N | Number of records -- including header record |

Logic:

1. LOADMSPDATA loads the APL MASTER MODEL CODE from position 13-18 for the account and generates the LOADFDTYPE.LST report. For a new master model code to be added to accounts with no master model code in the MSP Account field for master model designation, data must exist in this field

Note: No updates will be made if the MSP Account field is already populated.

2. LOADMSPDATA checks and loads the APL STRATEGY CODE from position 59-61 and APL STRATEGY DESC from position 62-101 into the EDIT STRATEGY LIST table. If new data is added, the LOADSTRATEGY.LST report is generated

Note: If the a code already exists in the EDIT STRATEGY LIST table, then nothing is done. Neither the APL STRATEGY CODE nor the APL STRATEGY DESC are loaded.

3. LOADMSPDATA checks the list of sub-models on a sub-manager by sub-manager basis (first 3 positions of 102-107). If new data is added, the LOADSUBMODEL.LST report is generated.
 - a. If sub-manager does not exist then the LOADMSPDATA will not load the entire master model
 - b. If sub-manager exists but sub-models do not exist then the sub-models are created as 100% cash
 - c. If sub-manager exists and sub-models exist then the sub-models are ignored
4. LOADMSPDATA compares APL MASTER MODEL CODE (position 13-18) to model codes in EDIT/CREATE MASTER MODELS in the MSP Master Manager menu. If new data is added or data is updated, the LOADMASTERMODEL.LST report is generated.
 - a. If the Master Model exists then APL MASTER MODEL CODE is ignored.
 - b. If the Master Model does not exist, it will be created and have the corresponding sub-models (APL SLEEVE CODE pos 102-107) and its percentages (APL SLEEVE PERCENT pos 148-152) added. Cash allocation for these will mirror the sub-models

Reports:

One or more of the following reports may be generated:

LOADFDTYPE.LST:

Displays accounts whose MSP Account fields have been updated with new Master Model codes.

LOADSTRATEGY.LST:

Displays new Strategy Codes that have been added to the EDIT STRATEGY LIST table.

LOADSUBMODEL.LST:

Displays new sub-models that have been added.

LOADMASTERMODEL.LST:

Displays new Master Models added and existing Master Models that have been updated.

LOADMODELFAIL.LST

Displays master model allocations that did not load (master model, submodel, and percent value).

UNKMGR.LST:

Lists unknown sub managers, records for affected master models and accounts.

Basic Flow

1. At the WHAT NEXT? prompt, enter: LOADMSPDATA. Then press the Enter key
2. At the ENTER MSP DATA FILE NAME: prompt, enter the file name (e.g., xyzfile.txt). Then press the Enter key
3. At the MATCH ACCOUNTS ON BWNUM, DTCNO OR SNAM? Prompt, enter either BWNUM or DCTNO or SNAM as appropriate. Then press the Enter key
4. If your firm is set up to be prompted for a universe, something similar to the following is displayed:

```

Select Windows Universe to Consider
RR EQ 1 50 AND BILLNO EQ MSP *MSPUNIV+1 *WINDOWDEF+ '11.1.0'
RR EQ 7 AND WTOTAL NE 0 *MSPUNIV+1 *WINDOWDEF+ '8.1.1'
RR EQ 6 AND BILLNO EQ MSP *MSPUNIV+1 *WINDOWDEF+ '8.1.1'
RR EQ 10 *MSPUNIV+1 *WINDOWDEF+ '8.1.1'
RR EQ 11 12 13 14 AND BILLNO EQ MSP *MSPUNIV+1 *WINDOWDEF+ '8.1.1'

```

If the above screen is presented, move the cursor to the desired universe and press the Enter key.

5. At the FILE DATE: prompt, enter the date in the format YYYYMMDD (e.g., 20140913). Then press the Enter key.

The function runs and a list of generated reports is displayed.

7.15 Enabling a different cash calculation start date for performance reporting

Normally, cash allocation calculations for each sleeve begin on the account's opening cash date, i.e. OPE line in EDGL. However, this date is not always an appropriate start date for sleeves if the account was converted to a UMA or had a master model conversion on a date later than the opening cash date. This could cause initial sleeve cash allocations for converted accounts to be inaccurate requiring adjustments. To remedy this situation, you can choose an alternate date for the sleeve cash allocations so that the actual conversion date is used for the sleeves. Total available cash is still calculated beginning with the standard account opening cash date.

To use the new sleeve cash start date

Contact InvestCloud to select a field to be used for this purpose and to activate it. If necessary, a new field can be created in Infodex if no other account fields are available. Once the alternate cash start date is coded, a special memo posting is created in EDGL to mark the new starting point for sleeve cash. The description will be "MSP Acct Open."

| | | | | | | | |
|--------|------|-------|---------|----------|---|---------|---------------------|
| (1071) | DIV | G.DIV | 559926 | 20031229 | 0 | 10.30 | SUBXYZ *XYZ Corp. |
| (1072) | DIV | G.DIV | 48694 | 20031230 | 0 | 2.30 | SUBABC *ABC Intl |
| (1073) | DIV | G.DIV | 1513941 | 20031231 | 0 | 1.80 | SUBXYZ *CBA Inc. |
| (1074) | INT | G.INT | 13321 | 20031231 | 0 | 0.81 | BLANK *Money Market |
| (1075) | INT | G.INT | 13321 | 20031231 | 0 | 5.00 | BLANK *Money Market |
| (1076) | MEMO | CASH | 13321 | 20031231 | 0 | 5471.28 | BLANK MSP Acct Open |

Enabling the alternate start date capability is a multipart process that must proceed in the following order:

1. “Enabling a session to recognize the Alternate Start Date using SETPERFSEG”
2. Define the date and reason for the new performance date. Please note that the functions vary based on whether a single or multiple accounts are affected
 - “Defining a new performance date for a single account using EDITPERFSEG”
 - “Defining a new performance date for multiple accounts using ADDPERFSEG”
3. “Viewing segments established for an account using SHOWPERFDATES”
4. “Creating the segment records in the performance file using PMSECTAI”

Enabling a session to recognize the Alternate Start Date using SETPERFSEG

Run SETPERFSEG to enable your session to recognize the Alternate Start Date.

1. At the WHICH FUNCTION ? prompt, type SETPERFSEG. You are given the option to include all performance returns or segment performance returns

Include All Performance Returns or Segment Performance Returns?

2. Choose SEGMENT to establish an alternate start date. If you choose ALL, you will not be given the option to define a date

| Option | Description |
|---------|--|
| ALL | Includes all performance returns without dividing it into segments. |
| SEGMENT | Time period defined in EDITPERFSEG table. Choose SEGMENT so that you can specify a different beginning date. |

If you type SEGMENT, you are prompted for a beginning date.

Consider Segment In Effect on Which Date - HIT ENTER FOR 09/05/07 :

The default date is the previous business day.

3. Change this to the new beginning date. Press ENTER to activate and return to the WHICH FUNCTION ? prompt

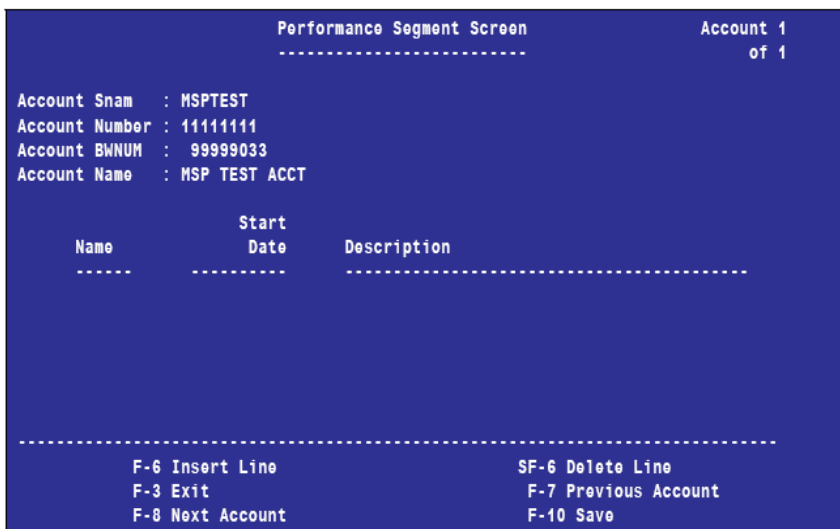
If you type ALL, press ENTER and the function completes its process and returns you to the WHICH FUNCTION ? prompt.

Defining a new performance date for a single account using EDITPERFSEG

After enabling your session to recognize the Alternate State Date, you must define the new performance date and reason for establishing it. To do this, run the EDITPERFSEG function which provides a definition table. Once this information is provided, the ALTDTE field in INFODEX automatically populates with that date. EDITPERFSEG can have more than one date in it. However, the ALTDTE field will always display the most recent date.

To run EDITPERFSEG:

1. At the WHICH FUNCTION? prompt, type EDITPERFSEG. An account selection screen will appear
2. Type in desired account range and press ENTER or press F7 to choose a single account from a menu. The Performance Segment Screen will appear



All performance segments listed here appear in the segment menu list on subsequent screens.

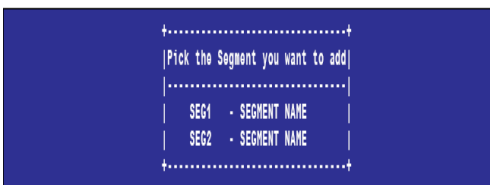
| Column | Description |
|-------------|---|
| Name | User-defined performance segment name. |
| Start Date | Beginning date of the segment |
| Description | User-defined description of the performance segment |

Press F10 to save the changes. A message confirms that the performance segments are saved.



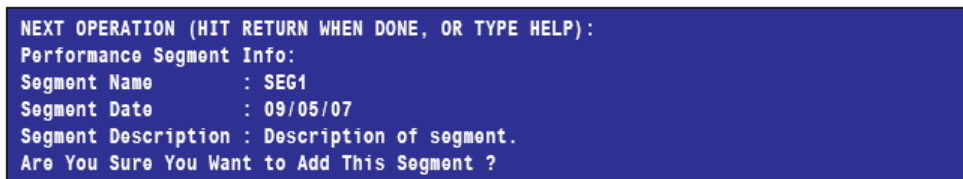
Defining a new performance date for multiple accounts using ADDPERFSEG

1. At the WHICH FUNCTION? prompt, type ADDPERFSEG. You are prompted to specify the type of segment to add



2. Select the appropriate option and press ENTER. You are prompted to enter a start date for the segment
3. Enter the appropriate date and press ENTER. The SEARCH FOR WHAT? prompt will appear
4. Type the account range and press ENTER. At the NEXT OPERATION prompt, type additional search criteria if necessary. Press ENTER

A summary of the segment is provided along with a confirmation message.



5. Type Y for Yes to confirm the change, otherwise type N for No. If you type Y, the system generates the ADDSEG.LRP report file which lists the affected accounts

```

Performance Segment Info:
Segment Name       : SEG1
Segment Date      : 09/05/07
Segment Description : Description of segment.
Performance Segment Added to the Selected Accounts

  SNAM
  -----

  M11111
  M22222

-----
PRESS <ESC> TO EXIT  <F1> FOR HELP  <F3> MAIN MENU  FISERV APL
    
```

Viewing segments established for an account using SHOWPERFDATES

To view segments established for an account, run the SHOWPERFDATES function to generate a report listing this information.

1. At the WHICH FUNCTION? prompt, type SHOWPERFDATES and press ENTER. The SEARCH FOR WHAT? prompt will appear
2. Type the desired account range or other appropriate search criteria and press ENTER. The SHOWPRF.LRP report file generates

```

WHICH FUNCTION: ? SHOWPERFDATES
80735 ACCOUNTS CURRENTLY ON FILE
SEARCH FOR WHAT? M11111
1 RECORDS FOUND
NEXT OPERATION (HIT RETURN WHEN DONE, OR TYPE HELP):
PROCESSING 1 OF 1
SHOWPRF.LRP
    
```

3. To view the report file, type BROWSE at the WHICH FUNCTION? prompt. If the default file name is SHOWPRF.LRP, press ENTER. Otherwise, type the file name and press ENTER

```

WHICH FUNCTION: ? BROWSE
HIT RETURN FOR : SHOWPRF.LRP
BROWSE WHICH FILE:
    
```

The report displays.

| SNAM | BWNUM | DTCNO | NAME | START DATE | DESCRIPTION |
|--------|----------|----------|------|------------|---------------------|
| M11111 | 99999999 | 11111111 | SEG2 | 01/02/2007 | Segment Description |
| M22222 | 90000000 | 11111111 | SEG2 | 01/01/2007 | Segment Description |

Creating the segment records in the performance file using PMSECTAI

After making changes to the table invoked by the EDITPERFSEG function, run the PMSECTAI function to create the segment records in the performance file. These records are stored in the SEGMNT field.

To run PMSECTAI, follow these steps:

1. At the WHICH FUNCTION? Prompt, type PMSECTAI and press ENTER
2. Type in the date from which to begin posting and press ENTER

This date must be a month end.

The following prompt will appear:

```
INCLUDE MTD AND LAST DAY PERFORMANCE ?
```

3. If you want to post up to the most recent price date, type Y and press ENTER. If you do not, type N and press ENTER. Performance will be posted up to the most recent month-end. The following prompt will appear:

```
SEARCH FOR WHAT?
```

4. Enter in the account selection and press ENTER

When PMSECTAI runs, the system records corrections for performance during the specified time frame. This information which includes values, contributions, and withdrawals is stored in the performance file. When the process runs, missing price information is output to the screen, and the PMLOG.PRT file is created.

```
NEXT OPERATION (HIT RETURN WHEN DONE, OR TYPE HELP):
MISSING PRICE FOR PRJAN 01/31/07 ON FOLLOWING:
362076L82  GN1110 ( -35560) GNMA PL #045351 SF      12.500% 11/15/10
3620982U8  GNSF12 ( -30309) GNMA PL #065587 SF      12.000% 09/15/1
737679BL3  POM-18 ( 433575) POTOMAC ELEC PWR CO      7.000% 01/15/18
0 0        USTT1Z ( 585796) US TREASURY BONDS  6.500% 02/15/15
694032AQ6  PACB33 (1279958) PACIFIC BELL   DTD 02/01/9  7.500% 02/01/33
65332V103  NXTL-Z (1380330) NEXTEL COMMUNICATIONS INC
006854103  ADTK-Z (2188816) ADEPT TECHNOLOGY INC      COM
0 0        USTB2Z (2245353) U S TREAS BONDS DTD 02/15/96 6.000 02/15/26
372917500  GZMO-Z (4442340) GENZYME CORP      COM-MLCLR ONCLG
372917708  GZBX-Z (6612737) GENZYME CORP      COM BIOSURGERY
MISSING PRICE FOR PRJAN 01/31/06 ON FOLLOWING:
737679BL3  POM-18 ( 433575) POTOMAC ELEC PWR CO      7.000% 01/15/18
65332V103  NXTL-Z (1380330) NEXTEL COMMUNICATIONS INC
006854103  ADTK-Z (2188816) ADEPT TECHNOLOGY INC      COM
372917500  GZMO-Z (4442340) GENZYME CORP      COM-MLCLR ONCLG
372917708  GZBX-Z (6612737) GENZYME CORP      COM BIOSURGERY
MISSING PRICE FOR PRJAN 01/31/06 ON FOLLOWING:
362076L82  GN1110 ( -35560) GNMA PL #045351 SF      12.500% 11/15/10
3620982U8  GNSF12 ( -30309) GNMA PL #065587 SF      12.000% 09/15/1
0 0        USTT1Z ( 585796) US TREASURY BONDS  6.500% 02/15/15
694032AQ6  PACB33 (1279958) PACIFIC BELL   DTD 02/01/9  7.500% 02/01/33
0 0        USTB2Z (2245353) U S TREAS BONDS DTD 02/15/96 6.000 02/15/26
NJ001 POSTING FINISHED: 02/10/06 8:41 A.M.
PMLOG.PRT
```

This file is a review of the posting process. It also contains missing price problems and displays locked values that have been posted.

Removing segments associated with a group of accounts using RMPERFSEG

To remove a segment associated with a group of accounts, use the RMPERFSEG function.

1. At the WHICH FUNCTION? prompt, type RMPERFSEG and press ENTER. The SEARCH FOR WHAT? prompt will appear
2. Type in desired account range or other appropriate search criteria and press ENTER. In next three consecutive prompts, you are prompted for the name, date, and description of the segment you would like to remove

```
Enter Performance Segment Name : SEG1  
Enter Performance Segment Date - HIT ENTER FOR 09/05/07 :  
Enter Performance Segment Description : Description of segment.
```

3. Type the information as it will appear on the SHOWPERFDATES report. Press ENTER at the end of each line. After entering the Performance Segment Description and pressing ENTER, you are asked to confirm the removal

```
Are You Sure You Want to Remove This Segment ?
```

4. Type Y to remove the segment, or type N if you choose not to

The function process then removes the segment from all accounts where it exists.

7.16 Auto Sleeve Tagging

The MSPTAGBATCH function allows you to automatically add MSP sleeve tags to sale and deliver transactions in TRADESNEW batches. It will automate tagging of batches created from bookkeeping files and reconciliation transactions.

To apply sleeve tags to matches:

1. At the WHICH FUNCTION? prompt type MSPTAGBATCH. The following prompt will appear:

```
SELECT BY (D=DATE RANGE OR B=BATCH NUMBER) :
```

2. Type D to select batches by date range or B to select batches by batch number. (The utility will not allow you to select a batch that has already been posted.)

Selecting batches by date range:

1. At the prompt enter beginning date of the date range in form mm/dd/yy:

```
Enter Beginning Date (Hit Enter for No Beginning Date) 08/31/07
```

- At the prompt, enter ending date of the date range in form mm/dd/yy:

```
Enter Ending Date (Hit Enter for No Ending Date)    09/01/07
```

The list of unposted batches for the selected date range displays.

| # | Date | Time | OPE's | CLO's | DEL's | Saved By |
|------|-------|-------|-------|-------|-------|----------|
| 0775 | 09/01 | 1:18 | 0 | 89 | 0 | APL |
| 0774 | 09/01 | 1:10 | 39 | 269 | 0 | APL |
| 0773 | 08/31 | 14:30 | 0 | 7 | 0 | APL |

| | | | | |
|------------|---------|------------|----------------|-------------------------|
| Esc-Exit | F1-Help | F4-Search | SF5-Select ALL | SF6-Clear ALL |
| F7-Refresh | Search | F8-Options | F10-Go | Return-Select/Un-Select |

- Press ENTER to select batches for tagging
- Press F10 to proceed

Selecting batches by batch number

At the prompt, enter batch numbers, separating each batch number with a space. Only unposted batches can be entered.

```
ENTER BATCH NUMBER(S) (Separate batch numbers by space):
```

For each untagged batch selected, new batches are created according to the following rules.

- If selected batches have untagged sale or deliver transactions for UMA accounts, these transactions will be matched against open tax lots based on account selling priority
- Large tagged batches may be split into multiple batches based on the client's configuration
- Untagged purchases for UMA accounts will not be tagged, but they will be copied to the new batch
- If any transaction cannot be matched, an error batch will be created
- If the batch selected for tagging includes both UMA and non-UMA accounts, UMA accounts will be copied to a separate batch
- The newly created tagged batches will not be automatically posted. The user must run TRADESNEW or POSTNEW to post the tagged batches

The MSP Batch Tagging Report, MSPTAG.LXX, is created and shows results of the tagging. It displays the numbers of the new batches created for each selected untagged batch.

```

MSP BATCH TAGGING REPORT
September 5, 2007
User: xyz01

Original Batch      Non-MSP Batch      MSP Batch      Error batch
-----
                1                74                76                75
-----

All the selected batches have been processed.
    
```

7.17 Using Minimum and Rounding Tables

The Minimum and Rounding Tables is an administrative utility that maintains trade minimum and rounding parameters in tables. When the configuration is set to use the minimum and rounding tables, the values specified in the table determine if the trade meets the minimum criteria. If the minimum requirements are met, the UMA Strategy Rebalancer and Account Adjuster can carry out trades to rebalance and adjust accounts. Minimum and rounding criteria can be consistently applied across multiple rebalancing trading tools as well as commit. Setup is required to be able to use the Minimum and Rounding Tables

Minimum and Rounding Tables and the UMA Master Manager Rebalancer

If configured for Minimum and Rounding Tables, the Rebalancer Parameters screen shows a prompt at the top of the screen to choose to use the Minimum and Rounding Table.

```

UNIFIED MANAGED ACCOUNT REBALANCER

* Use Minimum and Rounding table: YES

* Override Rounding & Minimums from MRT Table:
  Round Equity Lots by: TABLE      Minimum Eq Lots: TABLE
  Round Fixed Income Lots by: TABLE  Minimum FI Lots: TABLE
  Round Mutual Fund Buys ($): TABLE  Minimum MF Buys: TABLE
  Round Mutual Fund Sales(sh): TABLE  Minimum MF Sales: TABLE

# Set Miscellaneous Minimum Rules:
  Minimum percent change TABLE % of total account
  Minimum trade as a % of current position: 0.000%
  Minimum trade as a % of security target : TABLE %

  * Leave as TABLE to use values from MRT Table
  # Will use greater of all minimums

F1 - Help   F3 - Abort   F9 - Cycle   F10 - Go
    
```

The default will be to use the table, which will set all of the minimum and rounding values on the screen to TABLE and lock those fields.

To change any of these values and thus override those values in the Minimum and Rounding Table, change the response to not use the Minimum and Rounding Table.

Notes:

- If configured for MRT, the UMA Rebalancer Rules screen will not display the minimum trade queries
- The Override Min from Drift Rules is not available when the Minimum and Rounding Table is set to Yes
- Due to technical issues in OneView, choosing to use the Minimum and Rounding Table will not prevent changing parameter values. However, any such changes will be ignored

Configuring Minimum and Rounding Tables for Submodels

UMA master managers can set minimum and rounding table values at the submodel level based on submodel market value. For information about accessing and setting values in tables at the Expert, account, universe and group levels, refer to the “Quick Reference Guide: Configuring Minimum and Rounding Trades Table.”

They can also set minimum and rounding values for individual submodels. Values specified for individual submodels have priority over all other rounding and minimum values when trading tools calculate trades. This utility allows master managers to customize the minimum and rounding values that the system applies to all securities in a specific submodel to carry out trades.

To access submodel tables and set rounding and minimum values,

1. Open the Default Minimum And Rounding Settings Table

| Upper Market Value | MV Type | Asset Class/ Issue Type | Rounding Lot, Units | Rounding Lot, \$ | Rounding Method |
|--------------------|---------|----------------------------|---------------------|------------------|-----------------|
| 10000 | Account | Bond | 1000,0000 | 0,00 | Nearest |
| 50000 | Account | Bond | 5000,0000 | 0,00 | Nearest |
| 100000 | Account | Bond | 10000,0000 | 0,00 | Nearest |
| 10000 | Account | Equity | 10,0000 | 0,00 | Nearest |
| 50000 | Account | Equity | 50,0000 | 0,00 | Nearest |
| 100000 | Account | Equity | 100,0000 | 0,00 | Nearest |
| 10000 | Account | MF | 0,0100 | 1,00 | Nearest |
| 50000 | Account | MF | 0,0100 | 1,00 | Nearest |
| 100000 | Account | MF | 0,0100 | 1,00 | Nearest |

In accounts(sleeves) with Market Values above the greatest applicable Market Value in the table, trades will use the line with the highest Market Value.

F1-Help Esc/F3-Quit F8-Sort F10-Save
 F6-Insert Line SF6-Delete Line F9-Next Screen SF9-Previous Screen
 F4-Submodel Level Override F5-Submodel Rounding / Minimum

2. In the window, press F5. The SUBMODEL-LEVEL ROUNDING AND MINIMUM screen will open

| SUBMODEL-LEVEL ROUNDING AND MINIMUM | | | | | | | |
|-------------------------------------|---------------------|------------------|-----------------|-------------------|----------------|------------------|------------------------------|
| Sub-model | Rounding Lot, Units | Rounding Lot, \$ | Rounding Method | Min Trades, Units | Min Trades, \$ | Min %, Sleeve MV | Min %, Security Model Target |
| SUBMDL | 1,0000 | 1,0000 | Nearest | 0,0000 | 0,00 | 0,0000 | 0,0000 |

F1-Help Esc/F3-Quit F8-Sort F10-Save
 F6-Insert Line SF6-Delete Line

3. To select a submodel, at the blinking cursor in the Sub-model column:
 - Press F1 to display a list of all submodels in the directory or universe
 - When users are in the Expert, account-group and universe tables, the system displays an alphabetical list of submodels
 - When users are in the account table, the system displays submodels included in the current account master model at the top of the list; the remaining models are displayed in alphabetical order, after the submodels
 - Alternatively, type the submodel name
4. To confirm the selection, press ENTER. The name of the selected model displays in the Submodel-Level Rounding and Minimum window
5. To customize rounding and minimum values for submodels, use the TAB key to select a column. At the blinking cursor, enter the new value
6. To display the list of rounding methods, place the cursor in the Rounding Method column and press F1. Select the rounding method and press ENTER
7. To save the submodel parameters, press F10. The system validates the rounding and minimum criteria. If all entries are valid, the system saves the changes and displays the previous rounding and minimum window. When there is an invalid entry, an error message is displayed

Overriding Submodel Table Values

Configuration settings determine if values specified in minimum and rounding tables are used as thresholds for trading. However, master managers can give submanagers the right to override the rounding and minimum table values. In this case, submanagers can specify rounding and minimum parameters when they run the trading tool. This feature allows submanagers to control the parameters that the Account Adjuster and Strategy Rebalancer will use when proposing the trades.

This feature is available only on the default table for the directory.

To set the override table parameter,

1. From the Default Minimum And Rounding Settings Table, press F4. The Rounding and Minimum Overrides window displays all submodels available in the client directory or universe. By default, the Allow Override parameter is set to Yes, as illustrated below

| Rounding and Minimum Overrides | | |
|--------------------------------|-------------|----------------|
| Sub-model | Description | Allow Override |
| SUB1 | SMALL CAP | Yes |
| SUB2 | ALL CAP | Yes |
| SUB3 | LARGE CAP | Yes |
| SUB4 | MID CAP | Yes |

F1-Show choices Esc/F3-Exit F9-Toggle F10-Save

2. To set the Allow Override parameter, at the blinking cursor
 - Press F9 to toggle between Yes and No
 - Alternatively, press F1. A popup window displays Yes and No

Select the value.

3. To save the override permissions, press F10. Select YES and press ENTER. The system saves the settings and returns to the Default Minimum And Rounding Settings Table window

Commit Check

If configured, the commit check process will utilize the Minimum Trades Table for minimum and rounding requirements. [Click here](#) for more information.

7.18 Using Restriction at Sleeve or Account Level

Restriction at Sleeve or Account Level is an alternative option to the standard application of restriction methods within the UMA rebalancing tools. This feature provides a way to predefine sleeve restriction methods at the sleeve level or account level.

The restriction methods defined for sleeve or account level replaces the value defined in the “Cash From Restricted Securities” run-time prompt in the UMA Rebalancer, Strategy Rebalancer, and the Nightly Rebalancer.

Sleeve level restriction methods are defined by the master manager within the MMS application and sent daily to APL. Model Management Solution (MMS) version 6.1 or newer is required.

This feature requires InvestCloud internal configuration and installation. Contact your InvestCloud Client Account Manager to find out how this feature can be integrated into you current business practices.

Restriction Method Options

Cash not traded due to a restriction violation can be handled by one of the restriction method options:

- CASH (default) - Explicitly assigned to cash. The CASH option is the default method for cases where there is no or invalid coding at the account or submodel level
- PRORATE ACROSS ALL - Prorate among all unrestricted model securities
- PRORATE ACROSS THE SAME INDUSTRY (SIC, SIC2, RA69) - Prorate among all submodel securities that have the same industry code (SIC, SIC2, RA69) as the restricted security
- REPLACEMENT SECURITY (Sleeve Level only, not available at Account Level) - A replacement security is defined for the entire sleeve, replacing any restricted security within the sleeve

Account Level

A Restriction method can be defined at the account level by assigning a valid restriction method value to the RSMETH field in Infodex. Restriction method options defined at the account level are CASH, ALL, SIC, RA69 and SIC2, or BLANK.

If no value (BLANK) or an invalid value is entered in RSMETH this indicates that the restriction method stored at the sleeve level should be used.

Sleeve Level

A restriction method can be defined for individual submodels through the MMS application. See the MMS User Guide for version 6.1 or higher for details on defining sleeve level restriction methods.

View Submodel Attributes

The VIEW SUBMODEL ATTRIBUTES screen is an option on the UMA master manager, submanager, and supermanager menus for all UMA clients. This option provides a view of sleeve attributes including restriction methods (if configured). See “Viewing Submodel Attributes” for more details.

Trading Reports

If configured for this feature, these reports exhibit the following behaviors.

Trade Drift Report

The following features are included in the Trade Drift Reports for both Master Manager and Submanager.

- When restriction method is CASH:

When restriction replacement method is CASH (either at the account or sleeve level) and a restricted security is underweighted, the Trade Drift report shows the target for that restricted security to be the same as the actual security holding. The difference between a restricted security’s target percent and the actual security percent are added to cash target for the same sleeve.

- When restriction method is Replacement Security:

When the restriction method is SECURITY and the restricted security is underweighted, the Trade Drift report shows the target for a restricted security as being the same as the actual security holding. The difference between a restricted security's target percent and the actual security holding percent are added to the replacement security's target percent for the same sleeve as the restricted security.

Note: The Target % on the UMA Trade Drift report (REBAL) is not the Model Target %. It represents the Model Target adjusted for restricted holdings taking into account the method for restricted cash at run-time.

Trade Exception Report

A section is added to Trade Exception report (UMAPROBS) called "Restriction Replacement".

The report section lists all restricted securities that were replaced during rebalancing. If there are no restricted securities, the section states "NO EXCEPTIONS".

The following columns are displayed:

- Account Number
- Sleeve
- Security - CUSIP for Fixed Income, TICK for other securities and security description
- Replacement - ID of replacement security (CUSIP for Fixed Income, TICK for other securities), CASH-1, PRORATE ALL, PRORATE SIC, PRORATE RA69, PRORATE SIC2
- Type - SUBMODEL, ACCOUNT, DEFAULT

Multi Account Audit Drift (MSPAUDITDRIFT)

When there are restriction violations, Multi Account Audit Drift report recognizes restriction replacement securities as model securities if the submodel replacement security restriction method is used.

Refer to the View security drift from a model for selected accounts using MSPAUDITDRIDRIFT section in this document for reporting details.

Chapter 8: Submanager Functions

Note: To prevent certain submanager users from accessing Trading functions, contact InvestCloud and provide the user's APL ID. This will prevent them from accessing the Trading menu. This "line-item" blocking ability for submanagers is also available for the Model Maintenance and Reporting menus.

The basic role of the submanager is to submit an investment model (submodel) for their portion of the master manager's portfolio. Submanagers can also trade their portion of an account. Responsibilities include:

- Buying or selling securities to meet the market value percent targets for the portfolio
- Selling securities from their portion of the account
- Holding one security at its current market value percent, and selecting another specific security to purchase in its place when the portfolio falls below the market value percent target for the original security
- Swapping one block of securities for another block of equivalent market value

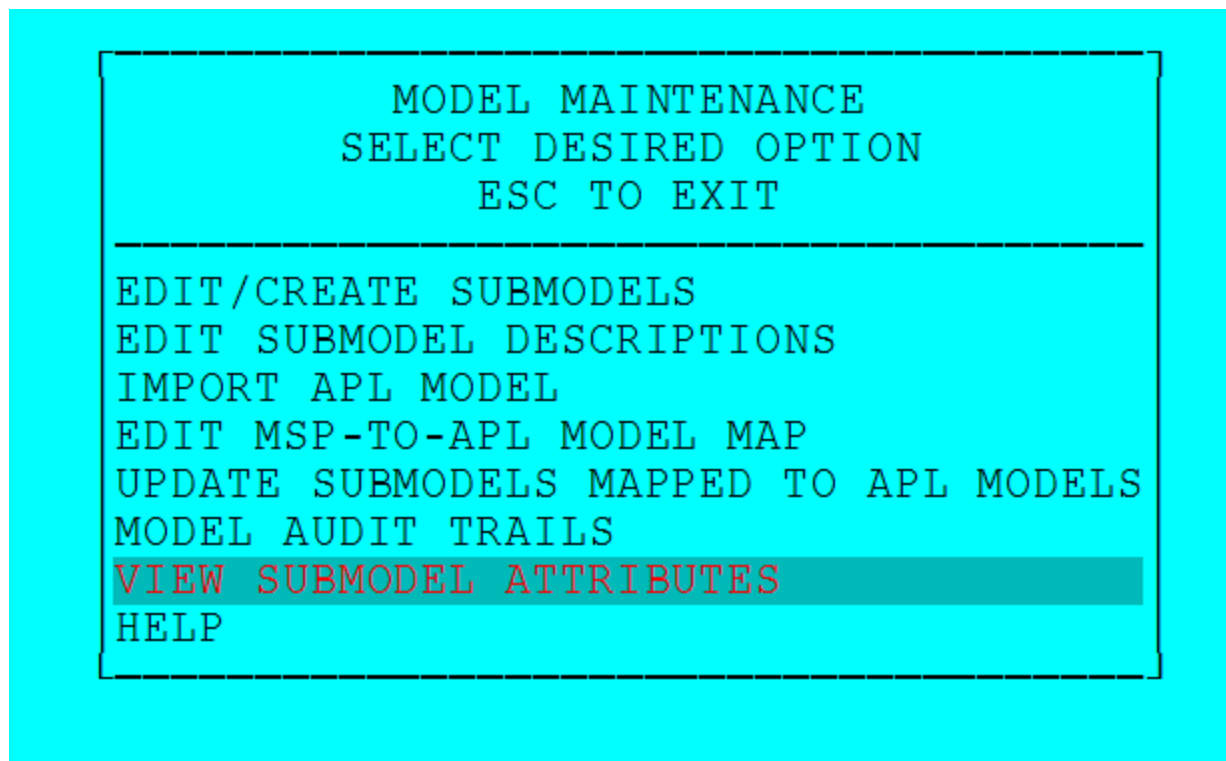
This capability is available from the Submanager Functions menu item that displays the following submenu:



- Model Maintenance enables you to create, view, or edit submodels
- Trading contains functions for managing the composition of submodels
- Reports contains reports available to submanagers so that they can review the composition of individual accounts, and to examine the drift of accounts from the proportions defined in a submodel
- Browse Reports enables submanagers to view the most recent reports generated. Select the report, and it is displayed on the screen. A similar function (BROWSE) is described in the InvestCloud APL User Guide

8.1 Model Maintenance menu

The Model Maintenance menu enables submanagers to create, view, or edit submodels. Display these functions (as shown below) by selecting MODEL MAINTENANCE from the submanager menu.



- EDIT/CREATE SUBMODELS enables the submanager to edit or create submodel portfolios (submodels) and rank the securities contained therein
- EDIT SUBMODEL DESCRIPTIONS enables the submanager to edit submodel descriptions
- IMPORT APL MODEL enables the submanager to import a non-UMA model into the UMA application to be used as a submodel
- EDIT MSP-TO-APL MODEL MAP enables the submanager to edit the table that displays the links between the UMA submodels and the non-UMA models
- UPDATE SUBMODELS MAPPED TO APL MODELS enables the submanager to update submodels based on the composition of the master models to which they are mapped
- VIEW SUBMODEL ATTRIBUTES allows a submanager to view attributes for selected submodels. See “View Submodel Attributes” for details

Editing and creating submodels

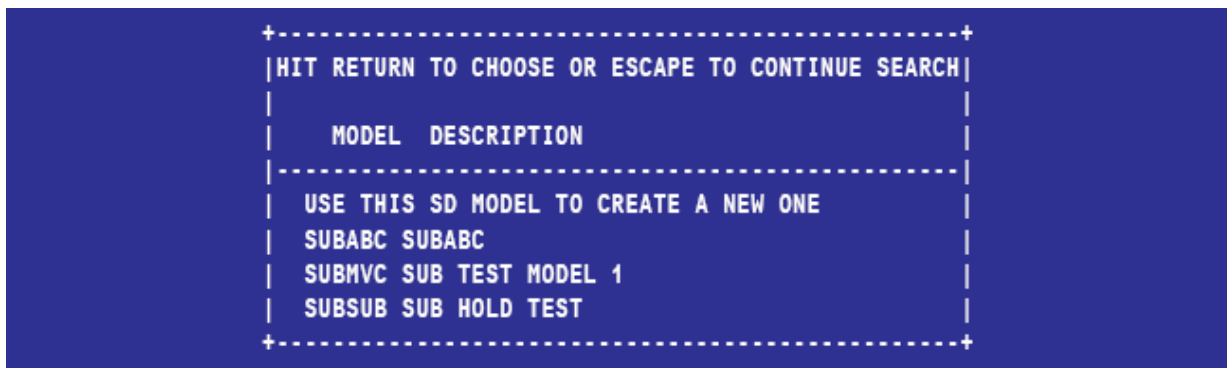
The EDIT/CREATE SUBMODELS selection from the submanager menu contains a function for creating or viewing submodels.

To edit or create a submodel:

1. Select MODEL MAINTENANCE from the submanager menu. Then, select the EDIT/CREATE SUBMODELS function. The following screen will appear:



2. From this screen, you can press the F7 key to view a list of existing submodels



The first selection in the list, GENSDM, is an empty submodel template to which you can add securities.

Note: In the following steps, we will assume that you want to create a new submodel. (Modifying an existing submodel requires nearly identical steps.)

A screen similar to the following opens:

```

MERRILL LYNCH INVESTMENT MANAGERS
06/06/03  9:35 A.M.
Model Name: SUBVAL - VALUE PORTFOLIO

F-9 Refresh
F-10 To Save
Shift F-7 to Print
F-3 To Quit

SECURITY      %      DATE OUT  RELATED SECURITY  ACTION  DATE IN  RANK
-----      -      -      -      -      -      -
ABT           3.032      0          ADM           0          0
ADM           2.868      0          ALL           0          1
ALL           2.904      0          BA            0          5
BA            3.304      0          BAX           0          3
BAX           3.488      0          BEC           0          0
BEC           3.164      0          BNI           0          0
BNI           3.012      0          CAG           0          2
CAG           3.308      0          CASH-1        0          0
CASH-1        0.000      0          COP           0          0
COP           2.640      0          CVX           0          0
CVX           2.908      0          EAS           0          4
EAS           3.060      0          FBF           0          0
FBF           3.460      0          FPL           0          0
FPL           2.908      0

-----
F-2 to Sort      F-6 to Insert a Line      Shift F-6 to Delete a Line
    
```

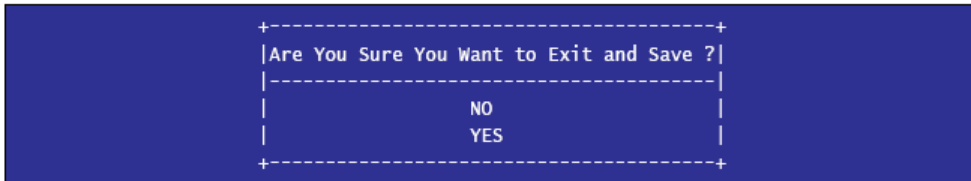
| Field | Description |
|------------------|---|
| MODEL NAME: | Master model name |
| SECURITY | Ticker of the security held in the portfolio. |
| % | Target percent holdings for this security. |
| DATE OUT | If the security is scheduled to be sold, held, or swapped, the scheduled action date. |
| RELATED SECURITY | If a transaction is taking place that involves another security in the portfolio (such as a hold or swap), the security is shown here. |
| ACTION | <p>Pressing F9 enables you to cycle through the following options:</p> <p>HOLD - Do not buy any shares of this security. If the number of shares falls below the percent value, buy additional shares of the security specified in the RELATED TICKER column. Do not sell this security if it is at or below the target. If security on hold is above the target, it will be trimmed.</p> <p>SWAP - Sell one block of securities and replace it with another. Swaps can be one-to-one, one-to-many, or many-to-one.</p> |

| Field | Description |
|-------|-------------|
|-------|-------------|

Note: Swaps are not automatically processed as part of rebalancing. The sub-manager must specifically request swaps to be processed by the master manager, and the swap can only be processed by the master manager on the specific date placed in the DATE OUT field.

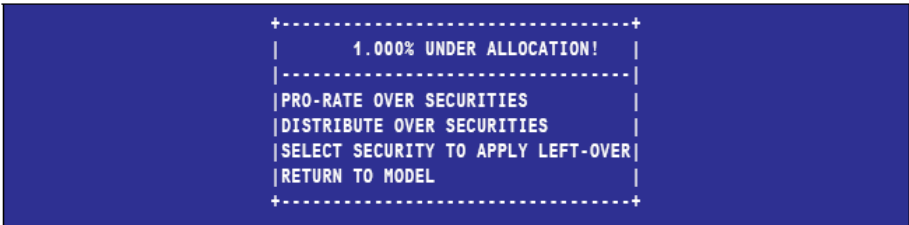
| | |
|------|--|
| RANK | Order in which the security should be bought or sold. You may rank as many or as few securities as you wish. Use the number 1 to indicate which security to buy first. If the purchase order of a security does not matter, set its rank to 0. |
|------|--|

3. Make additions or changes to the screen as required. The example security, IBM, can be changed by typing over the ticker symbol and other information
 - To insert a new line, press F6
 - To delete a line, move your cursor to the line to be deleted, and press SHIFT+F6
4. When you are through editing, press F10. The following selection box will appear:



5. To save, select YES and press ENTER

Your changes are checked to verify that the percentages allocated to each security equal 100%. If they do not, a selection box similar to the following displays:

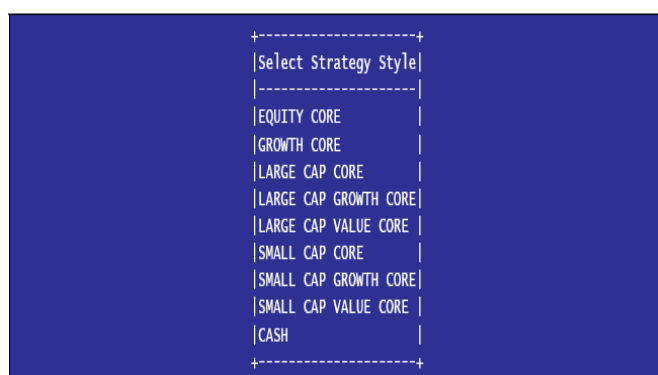


| Selection | Description |
|----------------------------|---|
| PRO-RATE OVER SECURITIES | Adjust the allocations proportionately, in the same ratios as the securities specified. |
| DISTRIBUTE OVER SECURITIES | Make adjustments evenly, with an equal amount added or subtracted from each security. |

| Selection | Description |
|------------------------------------|---|
| SELECT SECURITY TO APPLY LEFT OVER | Select the security that you want to adjust to bring -the percent values to 100%. |
| RETURN TO MODEL | Re-display the model to make corrections. |

Make the required changes, and press F10 to save them.

- If you are modifying an existing model, this is the last step. You are returned to the Model Maintenance menu
- If you are creating a new model, a selection box similar to the following will appear:



7. Select the strategy style that the portfolio reflects, and press ENTER

Notes:

- Please contact InvestCloud to activate the option to allow a submanager to have more than one submodel tied to the same sector
- A submanager can possess more than one submodel with the same strategy/performance sector if permitted by the master manager. These strategy style names are set up by the master manager
- If you have more than one submodel with the same performance sector in the same account, it will not be possible to break out the performance for each submodel separately. Since both models use the same sector, the calculations will run together. In this instance, you will need to create a second submodel code for that second submodel
- It is not recommended to link more than one submodel to the same sector

Edit submodel descriptions

The Edit Submodel Descriptions selection from the submanager menu enables you to view or edit the submodel name.

To do this:

1. Select EDIT SUBMODEL DESCRIPTIONS from the submanager menu. The screen will open:

```

SAMPLE ASSET MANAGEMENT                                F-10 To Save
12/13/02  3:49 P.M.                                Shift F-7 to Print
                                                    F-3 To Quit

SUB
MODEL  SUBMODEL DESCRIPTION
-----
SUBABC  SUBABC
SUBMVC  SUB TEST MODEL 1
SUBSUB  SUB HOLD TEST
SUBDB1  MSP TEST SUB MODEL
SUBKAM  KAREN TRAINING
SUBM1   SUBM1
SUBM2   TEST MODEL 2
SUBM3   TEST MODEL 3
SUBK1   FTB TRAINING MODEL
    
```

| Column | Description |
|----------------------|--|
| SUBMODEL | The six-character short name (SNAM) of the submodel. |
| SUBMODEL DESCRIPTION | The long name of the submodel. |

2. Select the submodel description you want to edit, and type in a new name
3. Press F10 to save your changes. Or, press F3 to return to the submanager menu without making any changes

Importing an APL model

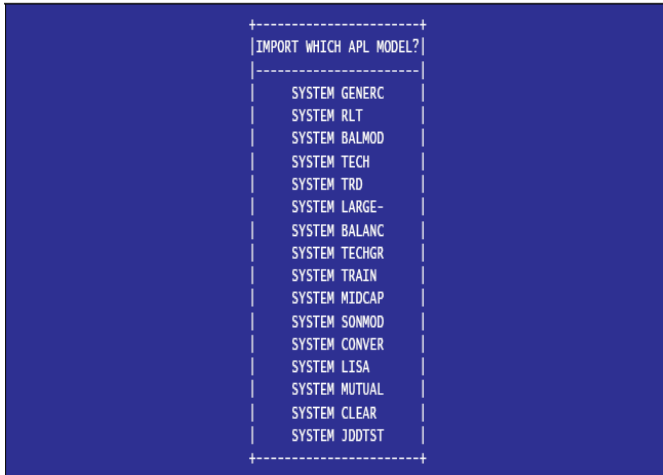
The Import APL Model function enables the submanager to:

- Create a new submodel based on a non-UMA model
- Dynamically link a submodel to a specified non-UMA master model

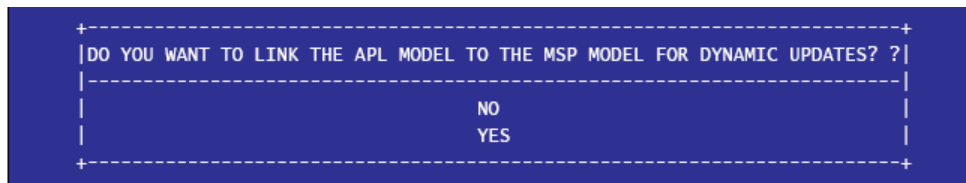
Each of these functions is described below:

To create a new Submodel based on a non-UMA model:

1. Select IMPORT APL MODEL from the submanager menu. The following screen will appear:

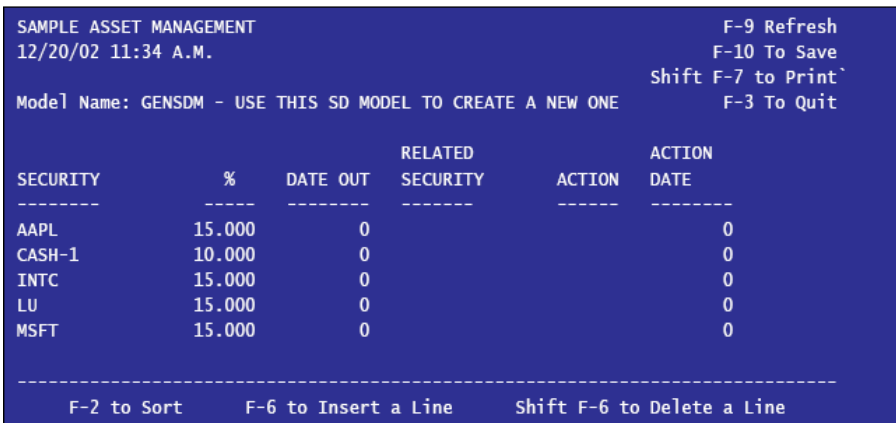


2. Select the non-UMA model you want to import. The following prompt will appear:



3. Select either YES or NO as appropriate

- YES: Select a UMA submodel to dynamically link to the non-UMA model
- NO: The Model Allocation screen will open, with the values from the non-UMA model filled in



4. Make any necessary changes, and press F10 to save, or F3 to quit without saving. A prompt will appear asking if you want to save your work. Select YES to save, or NO to return to the menu

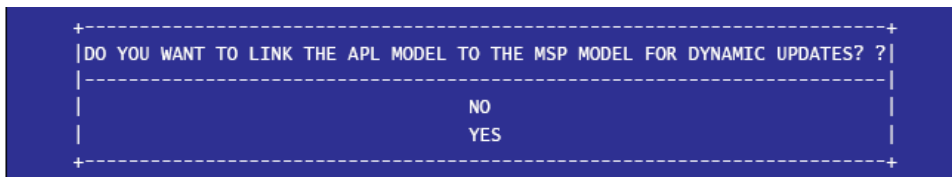
The system then returns to step 1. If you are finished linking models, press ESC to return to the Model Maintenance menu.

To dynamically link a submodel to a non-UMA model:

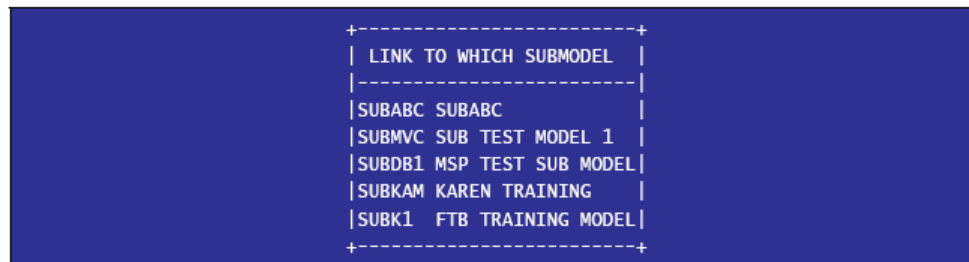
1. Select IMPORT APL MODEL from the submanager menu. The following screen will appear:



2. Select the non-UMA master model you want to import. The following prompt will appear:



3. Select YES. A list of UMA submodels will appear:



4. Select the submodel to which you want to link the non-UMA master model, then press F10 to save, or F3 to quit without saving. A prompt will appear asking if you want to save your work. Select YES to save, or NO to return to the menu

The system then returns to step 1. If you are finished linking models, press ESC to return to the Model Maintenance menu.

Editing a UMA-to-APL model map

This function displays the links between non-UMA master models and UMA submodels.

```

112/23/02  2:43 P.M.                                F-3 To Quit
MSP submodel to APL model map                       F-10 to Save
-----
MSP      MGR      APL
-----
SUBM1    SUB      BALANC
SUBKAM   SYSTEM  TECH

Use Shift-F6 to delete links
    
```

| Column | Description |
|--------|--|
| MSP | The SNAM of the linked UMA submodel |
| MGR | The firm that has access to the submodel portfolio. This is the three-character code of the manager. When the word SYSTEM will appear in this column, any manager can access it. |
| APL | The non-UMA master model to which the UMA submodel is linked. To delete a link, move the highlight to the line containing the link, and press the F6 key. |

Importing multiple APL models

APL allows you to load multiple non-UMA models by running the MULTIMODELLOAD function that references a list of desired models in an input file the submanager creates. After loading the models, the system generates an error report listing any errors that occurred during the account-loading process. Once the model is loaded, the submanager must link it to a UMA submodel for the newly-loaded model to receive changes. Please note the following points regarding the function and the input file.

- Parameters for the MULTIMODELLOAD function can call for the loading of the model description, and for the inclusion of header and trailer lines
- The input file can contain TICK, SACUS, or CUSIP security identifiers

MULTIMODELLOAD cross-checks the xxxSEC and xxxHOT files to determine if the securities being loaded exist in the system and verifies that all percentages in the model add up to 100%. Afterwards, the function generates a run report listing:

- Modified models
- New models
- Models containing securities not in xxxSEC or xxxHOT
- Models containing invalid percentages, invalid numbers, and invalid model names

Using the MULTIMODELLOAD function

- At the WHICH FUNCTION? prompt, type MULTIMODELLOAD, and press ENTER. The following prompt will appear:

Enter the Model Data File Name:

2. Type the name of the file containing the list of models, and press the ENTER key. The following example shows the file format to use:

```
HDR
"AI2AAS","AT008","26.00","Analytic Investors, Profile 2, Global Bonds"
"AI2AAS","AT009","5.00","Analytic Investors, Profile 2, Global Bonds"
"AI2AAS","AT022","27.00","Analytic Investors, Profile 2, Global Bonds"
"AI2AAS","HN001","5.00","Analytic Investors, Profile 2, Global Bonds"
"AI2AAS","HN003","27.00","Analytic Investors, Profile 2, Global Bonds"
"AI2AAS","HN005","2.00","Analytic Investors, Profile 2, Global Bonds"
"AI2AAS","HN007","5.00","Analytic Investors, Profile 2, Global Bonds"
"AI2AAS","MV001","3.00","Analytic Investors, Profile 2, Global Bonds"
TRL
```

The following prompt will appear:

All Model Names Will be Truncated At 6 Char., Want To Continue ?

3. Type Y to continue, or N to abort, and press the ENTER key. The following prompt will appear:

Models will be overwritten. Do you want to continue?

4. Type Y to continue, or N to abort, and press the ENTER key. A report file, MULTIMODELLOAD.LRP, is created, showing the results of the run. This file may be viewed using the BROWSE function, or printed

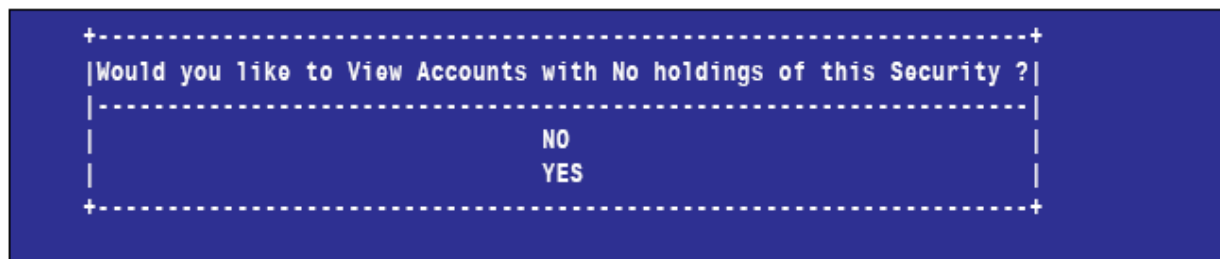
Updating submodels mapped to APL models

This function updates the UMA submodels to reflect the changes in the non-UMA models to which they are linked.

Note: This option updates all UMA submodels linked to non-UMA models.

Identifying accounts that hold zero shares of a security

To identify accounts that hold zero shares of a security within a sleeve, run the Cross-Reference by Security report. When prompted to view accounts with no holdings, choose YES.



For more information on the Cross-Reference by Security Report, please refer to “Cross Reference By Security Report”.

View Submodel Attributes

This option allows the submanager to view attributes for selected submodels. Attributes such as number of linked accounts, assets under management, discretionary model indicator, dynamic model indicator, and sleeve level restriction methods can be viewed.

See “Using Restriction at Sleeve or Account Level” for details about sleeve level restriction methods.

When View Submodel Attributes is selected from the menu:

2. The standard model selection screen is displayed
3. Select from the list of submodels or select all models. At least one model must be selected
4. The View Submodel Attributes screen is displayed

Note: This screen requires market value calculations per sleeve for all accounts invested. The time it takes to generate and display the screen increases as the number of sleeves increase.

Note: If not configured for Restriction at Sleeve and Account Level the Method and Replacement Security fields are not displayed.

The following columns are displayed (if configured) in the View Submodel Attributes screen:

- Sleeve - Submodel short name
- Number of Accounts - number of accounts that have the submodel in their master model
- Assets Under Management - Total market value of assets in the submodel across all linked accounts
- Method - Restriction replacement method
- Replacement Security - Security ID if populated (Show CUSIP for bonds, Tick for all others). This column will appear only when Method value is “Security”
- Disc Model - Discretionary model indicator
- Dynamic Model - Dynamic model indicator
- Description - Submodel description

| Sleeve | Number of Accounts | Assets Under Management | Disc Method | Dynamic Model | Description |
|--------|--------------------|-------------------------|-------------|---------------|-----------------|
| XYZZM1 | 9 | 66,000 CASH | No | No | XYZZ 1 SUBMODEL |
| XYZZM2 | 5 | 34,000 SIC | No | No | XYZZ 2 SUBMODEL |
| XYZZM3 | 2 | 20,000 ALL | No | No | XYZZ 3 SUBMODEL |
| XYZZM4 | 0 | 0 SLEEVE | No | No | XYZZ 4 SUBMODEL |
| XYZZM5 | 2 | 37,125 JUNK! | No | No | XYZZ 5 SUBMODEL |
| XYZZM6 | 3 | 65,937 BLANK | No | No | XYZZ 6 SUBMODEL |
| XYZZM7 | 3 | 73,660 | No | No | XYZZ 7 SUBMODEL |
| XYZZM9 | 2 | 67,500 CASH | No | No | XYZZ 9 SUBMODEL |

8.2 Submanager Trading functions

The trading functions enable the submanager to trade specific sleeves. Display these functions (as shown below) by selecting TRADING from the submanager menu.



Each of the first three functions creates blocks of trades that you can execute later.

- STRATEGY REBALANCER enables you to rebalance the portion of the portfolio managed by a submanager to bring it into conformity with a submodel
- MSP WHAT IF adjusts portfolio holdings of a security that you select
- MSP MULTI WHAT IF adjusts portfolio holdings of a group of securities, evaluating them either as a group or as individual securities
- INTRADAY CASH ADJUSTER adds real-time cash deposits and withdrawals to sleeves
- MSP SUPERTICK allows you to look at a group of TBA securities held in an account, based on defined criteria, as a single security

- MSP ACCOUNT ADJUSTER function enables you to adjust cash or other positions manually at the tax lot level for individual accounts within the submodel
- BLOCK STATUS enables you to view, edit, commit, or execute trades that were created with InvestCloud UMA

Notes:

- The submanager can manually tag UMA trades and use any trading tool with your UMA accounts; however, it is a manual process to tag each trade with the necessary style. To add the tag manually, edit the appropriate block and type the tag into the Broker Percent field. Contact InvestCloud to review this process further
- The UMA Rebalancer and the Strategy Rebalancer account for the “ETF Buy Tolerance” option that can be set on the Rebalancer Rules Screen for configured universes.
- A configuration item exists to enable the tolerance for specified universes.
- ETF purchases are discounted by the percentage set by the user to protect against over-buying in volatile markets, e.g., if the market moves against you
- Splitting Blocks during Commit Process
 - A feature is available on request to separate (split) blocks by mutual fund, non-mutual fund (e.g., ETF/equity) orders, and fixed income orders during the commit process. Fixed income mutual fund orders will be included in the mutual fund block
- If the block has trades of the opposite sides for the same security in different sleeves, the trades committed from the Submanager Menu will trigger netting

Liquidating Model Securities via LSF Day 1 from Sub Manager

Note: Proceeds apply to only the sub-manager’s sleeve.

The following options are available:

OVERRIDE

When the option to Override is selected, the user overrides a model’s security from the same model sleeve of the security being liquidated. If a security that is not on the same model sleeve is selected, the proceeds remain in cash and no additional process (e.g., Nightly Rebalance) takes place until proceeds are received in the account.

- Non-model Security: On Day 2, the nightly rebalance will reinvest the proceeds by buying the replacement funds

PRORATE

Non-model Security: Pro-rates the proceeds according to the fund targets in the model.

Note: When selecting the OVERRIDE or PRORATE options, you will be asked if you wish to generate corresponding buy trades on the same day.

YES = corresponding buy trades will be generated on the same day and buys and sells will exist in the same block. The previous day's NAV price (CLSEP) will be used to calculate the proceeds.

NO = The proceeds for reinvestment will be a part of the existing day two process.

STRATEGY REBALANCER

Funds are reinvested on Day 2 as part of a strategy rebalance. Every individual security target allocation within that sleeve is met as closely as possible.

Tax-aware filters

Master managers can establish gain/loss parameters or wash-sale filters in a tax table that:

- Sets filters to limit the amount of gain/loss from the trades, or
- Sets filters to allow trades violating the wash sale rule to go through if they do not exceed specified gain/loss thresholds

Note: Verify with your master manager if tax table is used and what criteria are set up.

The following trading tools support this functionality:

- Strategy Rebalancer
- Multi What If
- What If

To use gain/loss filters set in the tax table, the Apply Tax Table option should be set to YES.

In addition, if Tax Table's Wash Sale filters are to be used, the wash sale rule option in the trading tools should be set to YES as well.

To exclude tax exempt accounts from applying tax-aware filters, the logic can be changed to exclude accounts where the TXSTAT account master field in APL equals a value directed by the overlay manager. For example, if the tax exempt accounts are defined by TXSTAT EQ EXEMPT, a configuration can be set by InvestCloud that will exclude those accounts from the tax sensitive calculation and minimize future tax penalties.

System limits on master manager and sub-manager intraday trading

Because of the way APL divides cash for the Strategy Rebalancer, the default setup places a limit for the remainder of the trading day once either the master manager or the submanager has created and committed trades for the accounts in question. Once trades are made, the Strategy Rebalancer erases the "virtual" cash balance. After the cash "buckets" are rebuilt the following morning, the Strategy Rebalancer is ready for use.

Strategy Rebalancer function

The Strategy Rebalancer function enables submanagers to make their portion of portfolios, also known as “sleeve,” conform to an associated model, while respecting restrictions on individual portfolios. To make the necessary changes to rebalance the submanager portion of the portfolio, the Strategy Rebalancer rebalances the entire sleeve.

Running the Strategy Rebalancer

Configuration settings determine how the Strategy Rebalancer applies minimum and rounding parameters. There are two options:

- The configuration setting uses the minimum and rounding values specified in the Minimum and Rounding tables. Minimum and rounding fields display TABLE as their value. The master manager can allow the submanager to override these values

For more information about the minimum and rounding tables and managing these values, refer to the “Utilities” chapter in the UMA Master Manager User Guide.

- The configuration setting uses and displays numeric values in the minimum and rounding fields. This is the default setting

To set trading parameters for the Strategy Rebalancer,

1. From the submanager menu, select TRADING and in the open screen, select STRATEGY REBALANCER

When the default configuration is set to use the minimum and rounding table, the Multiple Strategy Portfolio Submodel Rebalancer screen displays the following settings:

- The Use Minimum and Rounding Table prompt is set to YES
- All minimum and rounding fields are set to TABLE

```

Multiple Strategy Portfolio Submodel Rebalancer

      Select Model : LARGE CAP VALUE
      Accounts : SELECT ACCOUNTS
      Apply Tax Table : NO
      Rebalancing Parameters
Use Minimum and Rounding Table: YES
      Minimum Trade $ : TABLE
      Minimum Trade Percentage : TABLE
      Min as % of Security Target : TABLE
      Apply Wash Sale : YES
      Target : SECURITY ALLOCATION
      Cash From Restrict Sec's : CASH
      Buy/Sell Mode : SELL+BUY
      Rounding Method : TABLE
      Round Equities by : TABLE
      Round Bonds by : TABLE
      Round MF Buys by ($) : TABLE
      Round MF Sales by ($h) : TABLE
      Report on what % Accts: 100
      Min Equity Lots : TABLE
      Min Bonds Lots : TABLE
      Min MF Buys ($) : TABLE
      Min MF Sales ($h) : TABLE

      F1 - Help      F3 - Abort      F9 - Cycle      F10 - Go
  
```

However, the master manager can grant permission to submanagers to modify the minimum and rounding fields that are set to TABLE. In this case, to change the values, set the Use Minimum and Rounding Table prompt to NO, and enter numeric values in the rounding and minimum fields.

2. In addition to minimum and rounding values, users can specify the following trading parameters:

| Field | Description |
|--------------------------|--|
| Select Model | Select the submodel to rebalance. To display a list of available submodels, press F1. |
| Accounts | Select the accounts to rebalance. SELECT ACCOUNTS: Apply rebalancing to the selected accounts. To display the Account Selection screen, press F10. To display a list of accounts, press F7. ALL ACCOUNTS: Apply rebalancing to all accounts. |
| Apply Tax Table | Submanagers do not have the option to override the tax parameters, but may choose to use the tax table set within the Master Manager Administration Tools, or ignore it. NO: Ignore the tax table and sell lots based on selling priority for the account. Versus purchase (VP) dates will not be populated. YES: Follow the criteria defined by the master manager within the Tax Table for selecting available lots. If established, trades with gains or losses that exceed specified criteria will not be allowed. If the Tax Table is used to establish wash sale filters, and the wash sale rule option in the tool is set to YES, filters set by the master manager will apply to the trades violating the wash sale rule. |
| Apply Wash Sale | YES: The Strategy Rebalancer checks and removes trades violating the wash sale rule. If the master manager set additional wash sale filters in the Tax Table and the user selected to use the table, rules defined in the table are used in addition to the standard wash sale rule. NO: Trades are not checked for wash sale rule violations. |
| Target | SECURITY ALLOCATION purchases securities according to their established percentages. |
| Cash From Restrict Sec's | Enables the user to select additional investment options for restricted securities and determines how cash made available from a restricted purchase or sale of a security, should be redistributed (prorated) across the sleeve. Note: To enable this functionality, please contact your relationship manager. CASH: Default value. The cash will be left in the account. If a security cannot be sold due to a restriction, targets of all unrestricted securities will be prorated down. |

| Field | Description |
|-----------------------------------|---|
| | <p>If a security cannot be purchased due to a restriction, the cash that should have been used to purchase restricted security will not be allocated to any other security purchase.</p> <p>PRORATE ACROSS ALL: Cash will be prorated among all unrestricted model securities.</p> <p>If a security cannot be sold due to a restriction, targets of all unrestricted securities will be prorated down.</p> <p>If a security cannot be purchased due to a restriction, the cash that should have been used to purchase restricted security will be prorated across all non-restricted model security based on those securities targets. A new target is calculated as Old Target + Old Target/sum of unrestricted securities*total target of restricted securities.</p> <p>PRORATE ACROSS THE SAME SIC CODE: Cash will be prorated among all model securities that have the same SIC code as restricted security.</p> <p>If a security cannot be sold due to a restriction, targets of all unrestricted securities with the same value in the selected field will be prorated down.</p> <p>If a security cannot be purchased due to a restriction, the cash that should have been used to purchase restricted security will be prorated across all securities in the model that have the same value in the selected field.</p> <p>If there are no securities with the same value in the selected field (RA69, SIC code or SIC2), then the restricted cash will remain in cash.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Note: The SIC2 and RA69 options are available to only those directories in which those two fields exist.</p> </div> <p>If this functionality is available, the default setting applied also applies to overnight rebalancing, if applicable.</p> |
| | <p>PRORATE ACROSS THE SAME RA69 CODE: Cash will be prorated among all model securities that have the same RA69 code as restricted security.</p> <p>PRORATE ACROSS THE SAME SIC2 CODE: Cash will be prorated among all model securities that have the same SIC2 code as restricted security.</p> |
| Cash From Restrct Sec's continued | <p>If a security cannot be sold due to a restriction, targets of all unrestricted securities with the same value in the selected field will be prorated down.</p> <p>If a security cannot be purchased due to a restriction, the cash that should have been used to purchase restricted security will be prorated across all securities in the model that have the same value in the selected field.</p> <p>If a security cannot be sold due to a restriction, targets of all unrestricted securities with the same value in the selected field will be prorated down.</p> |

| Field | Description |
|------------------------|---|
| | <p>If a security cannot be purchased due to a restriction, the cash that should have been used to purchase restricted security will be prorated across all securities in the model that have the same value in the selected field.</p> <p>The additional pro-rated transactions will be applied to any of the models selected in the rebalancing tools.</p> <p>If this functionality is enabled, the default setting applied will also apply to overnight rebalancing, if applicable.</p> <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p>Note: If configured for the Restriction at Sleeve or Account Level feature, this run-time screen prompt is disabled. The restriction method defined at the account level or sleeve level is applied instead. See "Using Restriction at Sleeve or Account Level" for details.</p> </div> |
| Buy/Sell Mode | <p>Sets limits on the types of transactions that can occur:</p> <p>SELL+BUY allows the rebalancer to both sell and purchase securities.</p> <p>BUY ONLY allows the rebalancer to only purchase securities.</p> <p>SELL ONLY allows the rebalancer to only sell securities.</p> <p>BUY UNOWNED/ SELL NON-MODEL - the rebalancer is restricted to buying securities that exist in submodels but are unowned in the account and selling securities that are owned in the account but do not exist in submodels.</p> <p>The level of unowned buys is contingent upon available cash taking into account all minimum cash parameters.</p> |
| Report on what % Accts | <p>The Strategy Rebalancer runs a report for a percentage of accounts.</p> |

When the default configuration is set to use the minimum and rounding values specified on the screen, the Strategy Rebalancer screen displays the following settings:

- The Use Minimum and Rounding Table prompt is set to NO
 - All minimum and rounding fields display default numeric values
3. Users can edit all fields on the screen, including the minimum and rounding default values. To use minimum and rounding values from the table, type TABLE in any minimum or rounding field

| Field | Description |
|------------------|--|
| Minimum Trade \$ | Minimum dollar amount for a trade before it is added to a trading block. |

| Field | Description |
|---------------------------------|---|
| Minimum Trade Percentage | <p>Minimum trade size as a percentage of the market value of the selected sleeve. Enter a percentage (0.5, 1, 2.5, etc.) to prevent trades smaller than that size from being created via the Strategy Rebalancer function.</p> <p>Example:</p> <p>The Growth sleeve of a \$500K account is being traded. It has a market value of \$200K. Entering '0.05' in this field will not create trades that are less than \$100.</p> <p>This option works in conjunction with the Minimum Trade option, which mimics the behavior of the master manager functionality. The Strategy Rebalancer function will use the greater of the two values to determine a minimum trade size.</p> <p>Example:</p> <p>Using data from the previous example, if a value of '500' is entered as the Minimum Trade value, the minimum trade for the Growth sleeve will be \$500, not \$100.</p> |
| Minimum as % of Security Target | Minimum trade size as % of the security model target. It is used for all asset classes/issue types. |
| Rounding Method | <p>NEAREST</p> <p>UP rounds up to the nearest increment.</p> <p>DOWN rounds down to the nearest increment.</p> |
| Round Equities by | Sets the increment in units for rounding equities. |
| Min. Equity Lots | Minimum trade size (number of shares) for trading equities. |
| Round Bonds by | Sets the increment in shares for rounding bonds. |
| Min. Bonds Lots | Minimum trade size for trading bonds. |
| Round MF Buys By (\$) | Round to dollars and cents for buying mutual funds. |
| Min. MF Buys (\$) | <p>Minimum trade size in dollars when buying mutual fund.</p> <p>The Strategy Rebalancer always applies the highest of all defined minimum values.</p> |

| Field | Description |
|------------------------|---|
| Round MF Sales by (Sh) | Round to shares for selling mutual funds. |
| Min. MF Sales (Sh) | Minimum trade size in shares when selling mutual funds. |

4. After setting the rebalancing parameters, press F10. In the next screen, users select accounts

```

-----+-----
FUNCTION: AND |SEARCH:
-----+-----
22 RECORDS FOUND
-----
Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back
    
```

5. Type the SNAM or BWNUM of one or more accounts. Alternatively, press F7 to view an account list and make a selection
6. To initiate rebalancing, press F10. If no errors occurred during rebalancing, the system displays the following message when processing is complete:

```

----- HIT ESCAPE TO EXIT -----
Drift Report Saved to SUBDRIFT.LRP
-----
    
```

The Drift Report can be viewed using the BROWSE function. It is also displayed in the final step of this procedure.

7. Press the ESC key. The following message is displayed:

```

-----
MSP459 HAS BEEN LOADED TO THE TRADING SYSTEM
-----
    
```

In this example, MSP459 is the identifier for the trade block that was created by this function. Users can edit, commit, execute, or delete this block using the Block Status function.

Note: The following features are available upon request. To activate, contact your InvestCloud Account Manager.

Block Naming

This feature allows the user to assign a unique block name.

If enabled, a prompt is displayed before trades are generated where a 6-character block name can be entered. For firms with custom block naming, this feature is not available.

- If a block name is not entered, to ensure trades are not discarded a prompt is displayed:

Are you sure you want to discard all trades? No/Yes?

- Select Yes to discard all trades
- Select No and enter a new block name
- If the block name entered already exists, a message is displayed:

DO YOU WANT TO APPEND TO EXISTING BLOCK XXX?" Yes/No.

- Select Yes to append the trades to the existing block
- Select No and enter a new name

Block Title

This feature allows the user to assign a block title.

If enabled, a prompt is displayed before trades are generated where a block title can be entered. The block title is comprised of the sleeve name and the entered text. If no block title is entered the default block title is used.

Splitting Blocks during Commit Process

A feature is available on request to separate (split) blocks by mutual fund, non-mutual fund (such as, ETF/equity) orders, and fixed income orders during the commit process. Fixed income mutual fund orders will be included in the mutual fund block.

Strategy Rebalancer Reports

Multi Strategy Product Drift Report

After the rebalancing process is complete, users can view the Multi Strategy Product Drift Report. The BROWSE function is automatically started to display the DRIFTxx.LRP report.

```

Multi Strategy Product
Drift Report
FISERV INVESTMENT SERVICES
As of July 23, 2002

Master Model                               Total Accounts       Acc
-----                               -----             Rebalanc
MSPCS1- CS DEMO MODEL #1                    5
                                         =====
                                         5

----- More -->
PRESS <ESC> TO EXIT  <F1> FOR HELP  <F3> MAIN MENU      FISERV APL
    
```

Submanagers can scroll through, print, or email the report. For more information on the BROWSE function, see the InvestCloud APL User Guide.

An example of the Drift Report is illustrated below:

```

Multi Strategy Product
Drift Report
SAMPLE ASSET MANAGEMENT LLC
As of July 23, 2002

Master Model                               Total Accounts       Accounts with
-----                               -----             Rebalancing Trades
MSPCS1- CS DEMO MODEL #1                    5                      4
                                         =====             =====
                                         5                      4
                                         % of Accounts
                                         with Trades
                                         -----
                                         80.0
                                         =====
                                         80.0

Multi Strategy Product
Drift Report
SAMPLE ASSET MANAGEMENT LLC
As of July 23, 2002
PAGE 2

Sub Model  Tick      *** Model ***  *** Actual ***  *** Drift ***  ** Resulting **
-----  -----  -----  -----  -----  -----  -----  -----  -----
000-01969 - CRS TEST ACCOUNT 1
Rebalancing Model Used : MSPCS1- CS DEMO MODEL #1
Next Scheduled Rebalancing Date : January 1, 2004

MSPCS1    CASH-1   5.00    24,987 100.00  499,733 95.00   474,746 -474,762  5.00    24,970
MSPCS1    AIG       3.00    14,992  0.00     0 -3.00  -14,992  14,992   3.00    14,992
MSPCS1    C         10.00   49,973  0.00     0 -10.00 -49,973  49,982  10.00   49,982
MSPCS1    CKFR     20.00   99,947  0.00     0 -20.00 -99,947  99,943  20.00   99,943
MSPCS1    CSCD     17.00   84,955  0.00     0 -17.00 -84,955  84,954  17.00   84,954
MSPCS1    KO       20.00   99,947  0.00     0 -20.00 -99,947  99,948  20.00   99,948
MSPCS1    MSFT     15.00   74,960  0.00     0 -15.00 -74,960  74,976  15.00   74,976
MSPCS1    PG       10.00   49,973  0.00     0 -10.00 -49,973  49,967  10.00   49,967

-----  -----  -----  -----  -----  -----  -----  -----  -----
Total    100.00  499,733 100.00  499,733  0.00     0         0 100.00  499,733
    
```

The main body of the report:

- Compares the target and actual percent of the portfolio in each holding
- Calculates the drift in dollars and percent of assets
- Lists the trades within the trade block, which were generated by the rebalancing function. No action is taken on this block until it is committed

Notes:

- You can create your own 6-character block name. To activate this functionality, please contact your Client Account Manager.
 - For firms with custom block naming, this functionality will not apply
- If this function is available:
 - To ensure that trades are not discarded when a block name is not specified, the following question is presented:
 - Are you sure you want to discard all trades? No/Yes?
 - YesAll trades are discarded
 - NoFocus returns to the block naming prompt. Enter the block name. If the block name already exists, a message is displayed:

DO YOU WANT TO APPEND TO EXISTING BLOCK XXX?" Yes/No

- Either append the trades to the selected block, or enter a new name
- Splitting Blocks during Commit Process
 - A feature is available on request to separate (split) blocks by mutual fund, non-mutual fund (e.g., ETF/equity) orders, and fixed income orders during the commit process. Fixed income mutual fund orders will be included in the mutual fund block

UMA Rebalancer Exceptions Report

This report lists the trades that were removed because they violated minimum rules. It is generated each time the Strategy Rebalancer runs.

An example of the UMA Rebalancer Exceptions Report is illustrated below:

```

UMA Rebalancer Exceptions Report
Report Created: 05/16/12 7:04 A.M.
PAGE 1

The following orders are invalid because they did not meet the minimum trade amount or account did not have
enough cash because other trades were invalidated due to not meeting the minimum trade amount threshold. The
value of the minimum trade amount reflects either the entered minimum dollar amount or calculated value based
on the entered percent of market value, percent of target or number of shares.
    
```

| Account | Sleeve Minimum Type | Minimum Basis | Minimum Tick Amount, \$ | Side | VP | Trade Amount |
|---------|-------------------------------------|---------------|-------------------------|------|-----|--------------|
| 654321 | NEWA02 Universe account group table | Account% | 1000000.00 | FISV | BUY | 173760.00 |
| 654321 | NEWA02 Universe account group table | Account% | 1000000.00 | INFY | BUY | 173011.00 |
| 654321 | NEWA02 Universe account group table | Account% | 1000000.00 | SIFY | BUY | 149850.00 |

PRESS <ESC> TO EXIT <F1> FOR HELP <F3> MAIN MENU CHECKERFREE APL

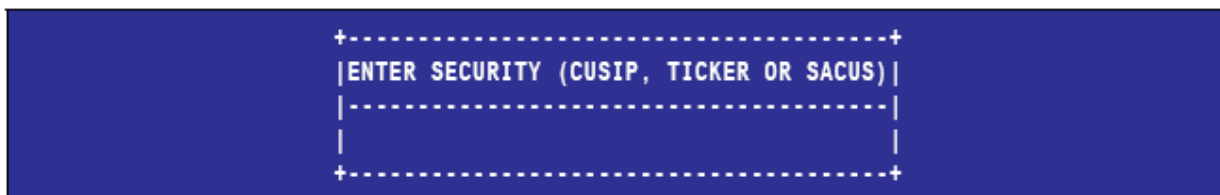
MSP What-if Function

The MSP What-if function enables submanagers to override the submodel to add or adjust the percent of any specific security, regardless of whether it is specified in the associated submodel. The trades created by the function affect only the portion of the portfolio associated with a selected submodel.

Note: The changes made using MSP What-if are overrides that do not affect the underlying submodel. This means that running the Strategy Rebalancer function is likely to create blocks of trades that cancel these overrides. To change a submodel, use the Edit/Create Submodels function described in “Editing and creating submodels”.

To use MSP What-if tool:

1. Select TRADING from the submanager menu. Then, select the MSP WHAT IF function. The following prompt will appear:



2. Type the CUSIP, ticker symbol, or SACUS number, and press ENTER. The What-if Input screen will open

Note: If you input the CUSIP, TICK, or SACUS of a mutual fund, a screen will display four fields that would not otherwise appear:

- ROUND BUYS BY (\$):
- MINIMUM BUY (\$):
- ROUND SALES BY (u):
- MINIMUM SALE (u):

```

+-----+
|                                     |
|               MSP WHATIF INPUT SCREEN               |
|-----|-----|-----|-----|
| REPORT TITLE:      VANGUARD INDEX TR      VALUE INDEX FD - V |
|-----|-----|-----|-----|
| DESIRED PERCENTAGE:  0.00      LEVEL:      EXACT      |
| PERCENT OF:        TOTAL      WASH SALE:      NO      |
|-----|-----|-----|-----|
| ROUND BUYS BY ($):  -1.00      MINIMUM BUY ($):  -1.00 |
| ROUND SALES BY (u): -1.0000     MINIMUM SALE (u): -1.0000 |
| ROUND LOTS:        UP      |
| BID PRICE:         19.890     ASK PRICE:         19.890 |
|-----|-----|-----|-----|
| HOLD MINIMUM CASH: YES      CASH PERCENT:      1.00   |
|-----|-----|-----|-----|
| DISPLAY:          ACCOUNTS THAT REQUIRE CHANGE      |
| CHOOSE:          ALL ACCOUNTS                        |
| SUBMODEL:                                               |
| APPLY TAX TABLE: NO      |
| MINIMUM SHARES ("P%" for percentage):                |
|-----|-----|-----|-----|
|                                     |
|               ESC,F3-ABORT  F1-HELP  F10-EXECUTE      |
|-----|-----|-----|-----|
+-----+

```

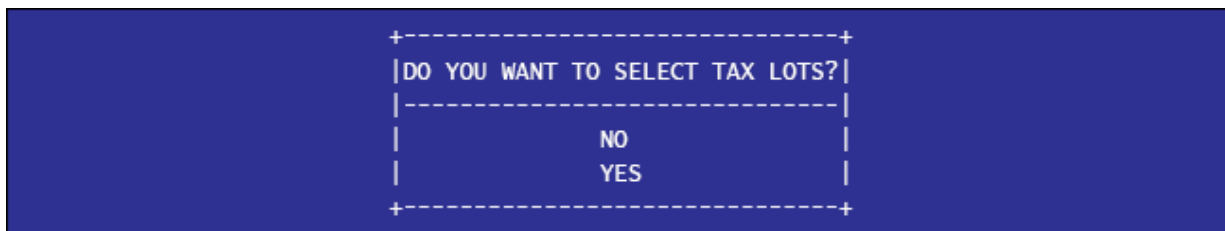
| Field | Description |
|--------------------|--|
| REPORT TITLE | The full description of the security to be added or adjusted, from the security master. This information can be edited. |
| DESIRED PERCENTAGE | The target percent for this holding. |
| LEVEL | Specifies what to do if the specified security is not at the desired percent. EXACT - Buy or sell to desired percent. MINIMUM - Buy only if below desired percent. MAXIMUM - Sell only if above desired percent. UNOWNED - Buy only for portfolios that do not already hold the security; but do not buy if a portfolio already holds it. |
| PERCENT OF | Defines the basis for the specified percent. TOTAL - Percent of the selected submodel's total market value. Select ACTUAL to calculate trades using the actual market value for the sleeve. Select TARGET to calculate trades based on the targeted sleeve weights, not the actual sleeve weights. |

| Field | Description |
|------------------------|--|
| | <p>Note: If you select TARGET, the percentages that are displayed in the What-If Report will reflect the targeted market value.</p> <p>EQUITY - Percent of the selected submodel's equities.</p> <p>FIXED - Percent of the selected submodel's fixed income holdings</p> <p>HOLDING - Percent of the market value of the selected submodel's existing holdings of the specified security.</p> |
| WASH SALE | <p>YES. The tool will check and remove trades violating the wash sale rule. If master manager set additional wash sale filters in the Tax Table and the user selected to use the table, rules defined in the table will be used in addition to the standard wash sale rule.</p> <p>NO. Trades will not be checked for wash sale rule violations.</p> |
| ROUND BUYS BY (\$) | Increment to which mutual funds securities are rounded, in dollars and cents, for buyers |
| MINIMUM BUY (\$) | Minimum amount, in dollars and cents, that a mutual fund lot must be before it is added to the trading block. |
| ROUND SALES BY | Increment to which mutual funds securities are rounded, in shares, for sells. |
| MINIMUM SALE | Minimum number of shares to trade when mutual funds are traded. |
| ROUND LOTS | <p>Rounding method.</p> <p>UP - Round up to the nearest full lot.</p> <p>DOWN - Round down to the nearest full lot.</p> <p>NEAREST - Use 5/4 rounding to determine whether to round up or round down.</p> |
| BID PRICE: / ASK PRICE | Price of security. This is yesterday's closing price, unless HyperFeed Technologies 15-minute delayed quotes are selected. (Contact your Account Manager regarding this service.) |
| HOLD MINIMUM CASH | <p>Determines whether a specified minimum cash level is to be maintained. This level is set in the CASH PERCENT field.</p> <p>YES - Maintain specified minimum cash level within the submodel.</p> <p>NO - Disregard specified minimum cash level within the submodel</p> |
| CASH PERCENT | Minimum cash target for the submodel. |

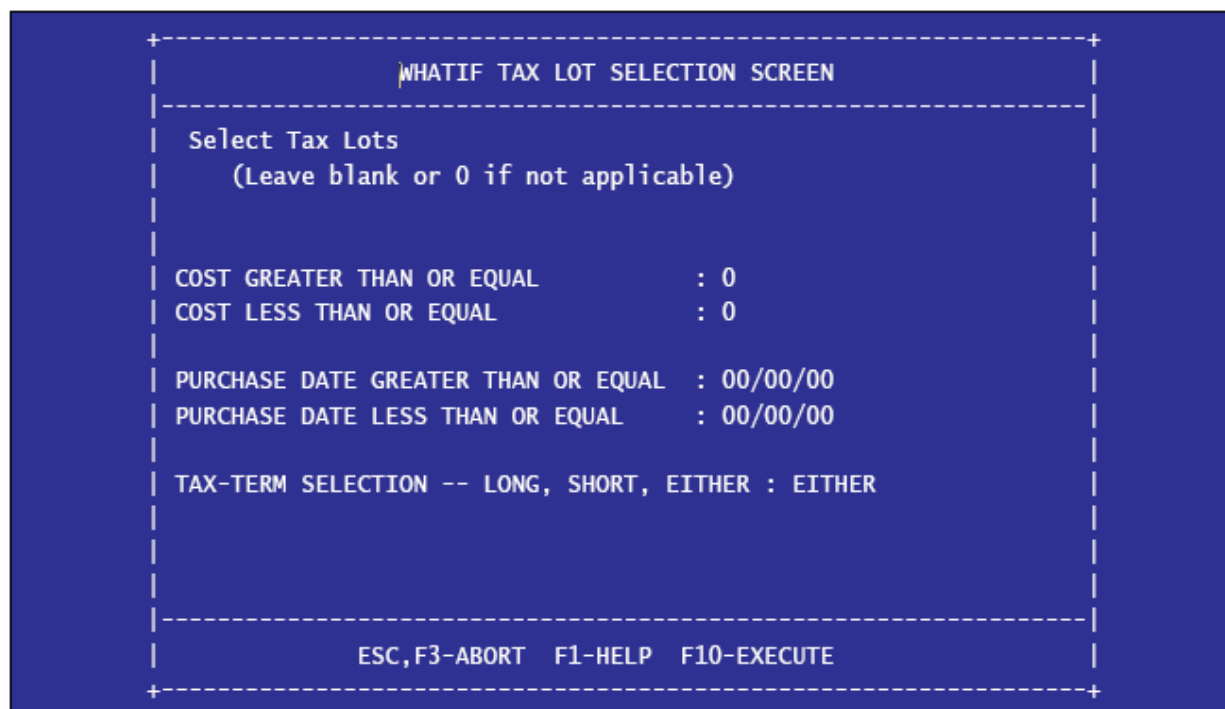
| Field | Description |
|--------------------------------------|--|
| DISPLAY | <p>Range of accounts appearing in the report associated with this function.</p> <p>ACCOUNTS THAT REQUIRE CHANGE - Only accounts requiring change appear on the report.</p> <p>ALL ACCOUNTS - All accounts appear on the report.</p> |
| CHOOSE | <p>Range of accounts that are affected by the function.</p> <p>ALL ACCOUNTS - All accounts associated with the selected submodel are affected.</p> <p>SELECT ACCOUNTS - Only selected accounts are affected.</p> |
| SUBMODEL | <p>Specific submodel that is impacted by the block of trades generated by this function. Press F1 to display a list of models.</p> |
| Apply Tax Table | <p>Submanagers do not have the option to override the tax parameters but may choose to use the tax table set within the Master Manager Administration Tools, or to ignore it.</p> <p>NO. Select NO to ignore the tax table and sell lots based on selling priority (FOFO) for the account. Versus purchase (VP) dates will not be populated.</p> <p>YES. Select YES to follow the criteria defined by the master manager within the Tax Table for selecting available lots. If established, trades with gains or losses that exceed specified criteria will not be allowed.</p> <p>If the Tax Table is used to establish wash sale filters and the wash sale rule option in the tool is set to YES, filters set by the master manager will apply to the trades violating wash sale rule.</p> |
| MINIMUM SHARES ("P%" for percentage) | <p>Allows the user to set a minimum trade amount that each trade must reach before it is included in the block of trades. To set a minimum number of shares that a trade must reach, type the number. To set a minimum percent change that must occur in the sleeve before the trade is included in the block, type the percent preceded by "P." For example, if the minimum trade must be a 2% change, type "P2."</p> <div style="border: 1px solid gray; padding: 10px; margin-top: 10px;"> <p>Notes:</p> <ul style="list-style-type: none"> • If you leave this empty no minimum is applied. However, if you set the minimum number of shares to 0 (zero), the tool uses the WHATIFTABLE • Not entering any rounding or minimum buy and sell parameters will cause the process to default to the master manager's defaults set in the WHATIFTABLE </div> |

When you have finished entering data into the form, press the F10 key.

- If you have specified SELECT ACCOUNTS in any field, the Account Selection window will appear. Select the range of accounts you require, and press F10
- If the execution of this function would result in the sale of securities, you are asked if you want to specify tax lots, as shown below:



If you select YES, a screen is displayed, enabling you to select the tax lots you want to sell. This is shown below:



| Field | Description |
|-------------------------------------|--|
| COST GREATER THAN OR EQUAL | Sell shares that were purchased at a price greater than or equal to the one specified. |
| COST LESS THAN OR EQUAL | Sell shares that were purchased at a price less than or equal to the one specified. |
| PURCHASE DATE GREATER THAN OR EQUAL | Sell shares that were purchased on or after the specified date. |

| Field | Description |
|----------------------------------|--|
| PURCHASE DATE LESS THAN OR EQUAL | Sell shares that were purchased on or before the specified date. |
| TAX TERM SELECTION | LONG - Sell shares held longer than one year. |
| | SHORT - Sell shares held less than one year. |
| | EITHER - Sell shares regardless of how long they have been held. |

4. Then, press F10. The following prompt will appear:

```
+-----+
|ENTER BLOCK NAME (6 CHRS, RET TO ABORT): MSPSBL|
+-----+
```

5. Type in the block name, and press ENTER. The following prompt opens:

```
+-----+
|Display SNAM, BWNUM, LNAME, or ACCT NUMBERS on WHAT-IF Report?|
|-----|
|                               SNAM                               |
|                               BWNUM                               |
|                               LNAME                               |
|                               DTCNO                               |
+-----+
```

6. Select the account profile field to identify each account on the What-If Report. The available options are:

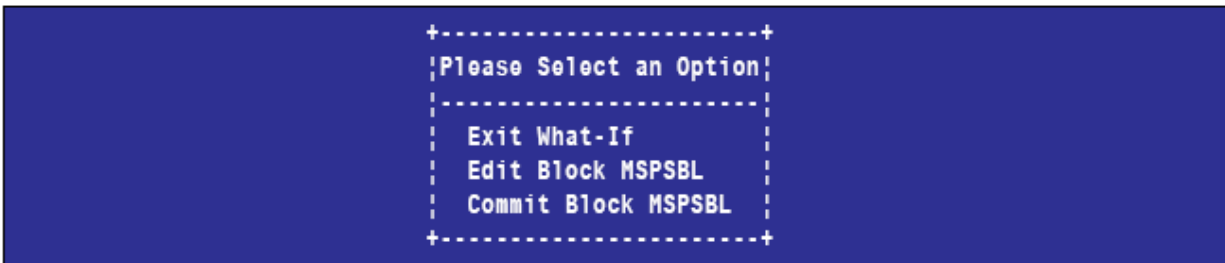
| Option | Description |
|--------|--------------------------|
| SNAM | Account short name |
| BWNUM | Internal account number |
| LNAME | Account long name |
| DTCNO | Custodian account number |

The report is then generated. Here is an example:

| BLOCK: DAK123 07/25/02 3:35 P.M. CHECKFREE INVESTMENT SERVICES MSP: CS DEMO MODEL #1 PAGE 1 | | | | | | | | | | | | |
|---|--------------------|-----------------|------------|----------------|-----------------|------------|-----------|------------|------------|------------|--------------------|--------------|
| LEVEL OF PORTFOLIO: MINIMUM 1.0% OF TOTAL DAKTRONICS INC COM - DAKT | | | | | | | | | | | | |
| ASK PRICE: 7.350 BID PRICE: 7.350 | | | | | | | | | | | | |
| ROUND UP TO 100 MIN CASH: 1.0 TRADE DATE : 07/25/02 SETTLEMENT DATE : 07/30/02 | | | | | | | | | | | | |
| BEFORE WHAT IF CHANGE AFTER WHAT IF | | | | | | | | | | | | |
| SNAME DISCRT | CASH & EQUIVALENTS | % OF TOTAL PORT | DAKT UNITS | DAKT BID VALUE | % OF TOTAL PORT | UNITS DAKT | COST DAKT | % OF TOTAL | UNITS DAKT | % OF TOTAL | CASH & EQUIVALENTS | CASH & EQUIV |
| CRSNEW | 22,526 | 6.45 | | | | 500.00 | 3,675.00 | 1.05 | 500.00 | 1.05 | 18,851.00 | 5.40 |
| CSNEW | 450,000 | 100.00 | | | | 700.00 | 5,145.00 | 1.14 | 700.00 | 1.14 | 444,855.00 | 98.86 |
| ----- | | | | | | | | | | | | |
| 1,200 | | | | | | | | | | | | |
| TOTAL UNITS TO BUY | | | | | | 1,200 | | | | | | |
| TOTAL UNITS TO SELL | | | | | | 0 | | | | | | |

The report shows the effect of the proposed change. At the same time, a block of trades reflecting the changes in this report are generated.

- Exit the report by pressing F3. A prompt is displayed, asking if you want to edit the block of trades, commit the block, or exit the function



- Select the appropriate option and press ENTER

You can do a number of things with the block of trades that you created.

Intraday Cash Adjuster

See Intraday Cash Adjuster in the Trading Functions chapter, which covers both Master Manager and Submanager screens and abilities.

Using the Supertick function to trade a group of TBAs

The Supertick function enables submanagers to create What-if scenarios for a group of securities by defining a desired percentage for the group. Thus, Supertick allows you to look at a group of securities held in an account, based on defined criteria, as a single security. You can then determine what, if any, additional trades should be made.

The Supertick functionality is a version of the Generic Security What-if designed for trading TBA (To-Be-Announced) securities.

Important: THE TOOL IS DESIGNED TO TRADE TBAS, NOT EQUITIES OR NON-MORT-GAGE BONDS. TRADING ANYTHING OTHER THAN TBAS MAY PRODUCE UNEXPECTED RESULTS.

To use the SUPERTICK capability:

1. Choose MSP SUPERTICK from the Submanager’s Trading Menu. The Generic Security What-If screen will appear

Note: The SUPERTICK criteria input screen is identical to the Generic Security What-If input screen with the addition of the “Tolerance” and “Minimum Leftover” fields.



2. Fill in the fields as appropriate, using the following table for guidance. Press F10 to save

| Field | Description |
|-------------------|---|
| Block Name | Block name. |
| Block Title | Description for the block. |
| Target Percentage | The target percent for the block of trades. |

| Field | Description |
|----------------------|---|
| Trading Instructions | <p>The trading method:</p> <p>BUY AND SELL</p> <p>BUY ONLY</p> <p>SELL ONLY</p> |
| Security Symbol | The single security that is to be purchased in accounts below the target percentage. This security can be an actual security or a generic security that is swapped out at another time. |
| Description | The description of the security. |
| Sell Order | <p>The order in which sells should be created / posted in accounts that exceed the target percentage:</p> <p>PURCHASE DATE - LOWEST TO HIGHEST (FIFO)</p> <p>PURCHASE DATE - HIGHEST TO LOWEST (LIFO)</p> <p>COST BASIS - LOWEST TO HIGHEST</p> <p>COST BASIS - HIGHEST TO LOWEST</p> <p>Because this function looks at more than one security, a method for determining which security or securities to be sold must be defined.</p> |
| Override Price | The price to use. Leave blank to use the price of the underlying securities. |
| Cash To Hold | The minimum cash percent to hold in the accounts. |
| Lot Size | The lot size. The default is 1000. |
| Minimum Trade | The minimum trade amount. The default is 5000. |
| Tolerance% | The absolute tolerance of the weighting. |
| Minimum Leftover | The minimum holding that will remain if the security is not fully liquidated. |
| Rounding Method | <p>The rounding method:</p> <p>NEAREST</p> <p>UP</p> <p>DOWN</p> |

| Field | Description |
|-----------------|---|
| Settlement Date | The settlement date to be used for the calculation of accruals. |

Once you save the selections, the submodel selection screen will appear.

3. Choose a submodel. You can choose from a list of submodels by pressing F7 or you can choose all submodels by typing nothing and pressing F10

The following message screen displays:

```

+-----+ HIT ESCAPE TO EXIT -----+
| The Next Screen Will Allow You to Select All Securities to Be |
| Considered. These Securities Will Be Treated As if They |
| Were the Same Security. |
+-----+
    
```

4. Press the ESC key. The Security Selection Screen will appear

```

+-----+
|                               Security Selection Screen                               |
|                               -----                               |
| Search Which Files : Private SMF  Number of Securities Found : |
|                               |                               |
| Select Securities that are : Either Owned or Unowned |
|                               Issue Type : All Securities |
|                               Industry : |
|                               Model : TSTM DL TEST FIXED MODEL |
|                               |                               |
| Common Range Selections: | Low | High |
| Yield | 0.000% | 0.000% |
| Duration | 0.00 | 0.00 |
| Moody's Rating | | |
| S & P Rating | | |
| Coupon | 0.000 | 0.000 |
| Maturity (Dates) | 0 | 0 |
| Maturity (Years) | 0 | 0 |
|                               |                               |
| Additional Search Criteria (eg: AND ISSTY EQ 34 50) |
|                               |                               |
+-----+
| F-3 to Exit  F-6 to Refresh  F-7 to Search  F-10 to View or Use Securities |
    
```

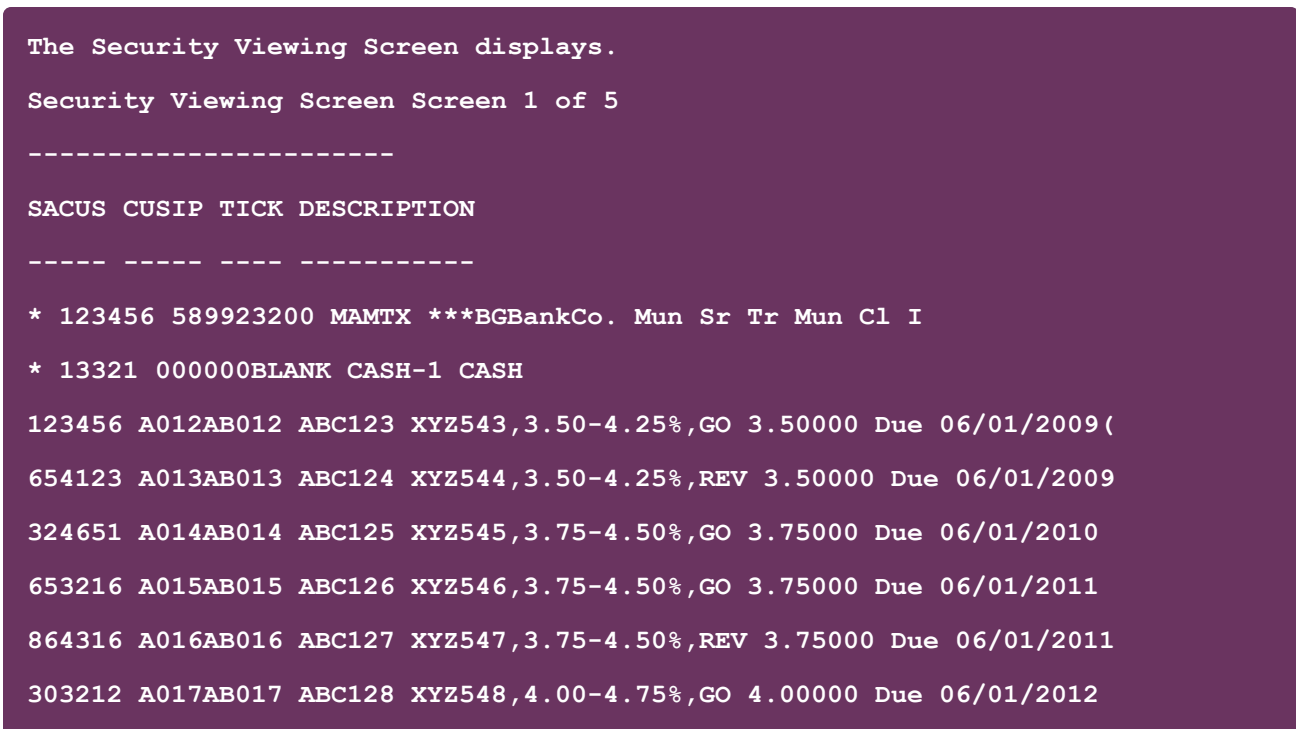
5. Fill in the fields on the Security Selection Screen using the following table for reference. Press F10 to save the changes

| Field | Description |
|-----------------------------|--|
| Search Which Files: | <p>The Security Master file that the securities should be chosen from. Press F1 to display the following options:</p> <ul style="list-style-type: none"> • All SMF (xxxHOT, xxxSEC, BW:SECSA, BW:SECOPT, BW:SEMISC) • Private SMF (xxxHOT, xxxSEC) • Public SMF (BW:SECSA, BW:SECOPT, BW:SEMISC) |
| Select Securities that are: | <p>Press F1 to display the following options:</p> <ul style="list-style-type: none"> • Owned • Unowned • Either Owned or Unowned • Issue Type: Press F1 to display the following options: <ul style="list-style-type: none"> • Fixed Income Securities • Equities • All Securities • Industry: Select the industry classification for the securities or leave empty. Press F1 to display a list of industry classifications • Model: Selects a previously stored model portfolio. Press F1 to display a list of model portfolios |
| Common Range Selections: | <p>Select highs and lows for security fields. Press F1 to display the following options:</p> <ul style="list-style-type: none"> • Yield • Duration • Moody's Rating • S & P Rating • Coupon • Maturity (Dates) • Maturity (Years) |
| Additional Search Criteria: | <p>Narrow or broaden the security selection. If you want to narrow your search by security issue type, for example, common stock, you would type AND ISSTY EQ 28. To broaden the search, simply replace AND with OR.</p> |

Once you make the security selection, you are prompted to add additional fields to the on-screen report.



- Use the ENTER key to select fields to display in addition to the SACUS, CUSIP, TICK, and DESCRIPTION fields. An asterisk will appear by the field names. Press F10 to proceed



```
160524 A018AB018 ABC129 XYZ549,4.00-4.75%,GO 4.00000 Due 06/01/2013
654984 A019AB019 ABC120 XYZ540,3.75-4.50%,GO 3.75000 Due 06/01/2011
465465 A010AB010 ABC121 XYZ541, 4.25-5.25%, REV 4.25 Due 06/01/2014

Any Character Before the SACUS Will Select the Security

<F-9> and <SHIFT F-9> To View Additional Fields
```

- To use the all of the securities selected, press F10. To broaden or narrow the selection, press F8. To view the other fields, use the F9 key to toggle between screens

If F8 is pressed, the following screen will appear:

```
+-----+
|           Please Select an Option           |
+-----+
| Include All Securities                       |
| Exclude All Securities                      |
| Include All Securities Matching a String Pattern |
| Exclude All Securities Matching a String Pattern |
| Sort By Field                              |
+-----+
```

- Select one of the following options and press ENTER
 - Include All Securities: Select all securities. This is the default
 - Exclude All Securities: Deselect all of the securities. This removes the asterisks (*) from the first column
 - Include All Securities Matching a String Pattern: Enter the string. This enables the inclusion of all securities that match the string in addition to the other selected securities
 - Exclude All Securities Matching a String Pattern: Enter the string. All securities that match the string are excluded from the security selection
 - Sort By Field: Sort by the default fields and the selected fields
- Press F10 to use the selected securities. A window will appear listing the number of securities chosen and asks you to confirm the selection
- Select YES and press ENTER to use the securities. Select NO and press ENTER to abandon the security selection and return to the Security Viewing screen to either narrow or broaden the search. If YES is selected, the Security List of the Multiple What-If screen is filled in with all of the selected securities

Two report files are generated.

- GENWHATIF.LSU: This is a summary report for each account
- GENWHATIF.LDT: This is a detailed report displaying information for each security within each account

Notes:

- A selected group of securities is treated as a single security
- The “minimum leftover” value will not apply to liquidations

MSP Multi What-if

The MSP Multi What-if function is similar to the MSP What-if function, except that it enables you to adjust portfolios with a group of securities and/or mutual funds, rather than just a single one. The trades created by the tool affect only the portion of the portfolio associated with the selected submodel.

Notes:

- The changes made using MSP Multi What-if are overrides that do not affect the underlying submodel. This means that running the Strategy Rebalancer function is likely to create blocks of trades that cancel these overrides
- To change a submodel, use the Edit/Create Submodels function described in “Editing and creating submodels”

To use the Multi What-if tool:

1. Select TRADING from the submanager menu. The trading menu will appear
2. Select the MSP MULTI WHAT IF function. The MSP Multiple What-If screen will appear:

```
-----+-----+
|                                     MSP Multiple What-If                                     |
|-----|-----|
| Submodel      : |                                     |
| Accounts      : | SELECT ACCOUNTS                    |
|
| Block Name    : | CREATE NEW BLOCK                                |
| Block Title   : |                                     |
|
| Wash Sale Rule : | YES                                                    |
| Apply Tax Table : | NO                                                    |
| Minimum Cash to Hold : | 1.000%                                               |
|
| Min Value of Securities : | 0.000% of Total                                     |
| Max Value of Securities : | 100.000% of Total                                  |
|-----|-----|
| F1 - Help   F3 - Abort   F9 - Cycle   F10 - Go |
|-----+-----+

```

| Field | Description |
|--|---|
| Submodel | The submodel (“sleeve”) that is affected by this multi what-if transaction. To display a list of submodels, press F1. |
| Accounts | <p>Defines which accounts are affected.</p> <p>SELECT ACCOUNTS - Affects only the accounts you select. If this option is chosen, the Account Selection window is displayed in the next step.</p> <p>ALL ACCOUNTS - Affects all accounts associated with the selected submodel.</p> |
| Block Name | The name of the block created by this function. You can specify a name of up to six characters. |
| Block Title | The long name of the block you are creating. |
| Wash Sale Rule | <p>YES. The tool will check and remove trades violating the wash sale rule. If master manager set additional wash sale filters in the Tax Table and the user selected to use the table, rules defined in the table will be used in addition to the standard wash sale rule.</p> <p>NO. Trades will not be checked for wash sale rule violations.</p> |
| Apply Tax Table | <p>Submanagers do not have the option to override the tax parameters but may choose to either use the tax table set within the Master Manager Administration Tools, or to ignore it.</p> <p>NO. Select NO to ignore the tax table and sell lots based on selling priority (FOFO) for the account. Versus purchase (VP) dates will not be populated.</p> <p>YES. Select YES to follow the criteria defined by the master manager within the Tax Table for selecting available lots. If established, trades with gains or losses that exceed specified criteria will not be allowed.</p> <p>If the Tax Table is used to establish wash sale filters and the wash sale rule option in the tool is set to YES, filters set by the master manager will apply to the trades violating wash sale rule.</p> |
| Minimum Cash to Hold | The minimum percent of this submanager account that must remain in cash. |
| Min Value of Securities /Max Value of Securities | <p>Each line has two fields.</p> <p>The first field on each line is the minimum or maximum percent of the submodel that are to be composed of this group of securities.</p> <p>The second field determines how this percent value is calculated. Pressing F1 shows the available values:</p> <p>TOTAL - Market value of the selected submodel.</p> <p>EQUITY - Market value of only the equities in the selected submodel.</p> |

| Field | Description |
|-------|-------------|
|-------|-------------|

FIXED - The market value of only the fixed income securities within the selected sub-model.

3. Type the information necessary for processing, and press F10. The Security List of the Multiple What-If screen will appear

First screen

```

ADVISORS
12/02/15  1:37 P.M.
Screen 1 of 2
F-9 to Next screen
F-10 to Continue

Security List of the Multiple What-If
-----
Security      Description      Target      Target      Round      Round      Rounding
              Description      Target      Basis      Lot        Lot        Method
              Description      Target      Basis      Units      $
-----
              0.00 Total      1.0000      0.00 Nearest

F-7 Populate Target from Submodel  F-8 To Select Securities by Characteristic
    
```

Press F9 to view the second screen.

Second screen

```

ADVISORS
12/02/15  1:37 P.M.
Screen 2 of 2
F-9 to Next screen
F-10 to Continue

Security List of the Multiple What-If
-----
Security      Description      Minimum      Minimum      Purchasing      Price
              Description      Lot          Lot          Rules            Price
              Description      Units       $            Rules            Price
-----
              1              0.00 Buy & Sell      0.0000

F-7 Populate Target from Submodel  F-8 To Select Securities by Characteristic
    
```

4. List the securities to include in the What-if scenario. Using the TAB key, move to each column and enter the requested data or change the default value

Press Enter after entering each security to validate the security and auto-populate the description and price.

- As an alternative to adding securities manually, select F-8 to choose securities based on security attributes

- To automatically populate the Target column for securities entered based on the selected submodel, select F-7

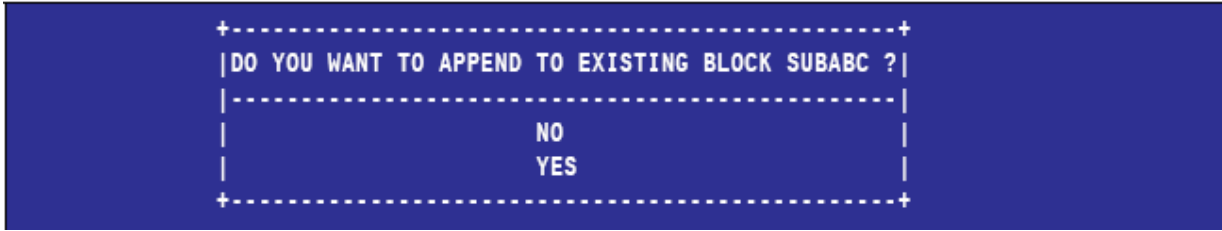
When F-7 is selected, the targets for each security listed in the table are overwritten by the targets from the selected submodel. If a security is not in the submodel or is not a valid security, the target is set to 0.00.

| Field/Column | Description |
|-------------------|---|
| Security | The ticker symbol, CUSIP, or SACUS number for each security in the group. |
| Description | The long description of the security. (The system automatically updates this field.) |
| Target | Target percent of the selected security to be contained in the submodel. |
| Target Basis | <p>The basis of the target number in the previous field.</p> <p>Total - Total market value of the selected submodel.</p> <p>Tgt Tot- Targeted sleeve weights, not the actual sleeve weights.</p> <p>Act Eq - Market value of the equities in the selected submodel.</p> <p>Act Fx - Market value of the fixed income securities in the selected submodel.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note: You can use a different Target Basis from trade to trade. For instance, one trade can use Tgt Total while another can use Total for the actual market value as the basis.</p> </div> |
| Round Lot | <p>Number of securities in a round lot, for the purposes of this transaction. Values from 1 to 10,000 are accepted. A value of 0 causes the function to use the What-if rounding table, described in “Editing the Standard Rounding Table”</p> <p>In respect to mutual funds, not establishing this parameter will enforce the WHATIFTABLE parameters set by the master manager.</p> |
| Round Lot \$ | <p>The size of the increment to which equity, fixed income, and mutual funds are rounded.</p> <p>In respect to mutual funds, not establishing this parameter will enforce the WHATIFTABLE parameters set by the master manager.</p> |
| Rounding Method | <p>Rounding method.</p> <ul style="list-style-type: none"> • UP - Round up to the nearest full lot • DOWN - Round down to the nearest full lot • NEAREST - Use 5/4 rounding to determine whether to round up or round down |
| Minimum Lot Units | For mutual fund entries, the minimum number of units required for a trade to be included in a trading block. This feature enables you to prevent very small trades from being created. |

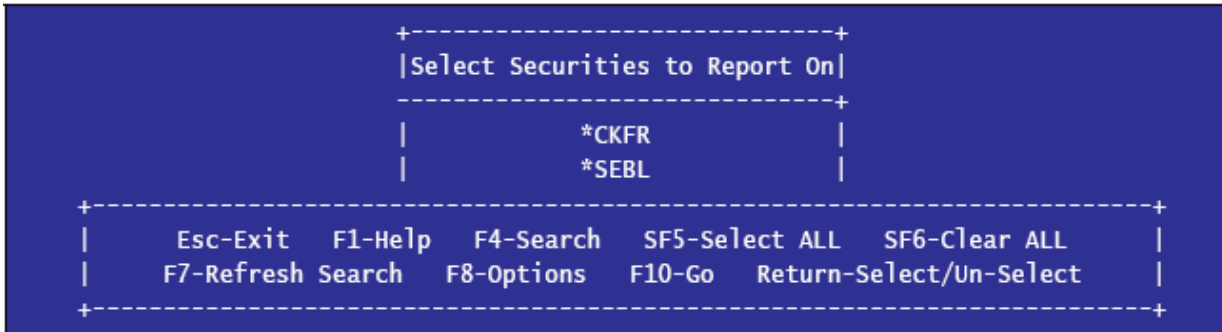
| Field/Column | Description |
|------------------|--|
| | <p>Not establishing this parameter will enforce the WHATIFTABLE parameters set by the master manager.</p> <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p>Note: You can only enter the dollar value for MF securities. If a value is entered for any other issue type, the system will blank it out before trade processing.</p> </div> |
| Minimum Lot \$ | <p>Minimum trade size for mutual fund purchases, in dollars. Not establishing this parameter will enforce the WHATIFTABLE parameters set by the master manager.</p> <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p>Note: You can only enter the dollar value for MF securities. If a value is entered for any other issue type, the system will blank it out before trade processing.</p> </div> |
| Purchasing Rules | <p>Defines the permissible ways to attain the target percent. You can see a list of available options by pressing F1.</p> <ul style="list-style-type: none"> • Buy & Sell - Both buy and sell trades can be created • Buy Only - Only buy trades can be created • Sell Only - Only sell trades can be created • Add to a Position - Only buy trades that add to an existing position are created • Trim an Existing Position - Only sell trades that reduce an existing position are created • Raise Cash 1 - Use Cash First - First use available cash for purchases, then create sales to raise additional funds • Raise Cash 2 - Use Cash Last - First create sales to raise funds, then use available cash • Unowned - Buy Only - Buy the security only if it is not already owned |
| Price | <p>Security price per unit. The default is the closing price from the previous trading day. However, your system can be set up to use 15-minute delayed quotes. Ask your account manager for details.</p> |

5. When you finish editing the list, press F10. A prompt asks you to confirm if the security list is correct. If it is, select YES and press ENTER. Otherwise choose NO

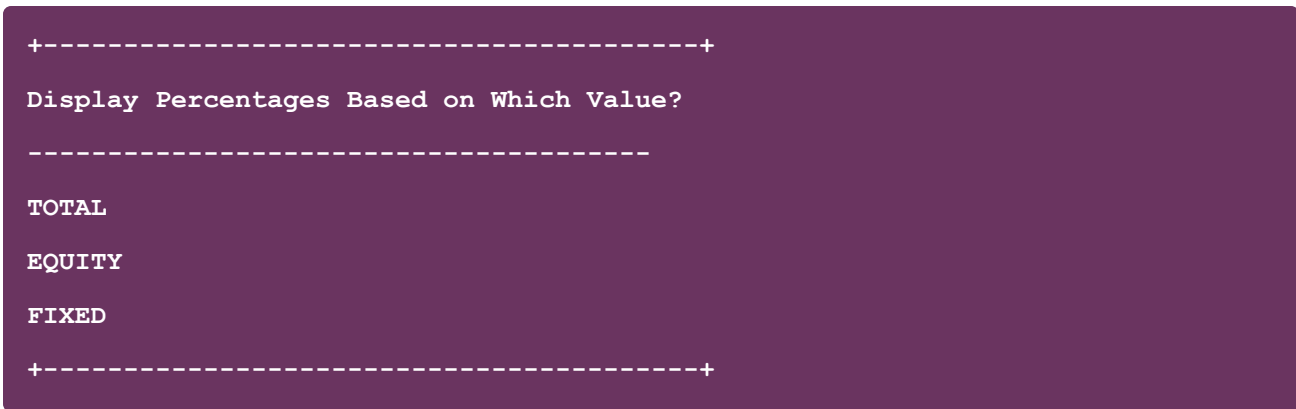
If you have added or modified security settings in the submodel, the following message will appear.



6. Select YES to append the changes to the submodel. Select NO to void the changes. You are then prompted to choose securities to report on



7. Highlight the securities you want to include in the report, and press ENTER. An asterisk will appear next to the ticker symbol, indicating that the security is included. Then, press F10. The following selections appear:



| Selection | Description |
|-----------|---|
| TOTAL | Total market value of the entire submodel. |
| EQUITY | Market value of the equities in the submodel. |
| FIXED | Market value of the fixed income securities in the portfolio. |

Select the basis for the target values, then press ENTER. The following selections display:

```

+-----+
|Change Report Stored in CHANGES.LRP|
|   Please Select an Option   |
+-----+
|
| RETURN TO BLOCK STATUS
| VIEW  CHANGES.LRP
| PRINT CHANGES.LRP
| EDIT  BLOCK MULMSP
| COMMIT BLOCK MULMSP
|
+-----+
    
```

| Selection | Description |
|------------------|---|
| RETURN TO BLOCK | Display the Block Status screen. |
| VIEW CHANGES.LRP | Displays the CHANGES.LRP report file using the function BROWSE. |
| PRINT | Sends CHANGES.LRP to the print queue.CHANGES.LRP |
| EDIT BLOCK | Enables you to edit the block. |
| COMMIT BLOCK | <p>Enables you to commit the block.</p> <div style="border: 1px solid gray; padding: 5px; margin: 5px 0;"> <p>Note: Splitting Blocks during Commit Process</p> </div> <p>A feature is available on request to separate (split) blocks by mutual fund, non-mutual fund (e.g., ETF/equity) orders, and fixed income orders during the commit process. Fixed income mutual fund orders will be included in the mutual fund block.</p> |

The CHANGES.LRP report file displays the following:

- The current amount of cash and cash equivalents
- The current number of shares of the specific security owned in each account
- The amount of the proposed change, and effect of the change on the account

| Block Title : EXAMPLE BLOCK 2 | | Effects of Block on Current Holdings | | | | | | | | | PAGE 1 | |
|---|-----------|---------------------------------------|---------|---------|--------------------|--------|---------|-------------------|-------|---------|------------|--|
| For Broker : | | MSP Submodel MSPCS1: CS DEMO MODEL #1 | | | | | | | | | | |
| | | ***** BEFORE ***** | | | ***** CHANGE ***** | | | ***** AFTER ***** | | | | |
| Tick | Cusip | Security | Units | Value | % of Total | Units | Value | % of Total | Units | Value | % of Total | |
| Account : CRSNEW - CRS NEW TEST ACCOUNT | | | | | | | | | | | | |
| ===== | | | | | | | | | | | | |
| CASH-1 | | CASH | | 22,526 | 6.45 | | 45,560 | 13.05 | | 68,086 | 19.50 | |
| CKFR | 162813109 | CHECKFREE CORP NEW | 4,580 | 52,166 | 14.94 | -4,000 | -45,560 | -13.05 | 580 | 6,606 | 1.89 | |
| Cash Available After Trades : | | | 68,086 | | | | | | | | | |
| Account : CSNEW - CRS TEST ACCOUNT 2 | | | | | | | | | | | | |
| ===== | | | | | | | | | | | | |
| CASH-1 | | CASH | | 450,000 | 100.00 | | -17,788 | -3.95 | | 432,212 | 96.05 | |
| CKFR | 162813109 | CHECKFREE CORP NEW | | | | 800 | 9,112 | 2.02 | 800 | 9,112 | 2.02 | |
| SEBL | 826170102 | SIEBEL SYS INC | | | | 900 | 8,676 | 1.93 | 900 | 8,676 | 1.93 | |
| Cash Available After Trades : | | | 432,212 | | | | | | | | | |
| ***** ACCOUNT RESTRICTIONS ***** | | | | | | | | | | | | |
| Account Selection | | | | | | | | | | | | |
| ----- | | | | | | | | | | | | |
| ALL ACCOUNTS | | | | | | | | | | | | |

MSP Account Adjuster function

The MSP Account Adjuster function enables submanagers to adjust cash or holdings manually at the tax lot or position level for individual accounts or adjust cash for multiple accounts for only a selected submodel. Once the submanager adjusts the target amount of cash or securities, this function calculates the trades necessary to meet the targets.

The changes made using the MSP Account Adjuster function are overrides that do not affect the underlying submodel. This means that running the Strategy Rebalancer function is likely to create blocks of trades that cancel these overrides.

Note: If one of the submodels in the master model contains a HOLD, use a trading tool, such as UMA Rebalancer or Strategy Rebalancer, to rebalance that account. Account Adjuster does not support the HOLD functionality.

Running the MSP Account Adjuster

Configuration settings determine how the Account Adjuster adjusts cash and calculates the trades necessary to meet submodel targets. There are two options:

- The configuration setting uses the minimum and rounding values specified in the Minimum and Rounding tables. These fields are set to TABLE. The master manager can allow the submanager to override these values

For more information about the minimum and rounding tables and managing these values on the Account Adjuster screen, refer to the UMA Master Manager User Guide.

- The configuration setting uses and displays numeric values in the minimum and rounding fields. These values are client-specific

To run the Account Adjuster,

- From the submanager menu, select TRADING and in the open screen, select MSP ACCOUNT ADJUSTER

When the default configuration is set to use the minimum and rounding table, the ROUNDING FOR MSP ACCOUNT ADJUSTMENT screen displays the following settings:

- The Use Minimum and Rounding Table prompt is set to YES
- All minimum and rounding fields are set to TABLE

| ROUNDING FOR MSP ACCOUNT ADJUSTMENT | | | |
|---|-----------|---------------------|------------|
| Use Minimum and Rounding Table: NO | | | |
| Round Equity Lots by: | 100 | Minimum Equity Lot: | 100 |
| Round BOND Lots by: | 1000 | Minimum BOND Lot: | 5000 |
| Round MF Buys (\$): | 1.00 | Minimum MF Buys: | 0.00 |
| Round MF Sells(sh): | 1000.0000 | Minimum MF Sells: | 0.0000 |
| Rounding Method: | NEAREST | Tax Lot Trading: | NO |
| | | Wash sale: | YES |
| ----- | | | |
| Freeze Option: RESTRC+TRADES ONLY | | | |
| When Raising Cash: PRO-RATE ACROSS HOLDINGS | | | |
| Asset Class: TOTAL | | | |
| Mode: SINGLE ACCOUNT ADJUSTMENTS | | | |
| SUBMODEL SELECTION FOR ACCOUNT ADJUSTER | | | |
| SUBMODEL NAME: | | | |
| Do you want to use the Sub Model in Account Adjuster? | | | YES |
| F10- GO | | | ESC - QUIT |

However, the master manager can grant permission to submanagers to modify the minimum and rounding fields that are set to TABLE. If permitted, they set the Minimum and Rounding Table prompt to NO, and enter numeric values in the rounding and minimum fields.

Note: Before specifying trading parameters, users must make a sleeve selection.

In addition to minimum and rounding values, users also specify values of the following fields:

| Field | Description |
|-----------------|---|
| Tax Lot Trading | YES NO |
| Wash sale: | Determines if wash sale rules are applied. YES NO |
| Freeze Option | This option enables you to select tax lots which may not be traded as part of adjusting cash. The following options appear when you press F1: |

| Field | Description |
|--------------------------|---|
| | <p>RESTRC+TRADES ONLY - Prevents trading in restricted security tax lots, and in tax lots that are part of committed trades.</p> <p>EQUITY+RESTRC+TRADES - Prevents trading in equity tax lots, restricted security tax lots, and in tax lots that are part of committed trades.</p> <p>FIXED+RESTRC+TRADES - Prevents trading in fixed income tax lots, restricted security tax lots, and in tax lots that are part of committed trades.</p> <p>UNFREEZE ALL - All tax lots may be traded.</p> |
| <p>When Raising Cash</p> | <p>Despite its label, When Raising Cash controls how cash is invested or raised during a single or multiple account adjustment. PRO-RATE ACROSS HOLDINGS - Sell from each tax lot based on the proportion of the tax lot within the submodel.</p> <p>MINIMIZE NUMBER OF TRADES - Generate the smallest number of trades necessary by selling the largest tax lot first, and continuing with each successively smaller tax lot until the target amount of cash is reached.</p> <p>DIVIDE EQUALLY ACROSS HOLDINGS - Sell the same percent from each tax lot.</p> <p>PRO-RATE BUYS TO TARGET/PRO-RATE SELLS TO HOLDINGS: Any new cash being invested is pro-rated based on the associated master model, while any cash being raised is pro-rated across current holdings.</p> <p>The Do you want to use the Sub model in Account Adjuster prompt must be set to YES in order to pro-rate buys to target.</p> <p>TRADE BY DRIFT - Generates trades for entered cash flows based security drift within sleeve. The following parameter options are affected.</p> <ul style="list-style-type: none"> ▪ Freeze Options are not available/applicable, is set to RESTRC ▪ Asset Class is set to TOTAL only ▪ Mode SINGLE ACCOUNT ADJUSTMENTS is not available ▪ Do you want to use the Sub Model in Account Adjuster? is set to YES ▪ Tax lot Trading is set to No <p>Submodel selection is required.</p> |
| <p>Asset Class</p> | <p>Specifies which asset class to adjust within the submodel. Press F1 to display a list of options.</p> <ul style="list-style-type: none"> • TOTAL - Adjust the entire portfolio • EQUITY - Adjust only equities • FIXED INCOME - Adjust only fixed income securities |

| Field | Description |
|---|--|
| MODE | <p>Select to adjust cash and/or positions one account at a time or adjust cash for multiple accounts at one time.</p> <ul style="list-style-type: none"> • Single Account Adjustments: Cash and/or positions can be manually adjusted at the tax lot level for individual accounts • Multi Account Raise Cash • Multi Account Lower Cash • Multi Account Adjust Cash <p>Specified cash amounts can be raised, lowered or adjusted for multiple accounts from one screen.</p> |
| SUBMODEL NAME | <p>Name of the submodel to adjust.</p> <p>Press F1 to display a list of submodels.</p> |
| Do you want to use the Sub Model in Account Adjuster? | <p>Specifies whether the portfolio should be rebalanced to its associated submodel.</p> <ul style="list-style-type: none"> • YES -Rebalance this portfolio to the submodel • NO - Do not rebalance this portfolio |

When raising or investing cash:

- Rounding and Minimum parameters may be bypassed in order to get cash as close to the target as possible. In the trading priority, cash to target (net of the flow) is primary over Rounding and Minimum criteria
- If cash is part of a UMA model, a portion of the cash being raised or invested is applied to the target cash percentage. This may yield results that may not be intuitive. For example, if a cash contribution of \$X is invested in to an account that has a Y% cash target, purchases equal to $\$(100 - Y) \cdot X$ are suggested by the Account Adjuster, leaving the remainder of the cash investment allocated to cash

When the default configuration is set to use the minimum and rounding values specified on the screen, the ROUNDING FOR MSP ACCOUNT ADJUSTMENT screen displays the following settings:

- The Use Minimum and Rounding Table prompt is set to NO. However, users can use the minimum and rounding tables by changing this prompt to YES
- All minimum and rounding fields display default numeric values, which are client-specific

2. Users can edit all fields on the screen, including the minimum and rounding default values:

| Field | Description |
|----------------------|---|
| Round Equity Lots by | Increment for rounding securities (except bonds). |
| Minimum Equity Lot | Minimum lot for securities trades (except bonds). |

| Field | Description |
|---------------------|---|
| Round BOND Lots by | Increment for rounding bond lots. |
| Minimum BOND Lot | Minimum lot for bond trades. |
| Round MF Buys (\$) | Increment for rounding to dollars and cents when buying mutual funds. |
| Minimum MF Buys | Minimum amount, in dollars and cents, for buying a mutual fund lot. |
| Round MF Sells (sh) | Increment for rounding to shares when selling mutual funds. |
| Minimum MF Sells | Minimum amount, in shares, for selling a mutual fund lot. |

Method for rounding all trades:

- NEAREST
- UP rounds the trade to the next higher increment
- DOWN rounds the trade to the next lower increment

Rounding Method

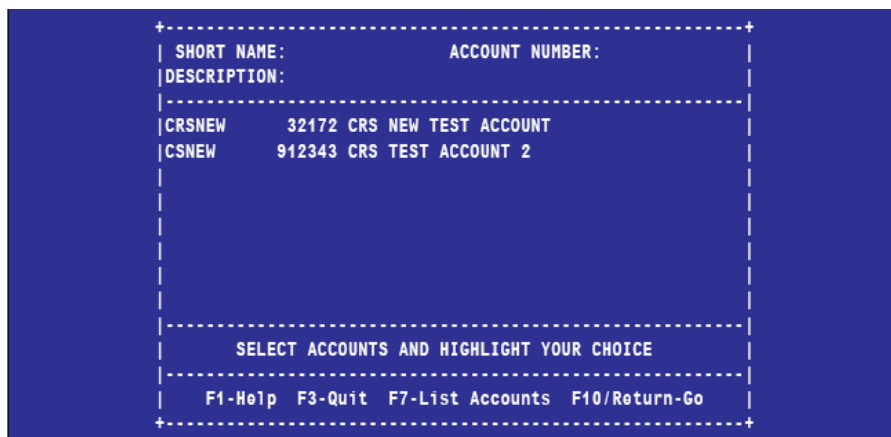
Note: Rounding parameters entered on this screen do not take effect unless:

The PCT field is used to edit the security value.

Cash target shares are adjusted.

The user recalculates trades.

3. Adjust the values as necessary, and press F10 to continue
4. The MODE option selected determines the next process step
- e. If MODE is SINGLE ACCOUNT ADJUSTMENTS, the single account selection window opens, as illustrated below. To view a list of accounts available for selection, press F7



1) Select the account and press ENTER. The Account Adjustment screen will open:

| ACCOUNT: CRSNEW | | ACCOUNT ADJUSTMENT | | | | | | |
|-----------------|----------|--------------------|----------|--------|---|-----------|----------|--------|
| SNAM: CRSNEW | | TARGET | | FREEZE | | STARTING | | |
| DESCRIPTION | PDATE | GAIN | SHARES | PCT | F | PRICE | SECURITY | SHARES |
| CASH | | 0 | 22526.00 | 6.45 | | 100.00000 | CASH-1 | 22526 |
| AMERICAN INTL G | 07/03/02 | -9,496 | 790.00 | 12.08 | F | 53.380000 | AIG | 790 |
| CITIGROUP INC. | 07/03/02 | -12,496 | 1600.00 | 13.56 | F | 29.590000 | C | 1600 |
| CHECKFREE CORP | 07/03/02 | -7,374 | 4580.00 | 14.94 | F | 11.390000 | CKFR | 4580 |
| CISCO SYS INC | 07/03/02 | 1,310 | 2220.00 | 8.32 | F | 13.090000 | CSCO | 2220 |
| COCA COLA CO | 07/03/02 | -13,748 | 1410.00 | 18.92 | F | 46.850000 | KO | 1410 |
| MICROSOFT CORP | 07/03/02 | -5,997 | 1160.00 | 15.36 | F | 46.230000 | MSFT | 1160 |
| PROCTER & GAMBL | 07/03/02 | -3,058 | 440.00 | 10.37 | F | 82.250000 | PG | 440 |

F1-HELP F3-EXIT F6-ADD F7-RECALC F8-OPTIONS F9-GAIN/LOSS F10-SAVE

| Field/Column | Description |
|------------------------------|---|
| ACCOUNT | The account long name. |
| SNAM | The account short name. |
| DESCRIPTION | The descriptive name of the security. |
| PDATE | In tax lot mode, the purchase date. |
| GAIN | In tax lot mode, the unrealized capital gain or loss on the tax lot. Gains appear as positive numbers; losses as negative. |
| TARGET SHARES/TARGET DOLLARS | <p>Depending on the selection from the F8- Options selection SHOW DOLLARS / SHOW SHARES toggle. The corresponding TARGET SHARES/TARGET DOLLARS column is displayed.</p> <p>TARGET SHARES - target number of shares to be held in this submodel. This editable field has 4 decimal places.</p> <p>TARGET DOLLARS - target dollar amount of the security or mutual fund to be held in this submodel. This editable field reflects two decimal places.</p> |
| PCT | <p>Target percent of the tax lot or cash to be held in this submodel. This value can be edited.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Important: Rounding parameters entered on the initial screen do not take effect unless:</p> </div> <p>The PCT field is used to edit the security value.</p> <p>Cash target shares are adjusted.</p> <p>The user recalculates trades.</p> <p>Entering a value in the dollar or share field overrides the rounding criteria set.</p> |

| Field/Column | Description |
|-----------------|---|
| | Indicates if a tax lot or position can be traded. (none) - The tax lot can be traded. |
| FREEZE | F - Tax lot is to be frozen (not traded). You can type this value in the field if it is blank. R - Tax lot is frozen due to trading restrictions. This value cannot be changed. T - Tax lot frozen because it is part of a committed trade. This value cannot be changed. |
| PRICE | Price of the security. This is yesterday's closing price, unless 15-minute delayed quotes are turned on. (Contact your Account Manager regarding this service.) |
| SECURITY | Security ticker symbol. |
| STARTING SHARES | Actual number of shares, bond face value, or cash in the submodel prior to account adjustment. |

2) Make necessary changes, as illustrated in the following examples:

- Adjust cash and existing tax lots or positions. Edit the TARGET SHARES or PCT column. Press F7 to recalculate how these changes would affect the submodel
- Add securities. Press F6 and enter the ticker symbol (or SACUS, CUSIP, or pool number), and the TARGET SHARES or PCT values
- To rebalance the account according to submodel targets, press F8

In the Choose An Option screen, select the option and press ENTER.

| Option | Description |
|---------------------------|--|
| OOPS-NEVER MIND | Return to the Account Adjustment screen. |
| OOPS-UNDO WHAT I JUST DID | Undo the last calculation and/or entry made in the Account Adjustment screen. |
| FREEZE OPTIONS | Select the issues to freeze: <ul style="list-style-type: none"> • EQUITY • FIXED • RESTRICTED • TRADES |
| REPRICE OPTIONS | Reprice securities according to the most recent 15-minute delayed quotes. (Contact your Account Manager regarding this service.) |

| Option | Description |
|---------------------------------|--|
| UNFREEZE OPTIONS | Make previously frozen tax lots available for trading. |
| RESTORE ORIGINAL POSITION | Undo all calculations and entries made on the Account Adjustment screen. |
| ACCOUNT ANALYSIS | A report is generated detailing the effects of the changes made in the Account Adjustment screen. Each tax lot or position is listed along with the number of units, market value, and percent of the portfolio before and after the adjustments. Changes in the portfolio's yield to maturity and modified duration are also indicated. |
| SORT SCREEN | Sort tax lots by: <ul style="list-style-type: none"> • TICK • DESCRIPTION • YIELD • DURATION • INDUSTRY • PERCENTAGE • UNREALIZED G/L |
| SHOW SHARES/SHOW DOLLARS | Selects to trade in shares or dollars when trading mutual funds. |
| ADJUST TO SUBMODEL | This option is displayed only if the user answered YES to the option Do you want to use the Submodel in Account Adjuster? Selecting this option automatically makes adjustments in the Account Adjustment screen to align the portfolio with the master model. |

3) Press F10 to save the changes and continue.

- f. If MODE is one of the MULTI ACCOUNT CASH options a multiple account selection screen will open. Select one or more accounts, press F10

| SELECT ACCOUNTS BY SNAM, BNUM OR ACCOUNT PROFILE FIELDS | |
|--|-----------|
| FUNCTION: AND | SEARCH: █ |
| 9466 RECORDS FOUND | |
| Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back | |
| Do you want to use the Master Model in the Account Adjuster? YES F10- GO ESC - QUIT | |

4) The ACCOUNT ADJUSTMENT screen for multiple accounts is displayed.

Note: The difference in the Account Adjustment screen between the three "Multi Account" options is the first line of this screen and the header of the second-to-last column. The text displayed corresponds to the Multi Account option selected. In this example the Multiple Account Raise Cash option was selected.

| ACCOUNT ADJUSTMENT: MULTIPLE ACCOUNTS RAISE CASH | | | | |
|--|-------------|--------------|---------------|--------|
| ENTER 'MAX' TO RAISE AS MUCH AS POSSIBLE F8 WILL 'MAX' ALL ACCOUNTS | | | | |
| ACCOUNT | TOTAL VALUE | CURRENT CASH | CASH TO RAISE | ERRORS |
| ACCT01 | 111689.09 | 2629.08 | 0.00 | |
| ACCT02 | 361534.22 | 10393.37 | 0.00 | |

5) Tab to the CASH TO RAISE/LOWER/ADJUST column and enter the amount of cash to raise, lower, adjust. A positive number entered indicates cash should be raised in the account and sells should be generated. A negative number indicates cash should be spent and buys should be generated.

Note: The impact of raising or investing in an account is the same as if the cash balance had been manually adjusted in the Single Account Adjustment mode.

6) After entering amounts, press F10 to continue.

- The system processes the adjustments and, if proposed trades are generated, a trade block is created. A prompt requests a name for the block of trades, which resulted from the changes

```

+-----+
+
ENTER BLOCK NAME (6 CHRS, RET TO ABORT): ABC123
    
```



5. Enter a block name, and press F10 to continue. The following prompts are displayed:
 - The block has been loaded into the trading system
 - The Account Adjuster Summary has been stored in a report file

Account Adjuster Reports

Account Adjuster Summary Report

After the account adjustment process is complete, users can view the Account Adjuster Summary Report. The report file is named with the account short name, and the extension .LAA. Submanagers can print the report, or view it using the BROWSE function.

An example of the Account Adjuster Summary Report is illustrated below:

| SNAM : CSNEW | | Account Adjuster Summary | | | | | | | | | | PAGE 1 | |
|--|---------|-----------------------------------|---------|---------|------------------|---------|---------|-----------------|---------|---------|-------|--------|--|
| Account Number : | | | | | | | | | | | | | |
| 07/26/02 2:25 P.M. | | Account Name : CRS TEST ACCOUNT 2 | | | | | | | | | | | |
| Security | SACUS | *****BEFORE***** | | | *****CHANGE***** | | | *****AFTER***** | | | Pct | Pct | |
| | | Price | Units | Value | Units | Value | Units | Value | Units | Value | | | |
| CASH-1 | 13321 | 100.000 | 450,000 | 450,000 | 100.00 | -53,380 | -53,380 | -11.86 | 396,620 | 396,620 | 88.14 | | |
| AIG | 756 | 53.380 | 0 | 0 | 0.00 | 1,000 | 53,380 | 11.86 | 1,000 | 53,380 | 11.86 | | |
| C | 4362927 | 29.590 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | | |
| CKFR | 6169459 | 11.390 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | | |
| CSCO | 664274 | 13.090 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | | |
| KO | 2625 | 46.850 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | | |
| MSFT | 253116 | 46.230 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | | |
| PG | 9568 | 82.250 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | | |
| Summary Statistics: | | | | | | | | | | | | | |
| Market Value: | | | | | | | | | | | | | |
| Before Rebalancing 450,000.00 | | | | | | | | | | | | | |
| Market Value: | | | | | | | | | | | | | |
| After Rebalancing 450,000.00 | | | | | | | | | | | | | |
| Change in Market Value: 0.00 | | | | | | | | | | | | | |
| Cash Available | | | | | | | | | | | | | |
| Before Adjustments: 450,000.00 100.00% | | | | | | | | | | | | | |
| Cash Available | | | | | | | | | | | | | |
| After Adjustments: 396,620.00 88.14% | | | | | | | | | | | | | |
| Cash Spent: 53,380.00 11.86% | | | | | | | | | | | | | |
| Equity Value | | | | | | | | | | | | | |
| Before Adjustments: 0.00 0.00% | | | | | | | | | | | | | |
| Equity Value | | | | | | | | | | | | | |
| After Adjustments: 53,380.00 11.86% | | | | | | | | | | | | | |
| Change in Equity Value: 53,380.00 0.00% | | | | | | | | | | | | | |
| Fixed Income Value | | | | | | | | | | | | | |
| Before Adjustments: 0.00 0.00% | | | | | | | | | | | | | |
| Fixed Income Value | | | | | | | | | | | | | |
| After Adjustments: 0.00 0.00% | | | | | | | | | | | | | |
| Change in Fixed Income Value: 0.00 0.00% | | | | | | | | | | | | | |

UMA Account Adjuster Exceptions Report

This report lists all trades that are removed due to a violation of the minimum rules. Trades removed during only the last recalculate action are displayed.

If a sell trade violating minimum rules is removed, and this action causes a buy trade to be removed, the buy trade is also included in the report. Tax lot purchase dates (VP dates) are displayed on the report when the tax lot option is used for a sell trade.

An example of the UMA Account Adjuster Exceptions Report is illustrated below.

UMA Account Adjuster Exceptions Report PAGE 1
Report Created: 05/16/12 6:54 A.M.

The following orders are invalid because they did not meet the minimum trade amount or account did not have enough cash because other trades were invalidated due to not meeting the minimum trade amount threshold. The value of the minimum trade amount reflects either the entered minimum dollar amount or calculated value based on the entered percent of market value, percent of target or number of shares.

| Account | Sleeve | Minimum | Minimum | Side | VP | Trade |
|----------|--------|------------------------------|------------|-------------|---------------|--------|
| | Type | Basis | Amount, \$ | | | Amount |
| 12345678 | ABCD | Universe account group table | Shares | 1275.80 IBM | SELL 10/16/10 | 765.48 |

PRESS <ESC> TO EXIT <F1> FOR HELP <F3> MAIN MENU CHECKFREE APL

Cash Flow Trade Report

If When Raising Cash is set to TRADE DRIFT, this report is generated if trades are proposed.

This report, CASHFLOWTRADING.LXXX, shows changes in sleeve holdings structure due to the trading process. It includes before and after market value, target, and, drift information to demonstrate the effects of proposed trades on each account.

Cash Flow Exceptions Report

If When Raising Cash is set to TRADE DRIFT this report, CASHFLOWPROBS.LXX, is generated showing differences between the requested scenario and actual results.

Block Status function

The Block Status function enables you to manage the various trades developed during the course of the trading day. These trades are placed in a holding queue. Calling this function displays the queue, and enables you to view, edit, commit, and execute these blocks.

- Splitting Blocks during Commit Process
 - A feature is available on request to separate (split) blocks by mutual fund, non-mutual fund (e.g., ETF/equity) orders, and fixed income orders during the commit process. Fixed income mutual fund orders will be included in the mutual fund block

For detailed information on the Block Status function, see the InvestCloud Trading System User Guide.

Swap fixed income securities

To create fixed income dollar preservation swaps automatically, use the Generic Swap Tool, which allows sub-managers to:

- Select securities to swap out of a portfolio by choosing security characteristics, such as portfolio percent range and longest or shortest duration. Then, select a specific security or securities to replace the swapped-out security or securities
- Apply calculations based only on the specifically selected sleeve
- Perform dollar-for-dollar swaps while ignoring submodel cash
- View hypothetical trades along with using screens and a report that display the effect on weighted average duration, coupon, price and annual income on each account selected. Using this information, you can then select the accounts to exclude from the swap
- The tool also allows you to select a submodel and compare the proposed swap for drift in respect to weighted average duration, coupon, and price

All calculations are based on the specific sleeve associated with the submodel and not the entire portfolio. The trades generated for UMA accounts will also be tagged with the selected submodel code.

Note: This functionality can help automate cleaning out new accounts.

To use the Generic Swap Tool:

1. Choose the appropriate menu selection from within InvestCloud Windows. The Generic Security Swap Tool parameters screen will appear. This screen allows you to select the model, security to purchase, criteria for selecting securities to sell, and other settings, such as rounding increment and minimum lot size



2. In the first section of the screen:

- Type the SNAM for the block in the Block Name field and press ENTER
- Type the block's title in the Block Title field and press ENTER
- Select the submodel associated with the sleeve to be traded. Press F1 to select from a list of available models, or press F9 to cycle through the list

All calculations are based on the sleeve market value, not the total portfolio market value. The tool will swap out only those fixed income securities that are part of the selected sleeve. Each UMA trade will be tagged with this submodel code.

3. In the Purchasing Criteria section of the screen, type the security identifier (CUSIP, TICK, or SACUS) of the fixed income security that will be purchased to replace the swapped out securities. Press TAB

A description of the security and the security's price automatically populate their respective fields.

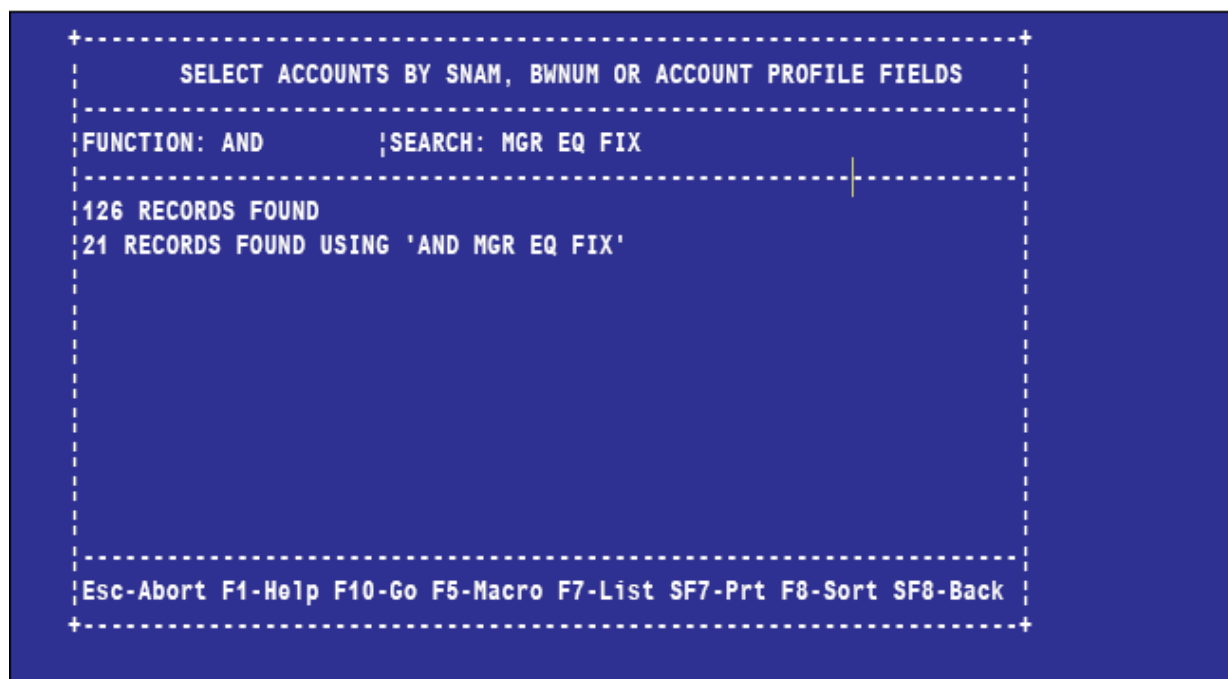
4. In the Selling Criteria section of the screen, choose the criteria to apply when selecting securities to swap out. Use the TAB key to navigate to the next field

| Field | Description |
|--------------------------|---|
| Coupon | Bonds with coupons greater than the selected rate will not be selected. |
| Quality | Bonds with quality ratings greater than the selected rating will not be selected. You may select both a Standard & Poor's and a Moody's rating. The tool will use the S&P rating first. If no S&P rating is available, then the Moody's rating will be used. If you choose not to use quality as a selection criteria, leave both selections as N/A. Press F1 to select from a list of ratings at each prompt. |
| Portfolio % Range | Select the portfolio market value percent range within which the bonds must fall to be selected. If you choose not to use portfolio percent range as a selection, set the range as 0 - 100%. |
| Single Account Selection | Press F1 for the option list and select either MATURITY or DURATION. |
| Sort Order | Press F1 for the option list and select LONGEST or SHORTEST maturity or duration to narrow down the selection of bonds. If you prefer to not specify either, choose N/A. |
| Other Security Criteria | You may use other Security Master fields to narrow down the selection criteria. |

5. In the Miscellaneous section of the screen, select:

| Field | Description |
|-----------------|---|
| Price | Market price of the bond to purchase. The previous business day's closing price (CLSEP) is the default. |
| Lot Size | Rounding increment. The default is 1000. |
| Minimum Trade | Minimum lot size. |
| Rounding Method | Select NEAREST, UP or DOWN. Press F1 to select from a menu of options. |
| Settlement Date | Type a settlement date if it is necessary to override the standard settlement date that will be calculated by the system. |
| Exclude Cash | Select YES or NO as appropriate. By selecting YES, the tool will perform a dollar-for-dollar security swap. |

6. Press F10 to continue. The account selection screen will open
 - To choose all accounts, press F10. (You may remove accounts from the Account Selection Screen prior to processing.)
 - To choose an individual account, press F7 and select the appropriate account from the resulting list. Press F10 once the final selection is made
 - To create a comma delimited download file of the list of accounts, press F8
 - To select the account range to which the swap scenario will be applied, use search criteria



- A list of the selected accounts will appear, indicating the percent of portfolio (sleeve) cash, RESID code, portfolio (sleeve) duration, and the RR code for each
- Press F10 once the final selection is made

The Account Selection Screen opens:

| Account Selection Screen | | | | | | |
|--------------------------|------------|--------------------------|--------|-------|----------|----|
| Snam | Act Number | Account Name | % Cash | Resid | Duration | RR |
| *FIXED1 | | FIXED INCOME TEST ACCT 1 | 55.12 | | 4.1 | 40 |
| *FIXED2 | | FIXED INCOME TEST ACCT 2 | 55.12 | | 4.1 | 40 |
| *FIXED3 | | FIXED INCOME TEST ACCT 3 | 55.12 | | 4.1 | 40 |
| *FIXED4 | | FIXED INCOME TEST ACCT 4 | 55.12 | | 4.1 | 40 |
| *FIXED5 | | FIXED INCOME TEST ACCT 5 | 55.12 | | 4.1 | 40 |
| *FIXED6 | | FIXED INCOME TEST ACCT 6 | 55.12 | | 4.1 | 40 |

Any Character Before the Snam Will Select the Account
<F-3> To Exit <F-8> For Options <F-10> To Use Selection

By default, all accounts listed will be processed. To de-select an account so that it will not process, delete the character preceding the SNAM.

7. Press F8 to access the following options:

| Option | Description |
|-----------------------------------|---|
| CREATE A CSV FILE OF ACCOUNT INFO | Creates a .CSV file of accounts listed on the Account Selection screen for downloading. |
| | INCLUDE ALL ACCOUNTS: This is the default option. Initially all accounts are selected. |
| | EXCLUDE ALL ACCOUNTS: When using any of the new sort or filter options, use this option to de-select all accounts first, then use one of the account selection options below. |
| ACCOUNT SELECTION FEATURES | <p>SORT ACCOUNTS: Accounts may be sorted in ascending or descending order based on:</p> <ul style="list-style-type: none"> • SNAM • Account number • Account name • Percent of cash • RESID code • Duration |

| Option | Description |
|--------|--|
| | <ul style="list-style-type: none">• RR code <p>SELECT ACCOUNTS BY CASH PERCENTAGE: Allows you to specify a tolerance level.</p> <p>SELECT ACCOUNTS BY DURATION: Allows you to specify a tolerance level.</p> |

Note: If the account has, or will have, state or municipal fixed income securities with tax deductible interest, please include the state abbreviation in the RESID field.

8. Press F10 to create a report and view screens displaying the effects of the swap. The next three screens list the effects of the swap on each selected account as well as comparison information for the selected model and submodel. Press F9 to toggle among the screens

Based on the effects of the swap displayed in the post-swap calculations, the user may decide to remove specific accounts from the swap scenario by removing the character, typically an asterisk (*), at the far left of the Account ID. (The asterisk may be added back if the user decides to include the account again.)

For the selected submodel, the tool displays:

- Weighted average duration
- Weighted average price
- Weighted average coupon

For each selected account, the tool displays the following (pre- and post-swap) for all fixed income securities in the submodel:

- Weighted average duration
- Weighted average price
- Weighted average coupon
- Total annual income
- Total cash
- Percent of the portfolio (sleeve) affected by the swap

| | | Select Accounts to Trade | | Screen 1 of 3 | |
|---|--------------------------|--------------------------|--------------------|-------------------------|-------|
| Model Statistics | | ----- | | | |
| | | Weighted Avg Duration | Weighted Avg Price | Weighted Avg Coupon | |
| | | ----- | ----- | ----- | |
| MUNICI-401 | MUNICIPAL B | 4.6 | 102.32 | 7.5 | |
| | | Weighted Avg Duration | | Weighted Avg Price | |
| | | ----- | | ----- | |
| Snam | Account Name | Pre | Post | Pre | Post |
| ----- | | | | | |
| *FIXED1 | FIXED INCOME TEST ACCT 1 | 4.1 | 13.1 | 106.1 | 111.6 |
| *FIXED2 | FIXED INCOME TEST ACCT 2 | 4.1 | 13.1 | 106.1 | 111.6 |
| *FIXED3 | FIXED INCOME TEST ACCT 3 | 4.1 | 13.1 | 106.1 | 111.6 |
| *FIXED4 | FIXED INCOME TEST ACCT 4 | 4.1 | 13.1 | 106.1 | 111.6 |
| *FIXED5 | FIXED INCOME TEST ACCT 5 | 4.1 | 13.1 | 106.1 | 111.6 |
| *FIXED6 | FIXED INCOME TEST ACCT 6 | 4.1 | 13.1 | 106.1 | 111.6 |
| Any Character Before the Snam Will Select the Account | | | | | |
| <F-3> To Exit | | <F-9> To Toggle Screens | | <F-10> To Use Selection | |

Screen 1 (Weighted Average Duration, Weighted Average Price)

Select Accounts to Trade Screen 2 of 3

Model Statistics

| | | Weighted Avg Duration | Weighted Avg Price | Weighted Avg Coupon |
|------------|-------------|--------------------------|-----------------------|------------------------|
| MUNICI-401 | MUNICIPAL B | 4.6 | 102.32 | 7.5 |

| | | Weighted Avg Coupon | | Total Annual Income | |
|---------|--------------------------|------------------------|------|------------------------|---------|
| Snam | Account Name | Pre | Post | Pre | Post |
| *FIXED1 | FIXED INCOME TEST ACCT 1 | 3.98 | 3.95 | 170,607 | 136,352 |
| *FIXED2 | FIXED INCOME TEST ACCT 2 | 3.98 | 3.95 | 170,607 | 136,352 |
| *FIXED3 | FIXED INCOME TEST ACCT 3 | 3.98 | 3.95 | 170,607 | 136,352 |
| *FIXED4 | FIXED INCOME TEST ACCT 4 | 3.98 | 3.95 | 170,607 | 136,352 |
| *FIXED5 | FIXED INCOME TEST ACCT 5 | 3.98 | 3.95 | 170,607 | 136,352 |
| *FIXED6 | FIXED INCOME TEST ACCT 6 | 3.98 | 3.95 | 170,607 | 136,352 |

Any Character Before the Snam Will Select the Account
 <F-3> To Exit <F-9> To Toggle Screens <F-10> To Use Selection

Screen 2 (Weighted Average Coupon, Total Annual Income)

9. Press F10 to process the swap. The screen displaying the effects of the swap reappears in report format and may be printed. A comma delimited download file of this report is automatically created as SWAPSUMMARY.CSV
10. A standard trading block is created using the name selected on the first screen
11. For each account, standard and comma delimited detail reports are created as SNAM.LSW and SNAM.LSW.CSV. The detail report lists the specific fixed income holdings in each portfolio (sleeve) and details the trading activity

| Cusip | Amount Traded | Face Held | Security Description | Price | Proceeds/ Cost | Accr Traded | Durat | Coupon | % of Port |
|-------------------------|---------------|-----------|------------------------------|--------|----------------|-------------|-------|--------|-----------|
| 36214ECY9 | 0 | 1,596,956 | GNMA PL #103687 SF | 116.43 | 0 | 0 | 3.70 | 12.50 | 5.38 |
| 362076L82 | 0 | 1,000,196 | GNMA PL #045351 SF | 117.22 | 0 | 0 | 2.77 | 12.50 | 1.13 |
| 3620982U8 | 0 | 1,591,177 | GNMA PL #065587 SF | 116.50 | 0 | 0 | 3.57 | 12.00 | 5.09 |
| 041033BC4 | 0 | 144,000 | ARKANSAS P & L | 103.38 | 0 | 0 | 1.18 | 10.13 | 19.68 |
| 737679BL3 | 0 | 73,000 | POTOMAC ELEC PWR CO | 101.00 | 0 | 0 | 8.70 | 7.00 | 9.67 |
| 0 | 0 | 529,700 | US TREASURY BONDS | 29.83 | 0 | 0 | 4.52 | 6.50 | 20.50 |
| 694032AQ6 | -131,000 | 0 | PACIFIC BELL DTD 02/01/9 | 102.94 | -134,851 | 0 | 11.85 | 7.50 | 0.00 |
| 0 | 0 | 170,000 | U S TREAS BONDS DTD 02/15/96 | 95.33 | 0 | 0 | 11.79 | 6.00 | 21.03 |
| BUY: | | | | | | | | | |
| 912810EZ7 | 106,000 | 106,000 | U S TREAS BDS DTD 02/15/97 | 127.38 | 135,018 | 0 | 12.96 | 6.63 | 17.52 |
| Total Value Sold : | | 134,851 | | | | | | | |
| Total Value Purchased : | | 135,018 | | | | | | | |

Automatically tagging trades created in Galaxy as UMA trades

Submanagers who create UMA blocks of trades outside of a UMA directory and send it via Galaxy to the sponsor can opt to automatically add sleeve tags to blocks committed from the sponsor's UMA directory.

The steps below outline the methodology:

1. The manager user creates a block of trades. If the manager is set up for automatic sleeve tagging, the sleeve name stored in the Infodex MSPMOD field is added to the block
2. The manager user sends the block to the sponsor. A report, BLOCKNAME.LTG, shown below, is created outlining the details of the trades. Thus, if the block's name is BLOCK1, the report name will be BLOCK1.LTG
3. The sponsor, who accesses the submanager Block Status menu, receives the block and commits it. Sleeve tags are automatically included in the block. The sponsor does not need to manually add them

Notes:

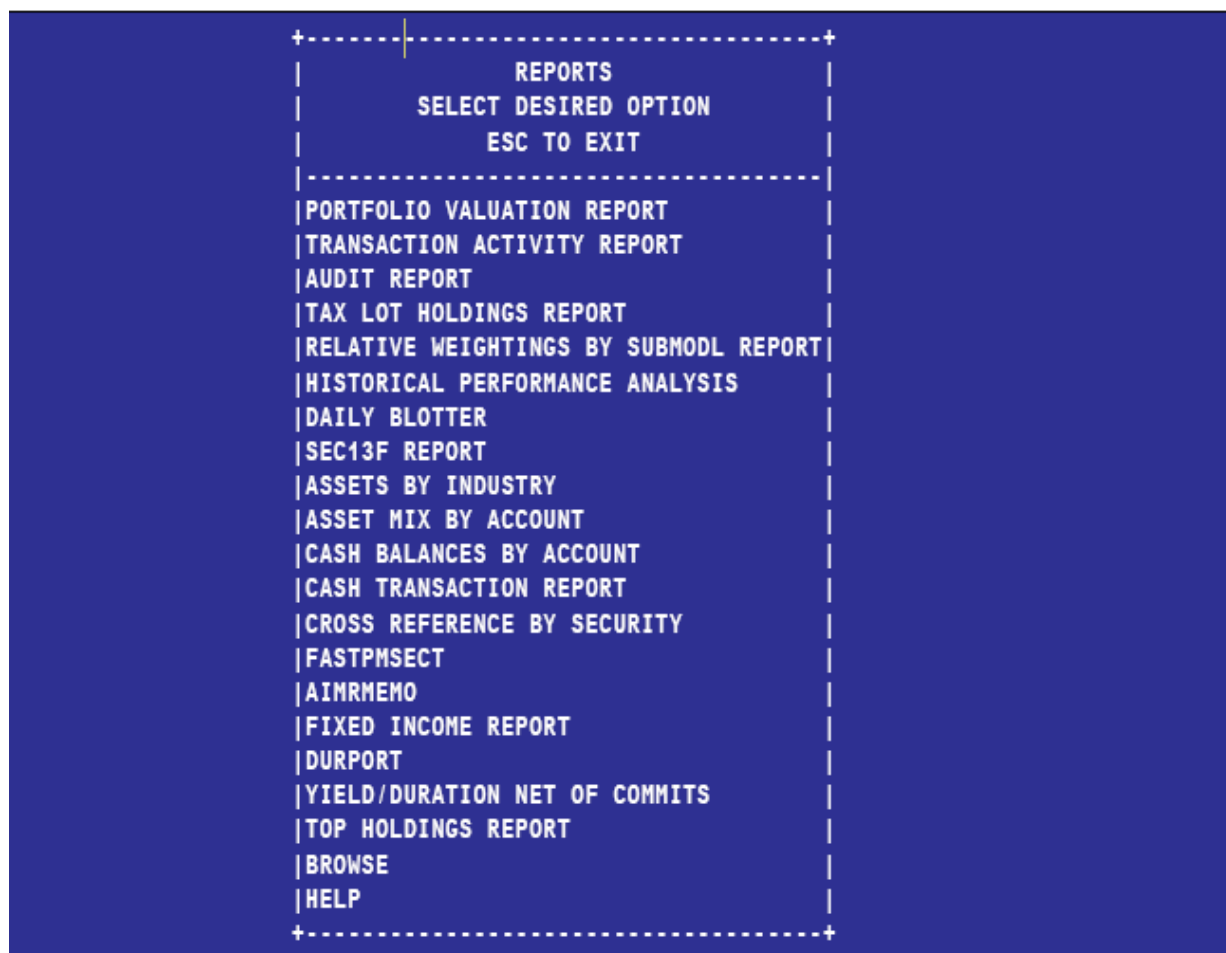
- If sleeve validation is turned on, and if incorrect or missing tags are found, an error message displays. The sponsor must access the Submanager Block Status Menu Edit Block screen and fix the incorrect tags before resubmitting
- Splitting Blocks during Commit Process
 - A feature is available on request to separate (split) blocks by mutual fund, non-mutual fund (e.g., ETF/equity) orders, and fixed income orders during the commit process. Fixed income mutual fund orders will be included in the mutual fund block

```

XYZ Management
Block 50SMB sent by xyz400 at 01/26/09 12:38 p.m.
    
```

| Action | SNAM | DTCNO | BWNUM | Tick | CUSIP | Shares | Date | DESBRK | Sleeve | Sent to |
|--------|--------|----------|-------|------|-----------|----------|----------|--------|--------|---------|
| Buy: | F93529 | 79E87581 | 93529 | AAPL | 037833100 | 92.0000 | 02/10/09 | MLUMA | NUBZ1X | GPC |
| Buy: | F95487 | 66674C35 | 95487 | AAPL | 037833100 | 29.0000 | 02/10/09 | MLUMA | NUBZ1X | GPC |
| Buy: | F95844 | 86310896 | 95844 | AAPL | 037833100 | 88.0000 | 02/10/09 | MLUMA | NUBZ1X | WHT |
| Buy: | F96016 | 69316055 | 96016 | AAPL | 037833100 | 30.0000 | 02/10/09 | MLUMA | NUBZ1X | WHT |
| Buy: | F96917 | 82F05S01 | 96917 | AAPL | 037833100 | 154.0000 | 02/10/09 | MLUMA | NUBZ1X | GPC |
| Buy: | F96918 | 82F05S02 | 96918 | AAPL | 037833100 | 277.0000 | 02/10/09 | MLUMA | NUBZ1X | |
| Buy: | F97227 | 6CL80672 | 97227 | AAPL | 037833100 | 34.0000 | 02/10/09 | MLUMA | NUBZ1X | |
| Buy: | F97228 | 87615235 | 97228 | AAPL | 037833100 | 45.0000 | 02/10/09 | MLUMA | NUBZ1X | GPC |
| Buy: | F97362 | 56602121 | 97362 | AAPL | 037833100 | 693.0000 | 02/10/09 | MLUMA | NUBZ1X | WHT |
| Buy: | F97659 | 6DW10055 | 97659 | AAPL | 037833100 | 31.0000 | 02/10/09 | MLUMA | NUBZ1X | WHT |
| Buy: | F97660 | 57505006 | 97660 | AAPL | 037833100 | 27.0000 | 02/10/09 | MLUMA | NUBZ1X | WHT |

When you select REPORTS from the submanager menu, the following menu displays:



- PORTFOLIO VALUATION REPORT is a summary report describing the holdings within a portfolio
- TRANSACTION ACTIVITY REPORT recaps all open and closed transactions for portfolios within a submodel
- AUDIT REPORT displays the holdings for each submodel, as well as to the entire portion of the portfolio allocated to the submanager
- TAX LOT HOLDINGS REPORT displays all open tax lots for each submodel. Tax lots are grouped and subtotaled by position
- RELATIVE WEIGHTINGS BY SUBMODEL REPORT displays the weighting of each industry sector (based on the SIC code for each security held) for the total portion of each portfolio allocated to the submanager
- HISTORICAL PERFORMANCE ANALYSIS displays monthly and quarterly performance data for a selected submodel
- DAILY BLOTTER displays all the current day's executed trades for a selected sub model and selected range of accounts
- SEC13F REPORT helps investment managers determine when they need to file a Form 13F with the Securities and Exchange Commission, pursuant to Section 13(f) of the Securities Exchange Act of 1934
- ASSETS BY INDUSTRY displays a submodel's holdings, grouped by industry code, for a selected range of accounts. See "Assets By Industry Report"

- ASSET MIX BY ACCOUNT indicates the percent of cash, fixed income securities, and equities within a specific submodel for a selected range of accounts. See “Asset Mix By Account Report”
- CASH BALANCES BY ACCOUNT displays the beginning of day cash balances for a selected range of accounts for a specific submodel. See “Cash Balances By Account Report”
- CASH TRANSACTION REPORT displays cash transactions within a specific submodel for a selected account. See “Cash Transaction Report”
- CROSS REFERENCE BY SECURITY displays accounts that hold specific securities within specific submodels. See “Cross Reference By Security Report”
- FASTPMSECT displays performance sector data for a specified time frame. See “Viewing performance data using the FASTPMSECT Report”
- AIMRMEMO allows the submanager to specify the composites used. This report helps facilitate AIMR-compliant reporting at the composite level. This report is based on EDMEMO coding and accommodates EDMEMO coding and/or sorting preferences. See “Submanager AIMRMEMO Report”
- FIXEDINCOME is the Windows report, WIND_FIX_GW, that provides summary fixed income data and lists individual fixed income securities for individual portfolios. See “Generating the Fixed Income Screen Report in InvestCloud Windows”
- SECURITY DRIFT is a drift report that runs outside of the Strategy Rebalancer
- DURPORT is a fixed income portfolio summary report, which assists fixed income managers in monitoring fixed income sleeves. See “DURPORT Fixed Income Summary Report”
- YIELD DURATION NET OF COMMITS shows sleeve-level yield-to-maturity and modified duration for each selected account before and after committed trades. See “Yield/Duration Net of Commits Report”
- Top Holdings allows submanagers to view top holdings across all submodels that they manage or by individual submodels. See “Top Holdings Report”

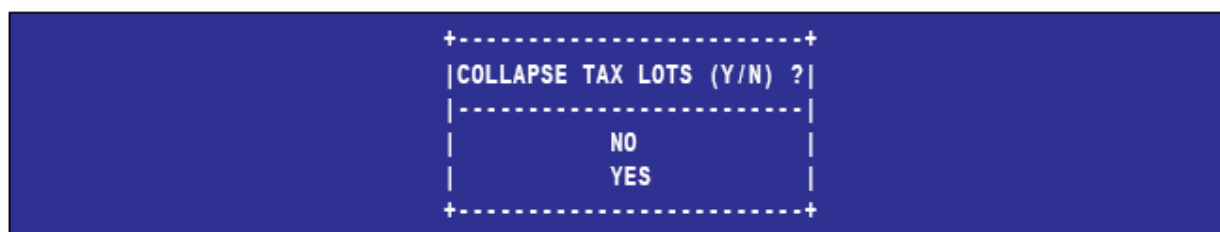
Portfolio Valuation Report

The Portfolio Valuation Report contains a variety of information useful to portfolio submanagers, including:

- Concentration of each issue type in each submodel to which the submanager has access
- Statement of portfolio changes
- Total realized gain or loss, with performance summary
- Date on each tax lot (or position) including the specific submodel associated with it

The submanager can select one account or an entire range for this report. They may also choose to collapse tax lots for individual securities.

1. Select Portfolio Valuation Report from the Reports menu. The following prompt will appear:



- Highlight NO if you want to view individual tax lots for each security. Otherwise, select YES to have all tax lots totaled. Then, press ENTER. If you manage multiple strategies a list of available submodels displays. If you manage only one strategy you will receive the account selection screen, detailed in step 4

```

+-----+
|PORTVUE - PRIVATE MENU8.5.0                                PRICES AS OF: 04/16/09|
|FISERV  TRAINING ASSET MA SUB-SELECT: MGR EQ MSP±*iSPUNIV»1±*ãHECKFREEIMS»1|
|                                     TRADING SCREEN                                     |
|                                     +-----+                                     |
|1. MANAGERS |Select sub-models for the portfolio valuation report|ESTRICTIONS|
|2. RESTRICTI|-----|CTIONS|
|             |          SUBABC ABC TEST MODEL          |          |
|TRADING TOOL|          SUBDB1 MSP TEST SUB MODEL          |          |
|-----|          SUBER TEST MODEL          |          |
|3. SINGLE SE|          SUBKMI IMPORT MODEL          |          |
|4. MULTIPLE |          SUBLG LARGE CAP GROWTH MODEL          |          |
|5. TRADE ALL|          SUBMVC SUB TEST MODEL          |          NTS|
|6. MODEL MAI|          SUBM1 M1 TEST MODEL          |          |
|7. ACCOUNT R|          SUBM2 TEST MODEL 2          |          |
|8. NEW ACCOU|          SUBM3 TEST MODEL 3          |          |
|9. ACCOUNT A|          SUBTRN TRAINING LARGE CAP SLEEVE          |          |
|A. TRADE ORD|          SUBTR1 TEST MODEL          |          |
|B. BLOCK ORD|          SUBT15 FIXED INCOME          |          |
+-----+
|          Esc-Exit  F1-Help  F4-Search  SF5-Select ALL  SF6-Clear ALL          |
|          F7-Refresh Search  F8-Options  F10-Go  Return-Select/Un-Select          |
+-----+
    
```

- Select one or more submodels. To select individual submodels, choose each one and press ENTER. To select all submodels, press SHIFT+F5. To clear your selection, press F6

Press F10 to save the selection and proceed to an account selection window will appear:

Note: If you have selected multiple accounts, you can press F9 to display a list of reports that have been generated. Highlight the report, and press ENTER to display it.

```

+-----+
|                                     |
|               Select Account to View               |
|-----|
| MSP001      10001  MSP DEMO ACCOUNT 1  |
| MSP002      20002  MSP DEMO ACCOUNT 2  |
| MSP003      30003  MSP DEMO ACCOUNT 3  |
| MSP004      40004  MSP DEMO ACCOUNT 4  |
| MSP005      50005  MSP DEMO ACCOUNT 5  |
| MSP006        6666  MSP DEMO ACCOUNT 6  |
| MSP007      77777  MSP DEMO ACCOUNT 7  |
| MSP008      88888  MSP DEMO ACCOUNT 8  |
| MSP009        9090  MSP DEMO ACCOUNT 9  |
| MSP010       1010  MSP DEMO ACCOUNT 10  |
|-----|
+-----+
    
```

Notes:

- Sleeves with a zero value are excluded from the report
- Securities that are in a “committed” state will be denoted with an asterisk on the report

(A sample report has been excluded due to its large size.)

Transaction Activity Report

The Transaction Activity Report allows you to view all open and closed transactions related to a submodel or submodels.

To generate this report:

1. Select Transaction Activity Report from the Reports menu. The following prompt opens:

```

+-----+
| BEGINNING DATE (MM/DD/YY) - HIT ENTER FOR 09/12/02 : |
+-----+
    
```

2. Type in the beginning date for the report, and press ENTER. The following prompt opens:

```

+-----+
| ENDING DATE (MM/DD/YY) - HIT ENTER FOR 09/12/02 : |
+-----+
    
```

3. Type in the ending date for the report, and press ENTER. The account selection window opens:

| CHECKFREE INVESTMENT SERVICES | | SLEEVE ACTIVITY REPORT (SUPERVISED POSITIONS ONLY) | | | | | PAGE 1 | |
|--|-------|--|-----------|---------------|------------|--------------|--------------|-------|
| FOR THE PERIOD FROM: 01/01/02 THROUGH 09/12/02 | | | | | | | | |
| ACTIVITY DATE | UNITS | SECURITY DESCRIPTION | OPEN DATE | ORIGINAL COST | CLOSE DATE | NET PROCEEDS | TOTAL COMMIS | BRK |
| (HDI1ST) CS DEMO MODEL #1 | | A/C #0 | | | | | | |
| 06/28/02 | OPEN | 110 AMERICAN INTL GROUP INC | 06/28/02 | 7,359.00 | | | | BLANK |
| 06/28/02 | OPEN | 970 AMERICAN INTL GROUP INC | 06/28/02 | 64,893.00 | | | | BLANK |
| 06/28/02 | OPEN | 160 AMERICAN INTL GROUP INC | 06/28/02 | 10,704.00 | | | | BLANK |
| 06/28/02 | OPEN | 1,010 AMERICAN INTL GROUP INC | 06/28/02 | 67,569.00 | 06/28/02 | | | BLANK |
| 06/28/02 | CLOSE | 1,010 AMERICAN INTL GROUP INC | 06/28/02 | 67,569.00 | 06/28/02 | 69,687.90 | | BLANK |
| 06/28/02 | OPEN | 460 CHECKFREE CORP NEW | 06/28/02 | 6,762.00 | | | | BLANK |
| 06/28/02 | OPEN | 4,440 CHECKFREE CORP NEW | 06/28/02 | 65,268.00 | | | | BLANK |
| 06/28/02 | OPEN | 740 CHECKFREE CORP NEW | 06/28/02 | 10,873.00 | | | | BLANK |
| 06/28/02 | OPEN | 4,640 CHECKFREE CORP NEW | 06/28/02 | 68,208.00 | 06/28/02 | | | BLANK |
| 06/28/02 | CLOSE | 4,640 CHECKFREE CORP NEW | 06/28/02 | 68,208.00 | 06/28/02 | 69,597.90 | | BLANK |
| 06/28/02 | OPEN | 160 CISCO SYS INC | 06/28/02 | 2,211.20 | | | | BLANK |
| 06/28/02 | OPEN | 1,580 CISCO SYS INC | 06/28/02 | 21,804.00 | | | | BLANK |
| 06/28/02 | OPEN | 260 CISCO SYS INC | 06/28/02 | 3,593.20 | | | | BLANK |
| 06/28/02 | OPEN | 1,640 CISCO SYS INC | 06/28/02 | 22,664.80 | 06/28/02 | | | BLANK |
| 06/28/02 | CLOSE | 1,640 CISCO SYS INC | 06/28/02 | 22,664.80 | 06/28/02 | 22,959.30 | | BLANK |
| 06/28/02 | OPEN | 90 COCA COLA CO | 06/28/02 | 5,048.10 | | | | BLANK |
| 06/28/02 | OPEN | 770 COCA COLA CO | 06/28/02 | 43,189.30 | | | | BLANK |
| 06/28/02 | OPEN | 120 COCA COLA CO | 06/28/02 | 6,730.80 | | | | BLANK |
| 06/28/02 | OPEN | 800 COCA COLA CO | 06/28/02 | 44,872.00 | 06/28/02 | | | BLANK |
| 06/28/02 | CLOSE | 800 COCA COLA CO | 06/28/02 | 44,872.00 | 06/28/02 | 45,596.62 | | BLANK |
| 06/28/02 | OPEN | 430 FORD MTR CO DEL COM PAR \$0.01 | 06/28/02 | 6,781.10 | | | | BLANK |
| 06/28/02 | OPEN | 4,140 FORD MTR CO DEL COM PAR \$0.01 | 06/28/02 | 65,287.80 | | | | BLANK |
| 06/28/02 | OPEN | 690 FORD MTR CO DEL COM PAR \$0.01 | 06/28/02 | 10,881.30 | | | | BLANK |
| 06/28/02 | OPEN | 4,320 FORD MTR CO DEL COM PAR \$0.01 | 06/28/02 | 68,126.40 | 06/28/02 | | | BLANK |
| 06/28/02 | CLOSE | 4,320 FORD MTR CO DEL COM PAR \$0.01 | 06/28/02 | 68,126.40 | 06/28/02 | 69,117.91 | | BLANK |
| 06/28/02 | OPEN | 60 INTERNATIONAL BUSINESS MACHINES | 06/28/02 | 4,314.00 | | | | BLANK |
| 06/28/02 | OPEN | 610 INTERNATIONAL BUSINESS MACHINES | 06/28/02 | 43,859.00 | | | | BLANK |
| 06/28/02 | OPEN | 90 INTERNATIONAL BUSINESS MACHINES | 06/28/02 | 6,471.00 | | | | BLANK |
| 06/28/02 | OPEN | 630 INTERNATIONAL BUSINESS MACHINES | 06/28/02 | 45,297.00 | 06/28/02 | | | BLANK |
| 06/28/02 | CLOSE | 630 INTERNATIONAL BUSINESS MACHINES | 06/28/02 | 45,297.00 | 06/28/02 | 45,358.63 | | BLANK |
| 06/28/02 | OPEN | 210 MICROSOFT CORP | 06/28/02 | 11,533.20 | | | | BLANK |
| 06/28/02 | OPEN | 1,980 MICROSOFT CORP | 06/28/02 | 108,741.60 | | | | BLANK |
| 06/28/02 | OPEN | 320 MICROSOFT CORP | 06/28/02 | 17,574.40 | | | | BLANK |
| 06/28/02 | OPEN | 2,060 MICROSOFT CORP | 06/28/02 | 113,135.20 | 06/28/02 | | | BLANK |
| 06/28/02 | CLOSE | 2,060 MICROSOFT CORP | 06/28/02 | 113,135.20 | 06/28/02 | 111,236.65 | | BLANK |

Audit Report

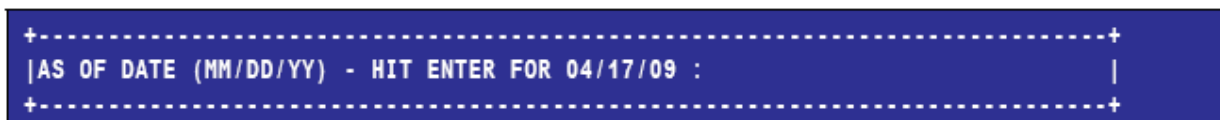
The Audit Report displays the holdings for each submodel, as well as to the entire portion of the portfolio allocated to the submanager.

Several versions of the report are generated at once:

- Separate holdings report for each submodel
- Separate holdings report for the entire portion of the portfolio allocated to the submanager
- Holdings report with a separate section for each submodel and a section displaying the holdings for the entire portion of the portfolio allocated to the submanager

To generate these reports:

1. Select Audit Report from the Reports menu. The following prompt will appear:



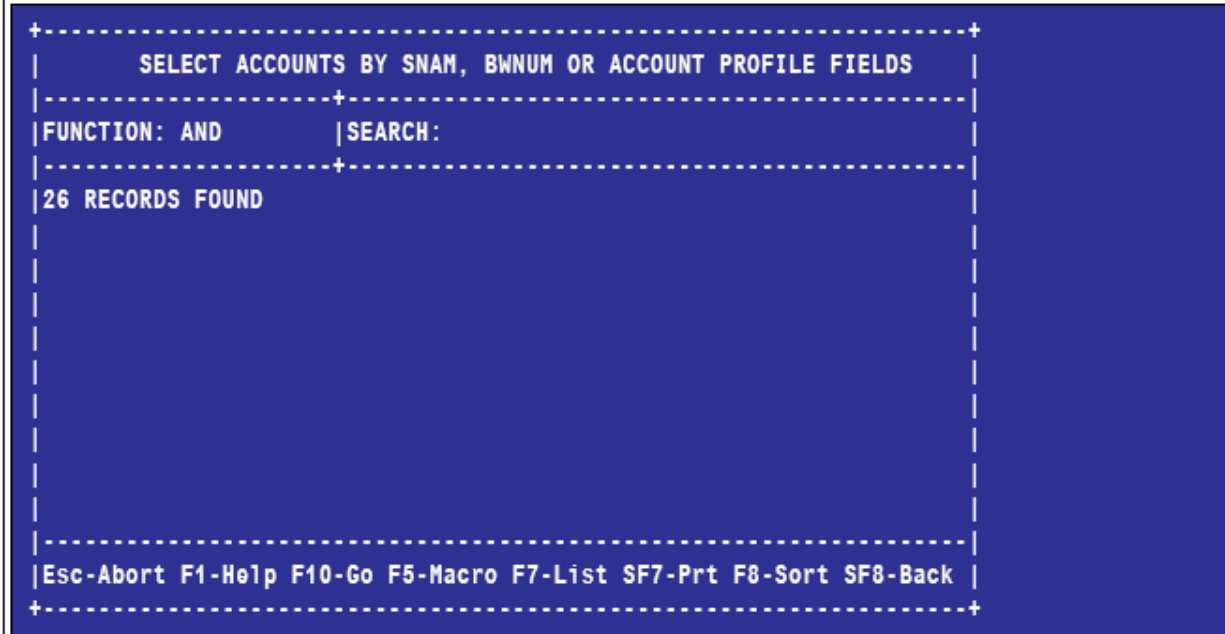
2. Type the As Of date, and press ENTER, or simply press ENTER to select the previous day's date. If you manage multiple strategies a list of available submodels displays. If you manage only one strategy you will receive the account selection screen, detailed in step 4

```

+-----+
|PORTVUE - PRIVATE MENU8.5.0                PRICES AS OF: 04/17/09|
|FISERV  TRAINING ASSET MA SUB-SELECT: MGR EQ MSP±*iSPUNIV»1±*aHECKFREEIMS»1|
|                                     TRADING SCREEN                                     |
|                                     +-----+                                     |
|1. MANAGERS MENU |Select sub-models for the audit report|TIONS/RESTRICTIONS|
|2. RESTRICTIONS MEN|-----|G RESTRICTIONS|
|                                     |SUBABC ABC TEST MODEL|LS|
|TRADING TOOLS    |SUBDB1 MSP TEST SUB MODEL| |
|-----|SUBER TEST MODEL| |
|3. SINGLE SECURITY|SUBKMI IMPORT MODEL| |
|4. MULTIPLE SECURIT|SUBLG LARGE CAP GROWTH MODEL|ATUS|
|5. TRADE ALLOCATOR|SUBMVC SUB TEST MODEL|F ACCOUNTS|
|6. MODEL MAINTENANC|SUBM1 M1 TEST MODEL| |
|7. ACCOUNT REBALANC|SUBM2 TEST MODEL 2| |
|8. NEW ACCOUNT REBA|SUBM3 TEST MODEL 3| |
|9. ACCOUNT ADJUSTER|SUBTRN TRAINING LARGE CAP SLEEVE| |
|A. TRADE ORDER ENTR|SUBTR1 TEST MODEL| |
|B. BLOCK ORDER STAT|SUBT15 FIXED INCOME|M|
|-----+-----+
|| Esc-Exit  F1-Help  F4-Search  SF5-Select ALL  SF6-Clear ALL  ||
|| F7-Refresh Search  F8-Options  F10-Go  Return-Select/Un-Select  ||
|-----+-----+
+-----+
    
```

3. Select one or more submodels. To select individual submodels, choose each one and press ENTER. To select all submodels, press SHIFT+F5. To clear your selection, press F6

Press F10 to save the selection and proceed to an account selection window:



The system generates a series of reports that can be viewed using the BROWSE REPORTS function in the Reports menu. An example of one such report as follows:

| CHECKFREE TRAINING ASSET MANAGEMENT PORTVUE - MSPTS2.LBX RR: 45 ACNUM: - | | ALPHA EVALUATION FOR MSPTS2 | | | DOW JONES INDUSTRIAL AVG STANDARD & POORS 500 | | | 8131.33 869.60 |
|---|----------------|--------------------------------|----------|--------|--|----------------|-----------------|-------------------|
| SECURITY DESCRIPTION | | CUSIP | SACUS | TICK | ORIGINAL COST | COST/ SHARE | MARKET PRICE | MARKET VALUE |
| CASH AND CASH EQUIVALENTS | | | | | | | | |
| CASH | | C:CASHCASH # 13321 CASH-1 | | | 177,822.70 | 100.000 | 100.000 | 177,822.70 |
| COMMON STOCKS | | | | | | | | |
| 613 FISERV CORP NEW | COM | C:162813109 | #6169459 | CKFR-Z | 12,260.00 | 20.000 | 47.540 | 29,142.02 |
| 854 FORD MTR CO DEL | COM PAR \$0.01 | C:345370860 | #6158473 | F | 5,978.00 | 7.000 | 4.000 | 3,416.00 |
| 122 I B M | | C:459200101 | # 6273 | IBM | 9,516.00 | 78.000 | 101.270 | 12,354.94 |
| 3,000 KELLOGG CO | | C:487836108 | # 6675 | K | 87,000.00 | 29.000 | 40.100 | 120,300.00 |
| COMMON STOCKS | | TOTAL | | | \$ 114,754.00 | | | \$ 165,212.96 |
| GRAND TOTAL | | | | | \$ 292,576.70 | | | \$ 343,035.66 |
| CHECKFREE TRAINING ASSET MANAGEMENT PORTVUE - MSPTS2.LBX RR: 45 ACNUM: - | | ALPHA EVALUATION FOR MSPTS2 | | | DOW JONES INDUSTRIAL AVG STANDARD & POORS 500 | | | 8131.33 869.60 |
| SECURITY DESCRIPTION | | CUSIP | SACUS | TICK | ORIGINAL COST | COST/ SHARE | MARKET PRICE | MARKET VALUE |
| CASH AND CASH EQUIVALENTS | | | | | | | | |
| CASH | | C:CASHCASH # 13321 CASH-1 | | | 444,188.50 | 100.000 | 100.000 | 444,188.50 |
| COMMON STOCKS | | | | | | | | |
| 3,518 FISERV CORP NEW | COM | C:162813109 | #6169459 | CKFR-Z | 70,360.00 | 20.000 | 47.540 | 167,245.72 |
| 3,333 CHEESECAKE FACTORY INC | COM | C:163072101 | #1199805 | CAKE | 68,882.00 | 20.667 | 14.330 | 47,761.89 |
| COMMON STOCKS | | TOTAL | | | \$ 139,242.00 | | | \$ 215,007.61 |
| GRAND TOTAL | | | | | \$ 583,430.50 | | | \$ 659,196.11 |
| CHECKFREE TRAINING ASSET MANAGEMENT PORTVUE - MSPTS2.LBX RR: 45 ACNUM: - | | ALPHA EVALUATION FOR MSPTS2 | | | DOW JONES INDUSTRIAL AVG STANDARD & POORS 500 | | | 8131.33 869.60 |
| SECURITY DESCRIPTION | | CUSIP | SACUS | TICK | ORIGINAL COST | COST/ SHARE | MARKET PRICE | MARKET VALUE |
| CASH AND CASH EQUIVALENTS | | | | | | | | |
| CASH | | C:CASHCASH # 13321 CASH-1 | | | 622,011.20 | 100.000 | 100.000 | 622,011.20 |
| COMMON STOCKS | | | | | | | | |
| 4,131 FISERV CORP NEW | COM | C:162813109 | #6169459 | CKFR-Z | 82,620.00 | 20.000 | 47.540 | 196,387.74 |
| 3,333 CHEESECAKE FACTORY INC | COM | C:163072101 | #1199805 | CAKE | 68,882.00 | 20.667 | 14.330 | 47,761.89 |
| 854 FORD MTR CO DEL | COM PAR \$0.01 | C:345370860 | #6158473 | F | 5,978.00 | 7.000 | 4.000 | 3,416.00 |
| 122 I B M | | C:459200101 | # 6273 | IBM | 9,516.00 | 78.000 | 101.270 | 12,354.94 |
| 3,000 KELLOGG CO | | C:487836108 | # 6675 | K | 87,000.00 | 29.000 | 40.100 | 120,300.00 |
| COMMON STOCKS | | TOTAL | | | \$ 253,996.00 | | | \$ 380,220.57 |
| GRAND TOTAL | | | | | \$ 876,007.20 | | | \$ 1,002,231.77 |

Tax Lot Holdings Report

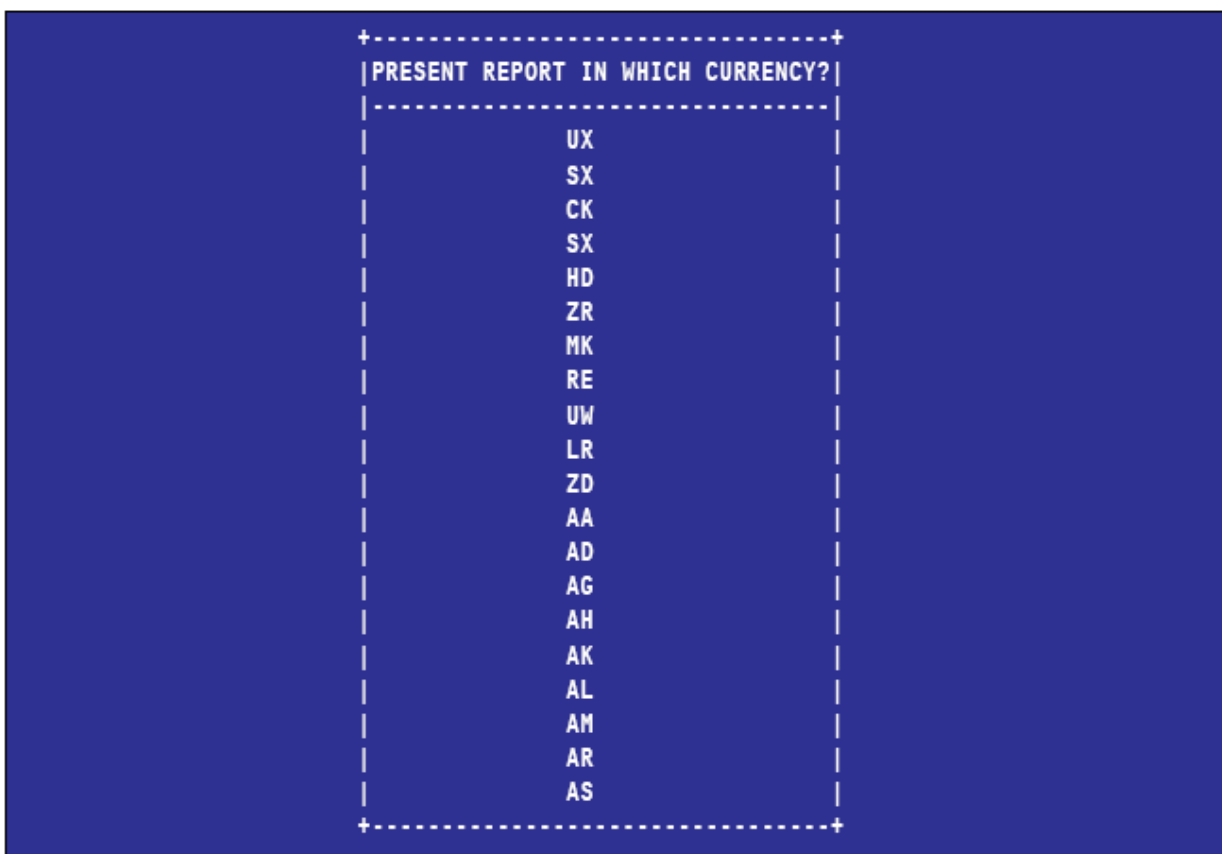
The Tax Lot Holdings Report displays all open tax lots for each submodel. Tax lots are grouped and subtotaled by position. Short- and long-term gain/ loss information is displayed at the end of each report.

Several versions of the report are generated at once:

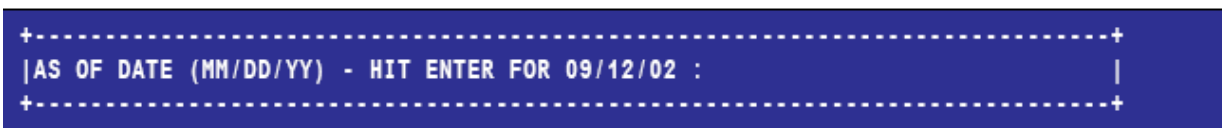
- Separate tax lot holdings report for each submodel
- Separate tax lot holdings report for the entire portion of the portfolio allocated to the submanager
- Tax lot holdings report with a separate section for each submodel and a section displaying the holdings for the entire portion of the portfolio allocated to the submanager

To generate this report:

1. Select Tax Lot Holdings Report from the Reports menu. The following window opens:



2. Select the currency in which the report data is to appear, and press ENTER. The following prompt opens:



3. Type the basis date for the reports, and press ENTER. To select today, simply press ENTER. The account selection window opens:



4. Select the accounts for which to generate reports. The system generates a report that can be viewed using the BROWSE REPORTS function in the Reports menu. An example of one such report is shown below:

| CHECKFREE INVESTMENT SERVICES | | PORTFOLIO EVALUATION FOR | | | DOW JONES INDUSTRIAL AVG | | 8379.41 | |
|-----------------------------------|-------------------------|--------------------------------|------------|----------------|------------------------------|-------------|-----------------|------------------------|
| PORTVUE - CRSNEW.A.LBX | | CRS NEW TEST ACCOUNT | | | STANDARD & POORS 500 | | 886.91 | |
| MGR: MSP | | AS OF DATE: September 12, 2002 | | | | | | |
| ACNUM: -032172 | | | | | | | | |
| RUN: 09/13/02 2:58 P.M. | | | | | | | | |
| ----- | | | | | | | | |
| | | | | | XCHG RATE MAURITANIA QUGUIYA | | | |
| MSPCS1 - CS DEMO MODEL #1 | | | | | | | | |
| SECURITY DESCRIPTION | PURCHASE DATE | ORIGINAL COST | COST/ UNIT | MARKET \$PRICE | LOCAL PRICE | VALUE | % VALUE | ANNUAL YTM/ INCOME YLD |
| ----- | | | | | | | | |
| CASH AND CASH EQUIVALENTS | | | | | | | | |
| ===== | | | | | | | | |
| CASH | | | | | | | | |
| | | 849,510 | | | | 231,067,375 | 71.111,553,369 | 5.0 |
| COMMON STOCKS | | | | | | | | |
| ===== | | | | | | | | |
| @ 790 | AMERICAN INTL GROUP INC | 07/03/02 | 51,666 | 65.40 | 59.19 | 12,718,784 | 3.9 | 40,398 0.3 |
| @ 4,580 | CHECKFREE CORP NEW | 07/03/02 | 59,540 | 13.00 | 12.61 | 15,958,232 | 4.9 | |
| @ 2,220 | CISCO SYS INC | 07/03/02 | 27,750 | 12.50 | 13.04 | 7,874,096 | 2.4 | |
| @ 1,600 | CITIGROUP INC. | 07/03/02 | 59,840 | 37.40 | 29.15 | 12,686,117 | 3.9 | 313,345 2.5 |
| @ 1,410 | COCA COLA CO | 07/03/02 | 79,806 | 56.60 | 49.55 | 19,003,471 | 5.8 | 306,817 1.6 |
| @ 1,160 | MICROSOFT CORP | 07/03/02 | 59,624 | 51.40 | 47.15 | 14,876,811 | 4.6 | |
| @ 440 | PROCTER & GAMBLE CO | 07/03/02 | 39,248 | 89.20 | 91.20 | 10,914,847 | 3.4 | 196,276 1.8 |
| | COMMON STOCKS | TOTAL | 377,474 | | | 94,032,357 | 28.9 | 856,835 0.9 |
| | GRAND TOTAL | | 1,226,984 | | | 325,099,732 | 100.012,410,204 | 3.8 |
| @ INDICATES OPTIONABLE SECURITIES | | | | | | | | |
| ----- | | | | | | | | |
| TIME PERIOD: (FY 12/31) | | ----2002 YTD-- | | POTENTIAL | | | | |
| REALIZED SHORT TERM GAIN/LOSS: | | \$ 0.00 | | -31,767.80 | | | | |
| REALIZED LONG TERM GAIN/LOSS: | | \$ 0.00 | | \$ 0.00 | | | | |
| MAX '2 TAX LIAB. 39.6% STG: | | | | -12,580.05 | | | | |
| MAX '2 TAX LIAB. 18.0% LTG: | | | | | | | | |
| TOTAL EST. TAX: | | | | -12,580.05 | | | | |

Relative Weightings by Submodel Report

The Relative Weightings by Submodel Report displays the weighting of each industry sector (based on the SIC code for each security held) for the total portion of each portfolio allocated to the submanager. To generate this report, use the following steps:

1. Select Relative Weightings by Submodel Report from the Reports menu. The following prompt displays:

```

+-----+
|AS OF DATE (MM/DD/YY) - HIT ENTER FOR 09/12/02 : |
+-----+
  
```

2. Type the beginning date, and press ENTER, or simply press ENTER to select today's date. The account selection window will appear:



3. Select the accounts for which to generate reports. The system generates a report that can be viewed using the BROWSE REPORTS function in the Reports menu. An example of one such report is shown below:

| RELATIVE WEIGHTING REPORT | | | | | | | | | | | PAGE 1 |
|----------------------------------|-------------------------------|--------|------|------|------|------|------|------|------|--------|--------|
| As of: September 12, 2002 | | | | | | | | | | | |
| SNAM | BWNUM | 0 | 500 | 600 | 700 | 2800 | 6300 | 7300 | 9900 | TOTAL | |
| HDITST | 0 | 69.22 | 1.03 | 1.92 | 9.71 | 0.00 | 4.50 | 4.68 | 8.94 | 100.00 | |
| CSDEMO | 111869 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | |
| CRS1 | 1969 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | |
| CRSNEW | 32172 | 71.08 | 2.42 | 5.85 | 4.91 | 3.36 | 3.91 | 4.58 | 3.90 | 100.00 | |
| OBS | | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | | |
| MEAN | | 85.07 | 0.86 | 1.94 | 3.66 | 0.84 | 2.10 | 2.32 | 3.21 | | |
| MEDIAN | | 85.54 | 0.52 | 0.96 | 2.45 | 0.00 | 1.96 | 2.29 | 1.95 | | |
| STD | | 14.94 | 0.99 | 2.39 | 4.03 | 1.45 | 2.11 | 2.32 | 3.67 | | |
| @ | | | | | | | | | | | |
| Summary of Standard Sector Codes | | | | | | | | | | | PAGE 2 |
| Number | Description | | | | | | | | | | |
| 0 | CASH AND CASH EQUIVALENTS | | | | | | | | | | |
| 500 | TELECOMMUNICATIONS | | | | | | | | | | |
| 600 | FOOD | | | | | | | | | | |
| 700 | TECHNOLOGY | | | | | | | | | | |
| 2800 | CHEMICALS AND ALLIED PRODUCTS | | | | | | | | | | |
| 6300 | INSURANCE CARRIERS | | | | | | | | | | |
| 7300 | BUSINESS SERVICES | | | | | | | | | | |
| 9900 | PANAMA | | | | | | | | | | |

Historical Performance Analysis Report

The Historical Performance Analysis Report displays monthly and quarterly performance data for a selected submodel. This data includes for each period:

- Portfolio values
- Contributions and withdrawals
- Performance returns for each period
- Cumulative performance returns
- Statistical data
- Comparison data for a selected benchmark

To run the reports:

1. Select HISTORICAL PERFORMANCE ANALYSIS from the Reports menu. The following prompt displays:

```
+-----+
|BEGINNING DATE (MM/DD/YY) - HIT ENTER FOR 12/11/02 : |
+-----+
```

2. Type the beginning date for the report, and press ENTER. The following prompt displays:

```
+-----+
|ENDING DATE (MM/DD/YY) - HIT ENTER FOR 12/11/02 : |
+-----+
```

3. Type the ending date for the report, and press ENTER. The following prompt displays:

```
+-----+
|YEARS TO INCLUDE IN THE QUARTERLY PERFORMANCE |
+-----+
```

4. Type the number of years of quarterly performance measurement periods to display on the report. Then, press ENTER. The Model Selection window opens:

7. Type the code for the benchmark you want to use for comparison, and press ENTER. The report is written to a file with an .LPM extension. It can be displayed using the BROWSE function, or it can be printed

Note: A current list of benchmarks can be displayed or printed by typing BENCHLIST at the WHICH FUNCTION? prompt, and pressing ENTER.

An example of this report follows:

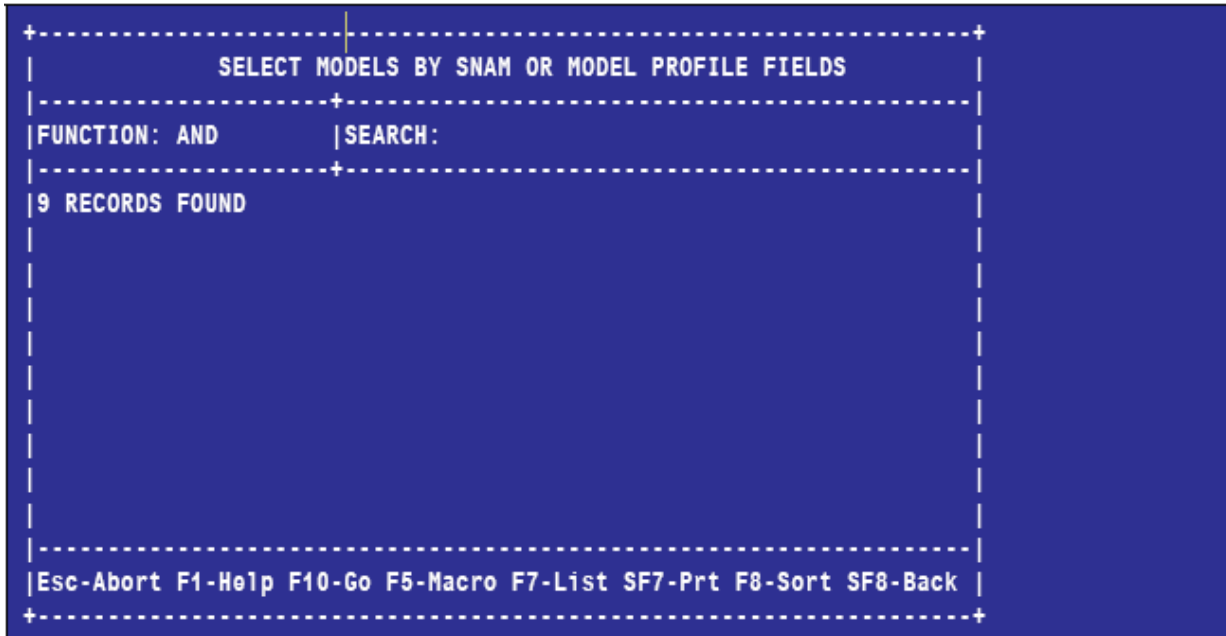
| SAMPLE ASSET MANAGEMENT | | PAGE 1 OF 1 | | | | | | | |
|---|-----------------|------------------|-----------------------------|----------------|--------------------|-----------|----------------|--------------------|----------------|
| MSP3 .LPM | | | | | | | | | |
| HISTORICAL PERFORMANCE ANALYSIS FOR GROWTH CORE | | | | | | | | | |
| MULTIPLE STRATEGY PORTFOLIO TEST ACCT 3 | | | | | | | | | |
| SUBABC | | | | | | | | | |
| DATE | APPRAISAL VALUE | CONTRIB (DEDUCT) | CUMULATIVE CONTRIB (DEDUCT) | PERCENT CHANGE | CUM PERCENT CHANGE | Dow Jones | | Industrial Ave | |
| | | | | | | CLOSE | PERCENT CHANGE | CUM PERCENT CHANGE | PERCENT CHANGE |
| 05/31/02 | 4,704,851 | | | | | 9,925 | | | |
| 06/30/02 | 4,393,168 | | | -6.62 | -6.62 | 9,243 | -6.87 | -6.87 | |
| 07/31/02 | 4,002,368 | | | -8.90 | -14.93 | 8,737 | -5.48 | -11.98 | |
| 08/31/02 | 4,228,273 | | | 5.64 | -10.13 | 8,664 | -0.84 | -12.71 | |
| 09/30/02 | 3,933,478 | | | -6.97 | -16.40 | 7,592 | -12.37 | -23.51 | |
| 10/31/02 | 4,203,293 | -200,000 | -200,000 | 12.45 | -5.98 | 8,397 | 10.60 | -15.40 | |
| 11/30/02 | 4,618,788 | -200,000 | -200,000 | 9.88 | 3.31 | 8,896 | 5.94 | -10.37 | |
| 12/05/02 | 4,471,798 | -200,000 | -200,000 | -3.18 | 0.02 | 8,623 | -3.07 | -13.12 | |
| 12/06/02 | 4,473,188 | | -200,000 | 0.03 | 0.05 | 8,646 | 0.26 | -12.89 | |
| YEAR-END SUMMARY PERFORMANCE: | | | | | | | | | |
| 05/31/02 | 4,704,851 | | | | | 9,925 | | | |
| 12/06/02 | 4,473,188 | -200,000 | -200,000 | 0.05 | 0.05 | 8,646 | -12.89 | -12.89 | |
| YEAR TO DATE RATE OF RETURN: | | | | % | | | % | | % |
| YEAR-TO-DATE QUARTERLY PERFORMANCE: | | | | | | | | | |
| 05/31/02 | 4,704,851 | | | | | 9,925 | | | |
| 06/30/02 | 4,393,168 | | | -6.62 | -6.62 | 9,243 | -6.87 | -6.87 | |
| 09/30/02 | 3,933,478 | | | -10.46 | -16.40 | 7,592 | -17.87 | -23.51 | |
| 12/06/02 | 4,473,188 | -200,000 | -200,000 | 19.68 | 0.05 | 8,646 | 13.88 | -12.89 | |
| PERCENT CHANGE STATISTICAL SUMMARY | | | | | | | | | |
| STATISTIC | MONTHLY | QTRLY | YEARLY | MONTHLY | QTRLY | YEARLY | MONTHLY | QTRLY | YEARLY |
| OBSERVATIONS | 6.00 | 1.00 | 0.00 | 6.00 | 1.00 | 0.00 | 6.00 | 1.00 | 0.00 |
| MEAN | 0.92 | -10.46 | 0.00 | -1.50 | -17.87 | 0.00 | -1.50 | -17.87 | 0.00 |
| MEDIAN | -0.49 | -10.46 | 0.00 | -3.16 | -17.87 | 0.00 | -3.16 | -17.87 | 0.00 |
| STD DEV | 8.67 | 0.00 | 0.00 | 7.80 | 0.00 | 0.00 | 7.80 | 0.00 | 0.00 |
| MAXIMUM | 12.45 | -10.46 | 0.00 | 10.60 | -17.87 | 0.00 | 10.60 | -17.87 | 0.00 |
| MINIMUM | -8.90 | -10.46 | 0.00 | -12.37 | -17.87 | 0.00 | -12.37 | -17.87 | 0.00 |
| NOTE: PARTIAL PERIODS ARE EXCLUDED FROM SUMMARY STATISTICS. | | | | | | | | | |

Daily Blotter Report

This report displays all the current day's executed trades for a selected sub model and selected range of accounts. Separate reports are generated for equity buys, equity sells, fixed income buys, and fixed income sells.

To run the report:

1. Select DAILY BLOTTER from the Reports menu. The following prompt will appear:



Note: Only one submodel may be selected.

2. Select the submodel you want to use, and press F10. The account selection window opens, enabling you to select specific accounts



3. Select specific accounts, and press F10. Or, simply press F10 to report on blotter transactions for all accounts

Separate reports are produced with the following file names based on the trade and asset types:

- EQUBUY.LBT: Equity buys
- EQUCLO.LBT: Equity sells
- FXDBUY.LBT: Fixed income buys
- FXDCLO.LBT: Fixed income sells

An example is shown below:

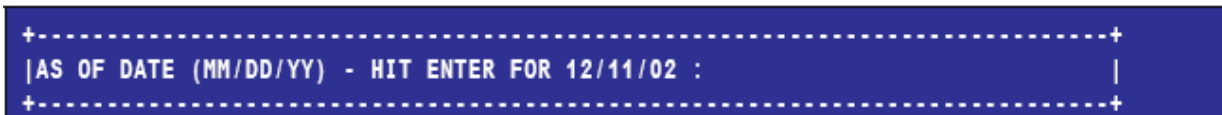
| SAMPLE ASSET MANAGEMENT | | | | | | | | | | PAGE 1 | |
|---|------------|---------|---------|------------|------------------|---------------|---------|---------------|------------|-----------|-------------------------|
| Run Date: 11/18/02 1:36 P.M. | | | | | | | | | | | |
| NOVEMBER 18, 2002 DAILY EQUITY TRADING BLOTTER *** BUY SIDE *** | | | | | | | | | | | |
| SNAM | UNITS | TD DATE | SD DATE | COST/SHARE | PRINCIPAL AMOUNT | TOTAL COMMISS | SEC FEE | BOND INTEREST | NET AMOUNT | BROKERAGE | BLOCK NAME |
| CHECKFREE CORP NEW COM (182813109) (CKFR) | | | | | | | | | | | |
| CIFRMI | 2,200.000 | 11/18 | 11/21 | 17.350000 | 38,170.00 | 110.00 | 0.00 | 0.00 | 38,280.00 | MER> | MERRILL LYNCH - NABCTST |
| IBM (459200101) (IBM) | | | | | | | | | | | |
| CIFRMI | 100.000 | 11/18 | 11/21 | 80.010000 | 8,001.00 | 5.00 | 0.00 | 0.00 | 8,006.00 | MER> | MERRILL LYNCH - NABCTST |
| SIEBEL SYS INC COM (826170102) (SEBL) | | | | | | | | | | | |
| CIFRMI | 3,600.000 | 11/18 | 11/21 | 7.850000 | 28,260.00 | 180.00 | 0.00 | 0.00 | 28,440.00 | MER> | MERRILL LYNCH - NABCTST |
| MSP1 | 16,500.000 | 11/18 | 11/21 | 7.850000 | 129,525.00 | 825.00 | 0.00 | 0.00 | 130,350.00 | MER> | MERRILL LYNCH - NABCTST |
| MSP10 | 16,500.000 | 11/18 | 11/21 | 7.850000 | 129,525.00 | 825.00 | 0.00 | 0.00 | 130,350.00 | MER> | MERRILL LYNCH - NABCTST |
| MSP11 | 16,500.000 | 11/18 | 11/21 | 7.850000 | 129,525.00 | 825.00 | 0.00 | 0.00 | 130,350.00 | MER> | MERRILL LYNCH - NABCTST |
| MSP12 | 16,500.000 | 11/18 | 11/21 | 7.850000 | 129,525.00 | 825.00 | 0.00 | 0.00 | 130,350.00 | MER> | MERRILL LYNCH - NABCTST |
| MSP13 | 16,500.000 | 11/18 | 11/21 | 7.850000 | 129,525.00 | 825.00 | 0.00 | 0.00 | 130,350.00 | MER> | MERRILL LYNCH - NABCTST |
| MSP14 | 16,500.000 | 11/18 | 11/21 | 7.850000 | 129,525.00 | 825.00 | 0.00 | 0.00 | 130,350.00 | MER> | MERRILL LYNCH - NABCTST |
| MSP15 | 16,500.000 | 11/18 | 11/21 | 7.850000 | 129,525.00 | 825.00 | 0.00 | 0.00 | 130,350.00 | MER> | MERRILL LYNCH - NABCTST |
| MSP16 | 16,500.000 | 11/18 | 11/21 | 7.850000 | 129,525.00 | 825.00 | 0.00 | 0.00 | 130,350.00 | MER> | MERRILL LYNCH - NABCTST |
| MSP17 | 16,500.000 | 11/18 | 11/21 | 7.850000 | 129,525.00 | 825.00 | 0.00 | 0.00 | 130,350.00 | MER> | MERRILL LYNCH - NABCTST |
| MSP18 | 16,500.000 | 11/18 | 11/21 | 7.850000 | 129,525.00 | 825.00 | 0.00 | 0.00 | 130,350.00 | MER> | MERRILL LYNCH - NABCTST |
| MSP19 | 16,500.000 | 11/18 | 11/21 | 7.850000 | 129,525.00 | 825.00 | 0.00 | 0.00 | 130,350.00 | MER> | MERRILL LYNCH - NABCTST |
| MSP2 | 16,500.000 | 11/18 | 11/21 | 7.850000 | 129,525.00 | 825.00 | 0.00 | 0.00 | 130,350.00 | MER> | MERRILL LYNCH - NABCTST |
| MSP20 | 16,500.000 | 11/18 | 11/21 | 7.850000 | 129,525.00 | 825.00 | 0.00 | 0.00 | 130,350.00 | MER> | MERRILL LYNCH - NABCTST |
| MSP3 | 16,500.000 | 11/18 | 11/21 | 7.850000 | 129,525.00 | 825.00 | 0.00 | 0.00 | 130,350.00 | MER> | MERRILL LYNCH - NABCTST |
| MSP4 | 16,500.000 | 11/18 | 11/21 | 7.850000 | 129,525.00 | 825.00 | 0.00 | 0.00 | 130,350.00 | MER> | MERRILL LYNCH - NABCTST |

13F Report

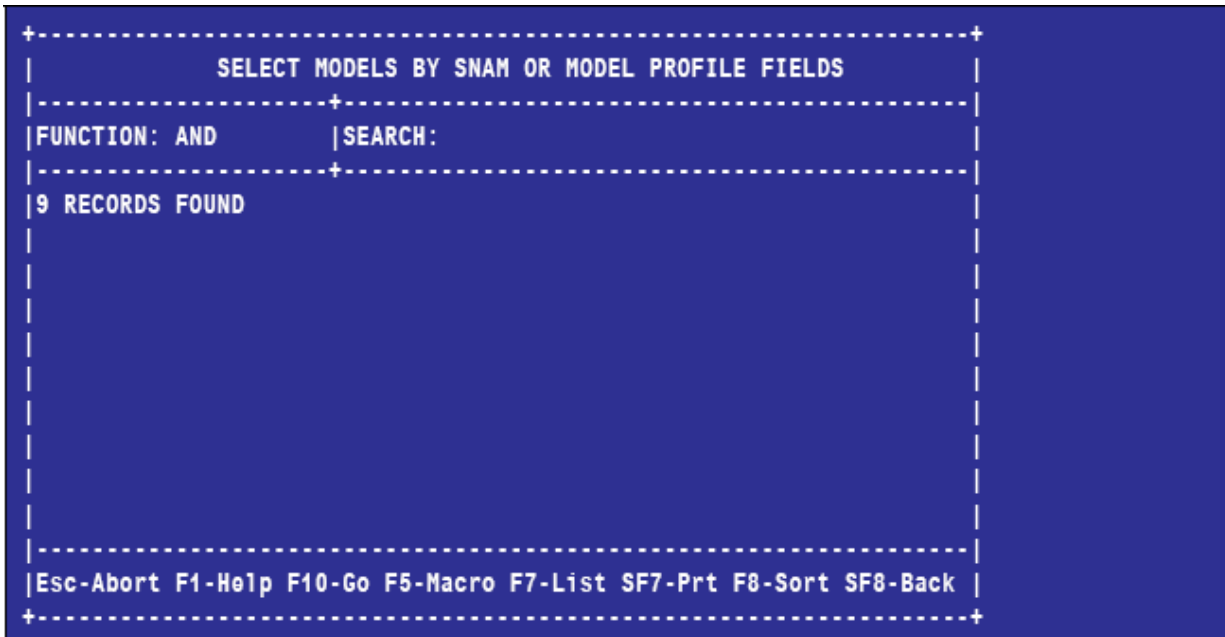
The 13F Report helps investment managers to determine when they need to file a Form 13F with the Securities and Exchange Commission, pursuant to Section 13(f) of the Securities Exchange Act of 1934.

To run the report, follow these steps:

1. Select SEC13F REPORT from the Reports menu. The following prompt opens:



2. Type the “as-of” date for the report, and press ENTER. The following selection window opens:



3. Select the submodel for which you wish to generate a report, and press F10

Note: Only one submodel may be selected.

The following selection window opens:



4. Select the account range for which you want reports generated, and press F10. The following prompt displays:


```
+-----+  
|AS OF DATE (MM/DD/YY) - HIT ENTER FOR 12/11/02 : |  
+-----+
```

2. Type the “as of” date for the report, and press ENTER. The following selection window opens:

```
+-----+  
|                SELECT MODELS BY SNAM OR MODEL PROFILE FIELDS                |  
|-----+-----+  
|FUNCTION: AND      |SEARCH: |  
|-----+-----+  
|9 RECORDS FOUND |  
|                |  
|                |  
|-----+-----+  
|Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back |  
+-----+
```

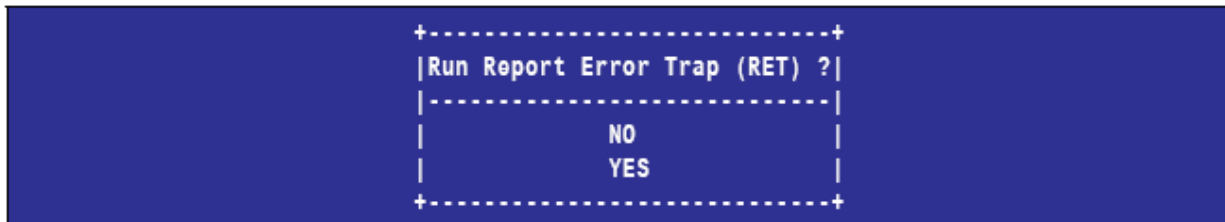
3. Select the submodel for which you wish to generate a report, and press F10

Note: Only one submodel may be selected.

The following selection window opens:



4. Select the account range for which you want reports generated, and press F10. The following prompt displays:



- If the report is run as of the previous business day's date, it is unnecessary to run the report error trap since the default price date for a holdings report is the previous business day. In this case, select NO
 - If the report is run as of a date prior to the previous business day, select YES so that the market prices corresponding to the "as of" date of the report will be used to calculate the market values
5. Select whether or not you want to run the error trap, and press ENTER. The report is generated. An example of a typical report is shown on the next page:

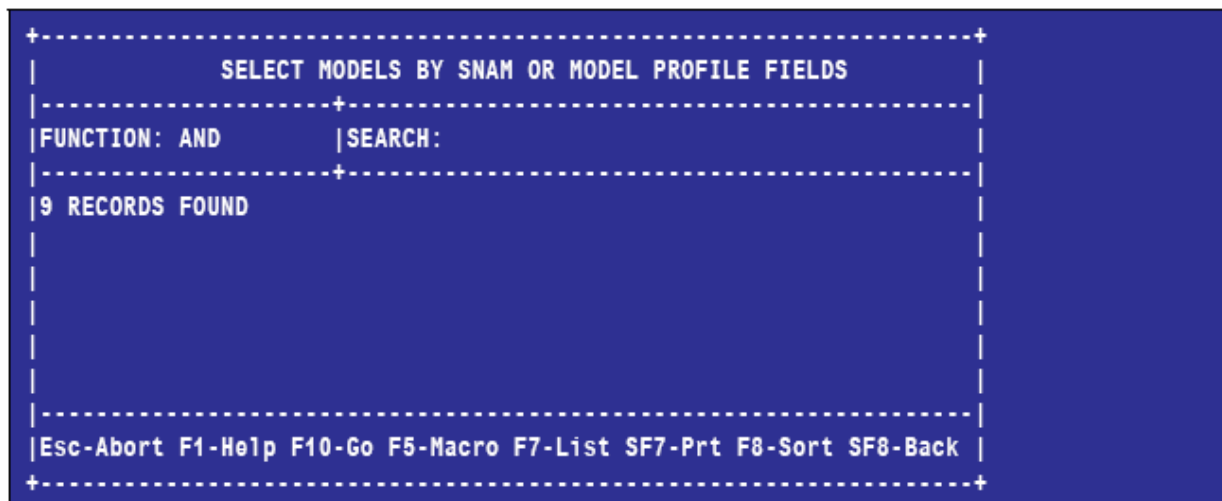
| SAMPLE ASSET MANAGEMENT | | PORTFOLIO VALUATION FOR | | | PAGE 1 OF 1 | | | |
|--------------------------------|--------------|---------------------------------------|--------------|---------------|----------------------------------|---------------|----------|--------|
| PORTVUE - SUMPAR.LSP | | COMBINED INDUSTRY DISTRIBUTION REPORT | | | DOW JONES INDUSTRIAL AVG 8589.14 | | | |
| RUN DATE: 12/12/02 3:27 P.M. | | AS OF DATE: December 11, 2002 | | | STANDARD & POORS 500 904.96 | | | |
| | | SUBMODEL: SUBABC SUBABC | | | | | | |
| | | MSP5 | | | | | | |
| SECURITY DESCRIPTION | TOTAL COST | COST/SHARE | MARKET PRICE | CURRENT VALUE | % VALUE | ANNUAL INCOME | CURR YLD | YTM/PE |
| CASH AND CASH EQUIVALENTS | | | | | | | | |
| ===== | | | | | | | | |
| I B M | 1,519,458 | | | 1,519,458 | 35.4 | 47,863 | 3.15 | 25.06 |
| COMMON STOCKS | | | | | | | | |
| ===== | | | | | | | | |
| CONSUMER STAPLES | | | | | | | | |
| ===== | | | | | | | | |
| 16,500 COCA COLA CO | 1,181,010 | 71.58 | 81.44 | 1,343,760 | 31.3 | 9,900 | 0.74 | 27.83 |
| MISCELLANEOUS | | | | | | | | |
| ===== | | | | | | | | |
| 85,000 WAL MART STORES INC COM | 1,408,600 | 16.57 | 16.86 | 1,433,100 | 33.4 | | | 30.06 |
| COMMON STOCKS | | | | | | | | |
| ===== | | | | | | | | |
| TOTALS | 2,589,610 | | \$ | 2,776,860 | 64.6 | 9,900 | 0.36 | |
| ===== | | | | | | | | |
| GRAND TOTAL | \$ 4,109,068 | | \$ | 4,296,318 | 100.0 | 57,763 | 1.34 | |
| ===== | | | | | | | | |

Asset Mix By Account Report

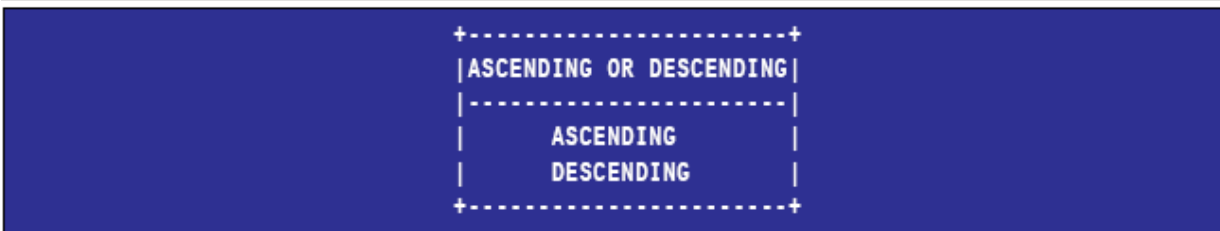
This report indicates the percent of cash, fixed income securities, and equities within a specific submodel for a selected range of accounts.

To run the report, follow these steps:

1. Select ASSET MIX BY ACCOUNT from the Reports menu. The following prompt displays:



Note: Only one submodel may be selected.



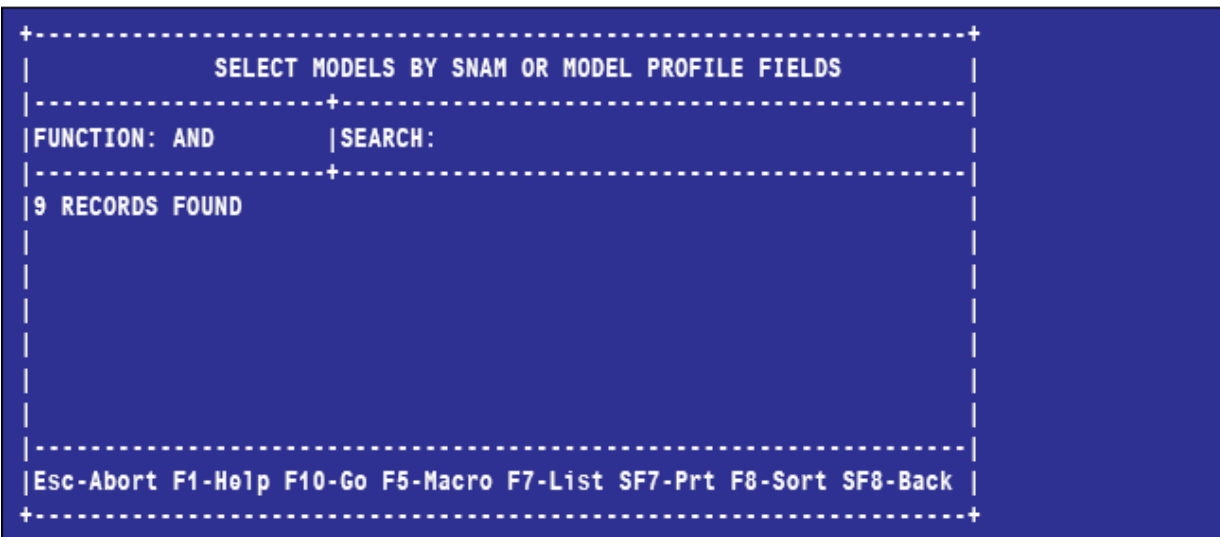
- Select whether you want the results sorted in ascending or descending order. The report is generated. A sample follows:

| AS OF: 12/16/02 | | | | AS OF: 12/16/02 | | | | AS OF: 12/16/02 | | | | AS OF: 12/16/02 | | | |
|--|------------|-------|-----------|--|-------|---------|------------|--|--------------|------------|------------|--|-----------|------------|--|
| ACCOUNT SUMMARY REPORT (MGR EQ MSP0*0SPUNE01) SUBMODEL: SUB TEST MODEL 1 | | | | ACCOUNT SUMMARY REPORT (MGR EQ MSP0*0SPUNE01) SUBMODEL: SUB TEST MODEL 1 | | | | ACCOUNT SUMMARY REPORT (MGR EQ MSP0*0SPUNE01) SUBMODEL: SUB TEST MODEL 1 | | | | ACCOUNT SUMMARY REPORT (MGR EQ MSP0*0SPUNE01) SUBMODEL: SUB TEST MODEL 1 | | | |
| ACCOUNT | CASH | FIXED | EQUITY | TOTAL | BNJUM | SNAM | CASH %PORT | FIXED %PORT | EQUITY %PORT | TOTAL | CASH | FIXED | EQUITY | TOTAL | |
| MICHAEL CI FRESE | 556,280 | 0 | 0 | 556,280 | 810 | CI FRMI | 100.0 | 0.0 | 0.0 | 556,280 | 556,280 | 0 | 0 | 556,280 | |
| MULTIPLE STRATEGY PORTFOLIO TEST | 1,211,217 | 0 | 274,820 | 1,486,037 | 820 | MS P1 | 81.5 | 0.0 | 18.5 | 1,486,037 | 1,211,217 | 0 | 274,820 | 1,486,037 | |
| MULTIPLE STRATEGY PORTFOLIO TEST | 1,211,217 | 0 | 274,820 | 1,486,037 | 910 | MS P10 | 81.5 | 0.0 | 18.5 | 1,486,037 | 1,211,217 | 0 | 274,820 | 1,486,037 | |
| MULTIPLE STRATEGY PORTFOLIO TEST | 1,211,217 | 0 | 274,820 | 1,486,037 | 920 | MS P11 | 81.5 | 0.0 | 18.5 | 1,486,037 | 1,211,217 | 0 | 274,820 | 1,486,037 | |
| MULTIPLE STRATEGY PORTFOLIO TEST | 1,211,217 | 0 | 274,820 | 1,486,037 | 930 | MS P12 | 81.5 | 0.0 | 18.5 | 1,486,037 | 1,211,217 | 0 | 274,820 | 1,486,037 | |
| MULTIPLE STRATEGY PORTFOLIO TEST | 1,211,217 | 0 | 274,820 | 1,486,037 | 940 | MS P13 | 81.5 | 0.0 | 18.5 | 1,486,037 | 1,211,217 | 0 | 274,820 | 1,486,037 | |
| MULTIPLE STRATEGY PORTFOLIO TEST | 1,211,217 | 0 | 274,820 | 1,486,037 | 950 | MS P14 | 81.5 | 0.0 | 18.5 | 1,486,037 | 1,211,217 | 0 | 274,820 | 1,486,037 | |
| MULTIPLE STRATEGY PORTFOLIO TEST | 1,211,217 | 0 | 274,820 | 1,486,037 | 960 | MS P15 | 81.5 | 0.0 | 18.5 | 1,486,037 | 1,211,217 | 0 | 274,820 | 1,486,037 | |
| MULTIPLE STRATEGY PORTFOLIO TEST | 1,211,217 | 0 | 274,820 | 1,486,037 | 970 | MS P16 | 81.5 | 0.0 | 18.5 | 1,486,037 | 1,211,217 | 0 | 274,820 | 1,486,037 | |
| MULTIPLE STRATEGY PORTFOLIO TEST | 1,211,217 | 0 | 274,820 | 1,486,037 | 980 | MS P17 | 81.5 | 0.0 | 18.5 | 1,486,037 | 1,211,217 | 0 | 274,820 | 1,486,037 | |
| MULTIPLE STRATEGY PORTFOLIO TEST | 1,211,217 | 0 | 274,820 | 1,486,037 | 990 | MS P18 | 81.5 | 0.0 | 18.5 | 1,486,037 | 1,211,217 | 0 | 274,820 | 1,486,037 | |
| MULTIPLE STRATEGY PORTFOLIO TEST | 1,211,217 | 0 | 274,820 | 1,486,037 | 1001 | MS P19 | 81.5 | 0.0 | 18.5 | 1,486,037 | 1,211,217 | 0 | 274,820 | 1,486,037 | |
| MULTIPLE STRATEGY PORTFOLIO TEST | 1,211,217 | 0 | 274,820 | 1,486,037 | 830 | MS P2 | 81.5 | 0.0 | 18.5 | 1,486,037 | 1,211,217 | 0 | 274,820 | 1,486,037 | |
| MULTIPLE STRATEGY PORTFOLIO TEST | 1,211,217 | 0 | 274,820 | 1,486,037 | 1002 | MS P20 | 81.5 | 0.0 | 18.5 | 1,486,037 | 1,211,217 | 0 | 274,820 | 1,486,037 | |
| MULTIPLE STRATEGY PORTFOLIO TEST | 1,211,217 | 0 | 274,820 | 1,486,037 | 840 | MS P3 | 81.5 | 0.0 | 18.5 | 1,486,037 | 1,211,217 | 0 | 274,820 | 1,486,037 | |
| MULTIPLE STRATEGY PORTFOLIO TEST | 1,211,217 | 0 | 274,820 | 1,486,037 | 850 | MS P4 | 81.5 | 0.0 | 18.5 | 1,486,037 | 1,211,217 | 0 | 274,820 | 1,486,037 | |
| MULTIPLE STRATEGY PORTFOLIO TEST | 1,211,217 | 0 | 274,820 | 1,486,037 | 860 | MS P5 | 81.5 | 0.0 | 18.5 | 1,486,037 | 1,211,217 | 0 | 274,820 | 1,486,037 | |
| MULTIPLE STRATEGY PORTFOLIO TEST | 1,211,217 | 0 | 274,820 | 1,486,037 | 870 | MS P6 | 81.5 | 0.0 | 18.5 | 1,486,037 | 1,211,217 | 0 | 274,820 | 1,486,037 | |
| MULTIPLE STRATEGY PORTFOLIO TEST | 1,211,217 | 0 | 274,820 | 1,486,037 | 880 | MS P7 | 81.5 | 0.0 | 18.5 | 1,486,037 | 1,211,217 | 0 | 274,820 | 1,486,037 | |
| MULTIPLE STRATEGY PORTFOLIO TEST | 1,211,217 | 0 | 274,820 | 1,486,037 | 890 | MS P8 | 81.5 | 0.0 | 18.5 | 1,486,037 | 1,211,217 | 0 | 274,820 | 1,486,037 | |
| MULTIPLE STRATEGY PORTFOLIO TEST | 1,211,217 | 0 | 274,820 | 1,486,037 | 900 | MS P9 | 81.5 | 0.0 | 18.5 | 1,486,037 | 1,211,217 | 0 | 274,820 | 1,486,037 | |
| ALL ACCOUNTS | 24,780,624 | 0 | 5,496,403 | 30,277,027 | | | 81.8 | 0.0 | 18.2 | 30,277,027 | 24,780,624 | 0 | 5,496,403 | 30,277,027 | |

Cash Balances By Account Report

This report displays the beginning of day cash balances for a selected range of accounts for a specific sub-model.

- Select CASH BALANCES BY ACCOUNT from the Reports menu. The following prompt displays:



2. Select the submodel you want to use, and press F10. The account selection window opens, enabling you to select specific accounts. Only one submodel may be selected

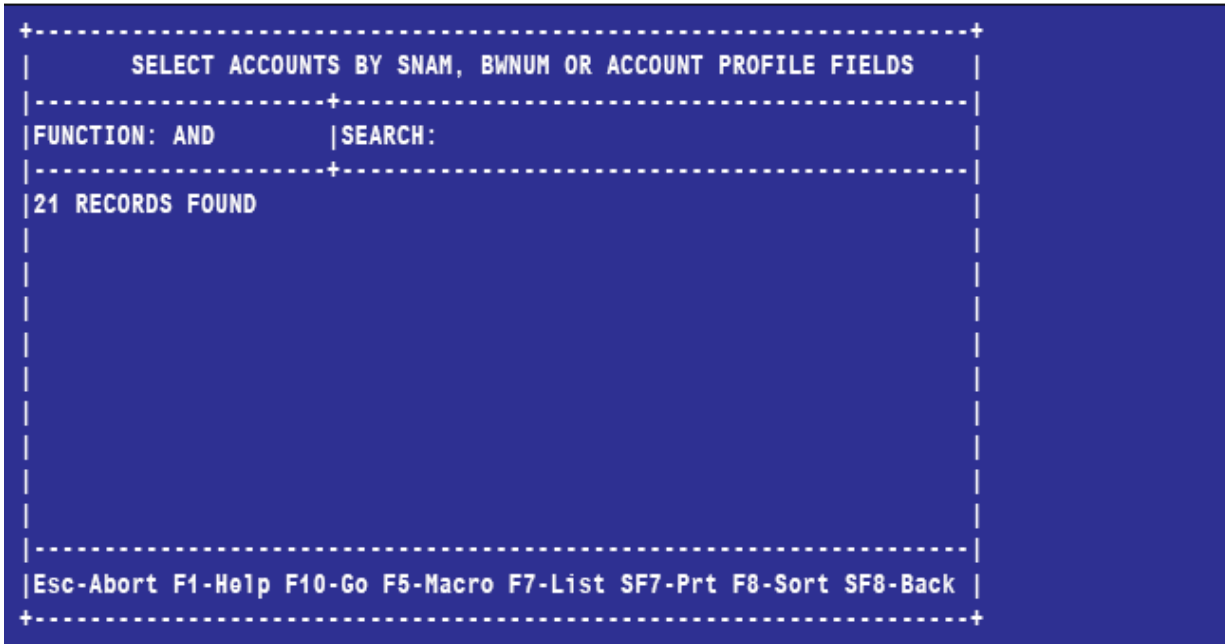


3. Select the accounts you want to include in your report, and press F10. Or, simply press F10 to include all accounts. The following prompt displays:



4. Select the column in the report that you want to use as a key for sorting. The report is generated. A sample is shown below:

| AS OF: 12/16/02 ACCOUNT SUMMARY OF CASH AND EQUIVALENTS (MGR EQ MSP@0SPUNIV01) SUBMODEL:MSP TEST SUB MODEL | | | | | AS OF: 12/16/02 ACCOUNT SUMMARY OF CASH AND EQUIVALENTS (MGR EQ MSP@0SPUNIV01) SUBMODEL:MSP TEST SUB MODEL | | | | | | | |
|--|----------|--|----------|-------------|--|--------|---------|--------------------------------|--------|--------|------------|--------------|
| SHORT NAME | ACCT NUM | LONG NAME | CASH | CASH EQUIVS | TOT CASH AND EQVS | % PORT | ACCT NO | LONG NAME | EX INC | INCOME | PRINCIPAL | TOTAL CASH |
| CFRMI | 810 | MICHAEL CIFRESE | 319,560 | 0 | 319,560 | 100.0 | 810 | MICHAEL CIFRESE | | 0 | 319,560 | 319,560.00 |
| MSP1 | 820 | MULTIPLE STRATEGY PORTFOLIO TE 1,513,692 | | 0 | 1,513,692 | 73.9 | 820 | MULTIPLE STRATEGY PORTFOLIO TE | | 2,254 | 1,511,438 | 1,513,692.28 |
| MSP10 | 910 | MULTIPLE STRATEGY PORTFOLIO TE 1,513,692 | | 0 | 1,513,692 | 73.9 | 910 | MULTIPLE STRATEGY PORTFOLIO TE | | 2,254 | 1,511,438 | 1,513,692.27 |
| MSP11 | 920 | MULTIPLE STRATEGY PORTFOLIO TE 1,513,692 | | 0 | 1,513,692 | 73.9 | 920 | MULTIPLE STRATEGY PORTFOLIO TE | | 2,254 | 1,511,438 | 1,513,692.27 |
| MSP12 | 930 | MULTIPLE STRATEGY PORTFOLIO TE 1,513,692 | | 0 | 1,513,692 | 73.9 | 930 | MULTIPLE STRATEGY PORTFOLIO TE | | 2,254 | 1,511,438 | 1,513,692.27 |
| MSP13 | 940 | MULTIPLE STRATEGY PORTFOLIO TE 1,513,692 | | 0 | 1,513,692 | 73.9 | 940 | MULTIPLE STRATEGY PORTFOLIO TE | | 2,254 | 1,511,438 | 1,513,692.27 |
| MSP14 | 950 | MULTIPLE STRATEGY PORTFOLIO TE 1,513,692 | | 0 | 1,513,692 | 73.9 | 950 | MULTIPLE STRATEGY PORTFOLIO TE | | 2,254 | 1,511,438 | 1,513,692.27 |
| MSP15 | 960 | MULTIPLE STRATEGY PORTFOLIO TE 1,513,692 | | 0 | 1,513,692 | 73.9 | 960 | MULTIPLE STRATEGY PORTFOLIO TE | | 2,254 | 1,511,438 | 1,513,692.27 |
| MSP16 | 970 | MULTIPLE STRATEGY PORTFOLIO TE 1,513,692 | | 0 | 1,513,692 | 73.9 | 970 | MULTIPLE STRATEGY PORTFOLIO TE | | 2,254 | 1,511,438 | 1,513,692.27 |
| MSP17 | 980 | MULTIPLE STRATEGY PORTFOLIO TE 1,513,692 | | 0 | 1,513,692 | 73.9 | 980 | MULTIPLE STRATEGY PORTFOLIO TE | | 2,254 | 1,511,438 | 1,513,692.27 |
| MSP18 | 990 | MULTIPLE STRATEGY PORTFOLIO TE 1,513,692 | | 0 | 1,513,692 | 73.9 | 990 | MULTIPLE STRATEGY PORTFOLIO TE | | 2,254 | 1,511,438 | 1,513,692.27 |
| MSP19 | 1001 | MULTIPLE STRATEGY PORTFOLIO TE 1,513,692 | | 0 | 1,513,692 | 73.9 | 1001 | MULTIPLE STRATEGY PORTFOLIO TE | | 2,254 | 1,511,438 | 1,513,692.27 |
| MSP2 | 830 | MULTIPLE STRATEGY PORTFOLIO TE 1,513,692 | | 0 | 1,513,692 | 73.9 | 830 | MULTIPLE STRATEGY PORTFOLIO TE | | 2,254 | 1,511,438 | 1,513,692.27 |
| MSP20 | 1002 | MULTIPLE STRATEGY PORTFOLIO TE 1,513,692 | | 0 | 1,513,692 | 73.9 | 1002 | MULTIPLE STRATEGY PORTFOLIO TE | | 2,254 | 1,511,438 | 1,513,692.27 |
| MSP5 | 840 | MULTIPLE STRATEGY PORTFOLIO TE 1,513,692 | | 0 | 1,513,692 | 73.9 | 840 | MULTIPLE STRATEGY PORTFOLIO TE | | 2,254 | 1,511,438 | 1,513,692.27 |
| MSP4 | 850 | MULTIPLE STRATEGY PORTFOLIO TE 1,513,692 | | 0 | 1,513,692 | 73.9 | 850 | MULTIPLE STRATEGY PORTFOLIO TE | | 2,254 | 1,511,438 | 1,513,692.27 |
| MSP5 | 860 | MULTIPLE STRATEGY PORTFOLIO TE 1,513,692 | | 0 | 1,513,692 | 73.9 | 860 | MULTIPLE STRATEGY PORTFOLIO TE | | 2,254 | 1,511,438 | 1,513,692.27 |
| MSP6 | 870 | MULTIPLE STRATEGY PORTFOLIO TE 1,513,692 | | 0 | 1,513,692 | 73.9 | 870 | MULTIPLE STRATEGY PORTFOLIO TE | | 2,254 | 1,511,438 | 1,513,692.27 |
| MSP7 | 880 | MULTIPLE STRATEGY PORTFOLIO TE 1,513,692 | | 0 | 1,513,692 | 73.9 | 880 | MULTIPLE STRATEGY PORTFOLIO TE | | 2,254 | 1,511,438 | 1,513,692.27 |
| MSP8 | 890 | MULTIPLE STRATEGY PORTFOLIO TE 1,513,692 | | 0 | 1,513,692 | 73.9 | 890 | MULTIPLE STRATEGY PORTFOLIO TE | | 2,254 | 1,511,438 | 1,513,692.27 |
| MSP9 | 900 | MULTIPLE STRATEGY PORTFOLIO TE 1,513,692 | | 0 | 1,513,692 | 73.9 | 900 | MULTIPLE STRATEGY PORTFOLIO TE | | 2,254 | 1,511,438 | 1,513,692.27 |
| | | ALL ACCOUNTS | 30593405 | 0 | 30593405 | 74.1 | | ALL ACCOUNTS | | 45,084 | 30,548,321 | 30,593,405 |



5. Select the accounts for which you want a report, and press F10. The following prompt displays:



6. At the next prompt, select the type of cash transaction to include. To view all transaction types, type ALL. To select from a list of transaction types, type LIST
7. The report is generated. It can be viewed using the BROWSE function, or printed. An example of this report is shown below:

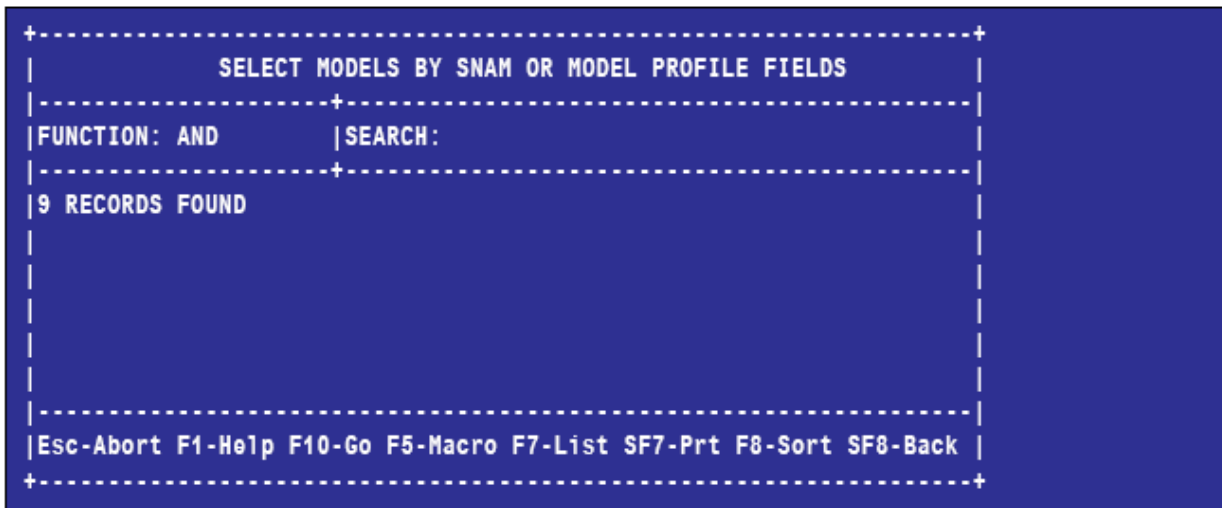
| CIFRMI - -000810 | | MICHAEL CIFRESE | | |
|-------------------------|------|---------------------------|-----------------|------------|
| | | FROM 01/01/02 TO 11/30/02 | | |
| | | SUBMODEL:SUBABC SUBABC | | |
| DATE | TYPE | UNITS | DESCRIPTION | AMOUNT |
| ---- | ---- | ---- | ----- | ----- |
| 02/27 | OPE | | OPENING BALANCE | 440,920.00 |
| 02/27 | OPE | | OPENING BALANCE | 500,000.00 |
| 2 MATCHING TRANSACTIONS | | | | 940,920.00 |

Cross Reference By Security Report

The Cross Reference By Security Report displays accounts that hold specific securities within specific sub-models.

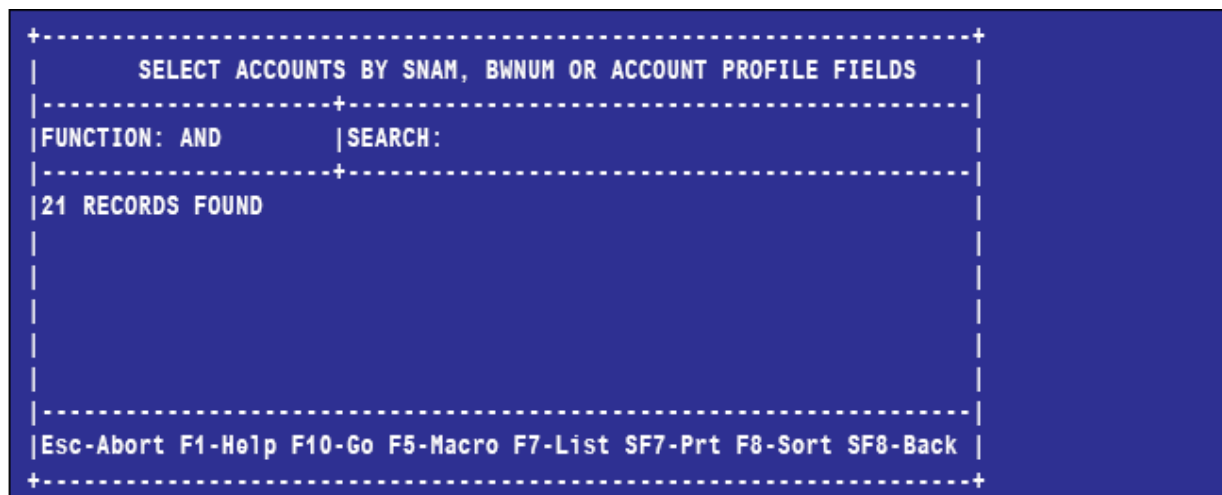
To run the report:

1. Select CROSS REFERENCE BY SECURITY from the Reports menu. The following prompt displays:

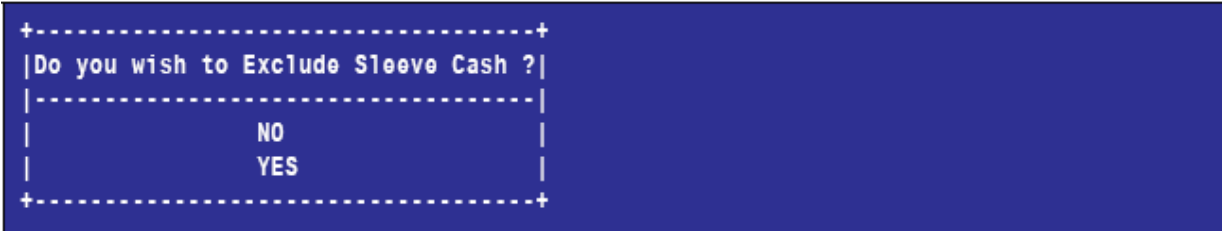


Note: Only one submodel may be selected.

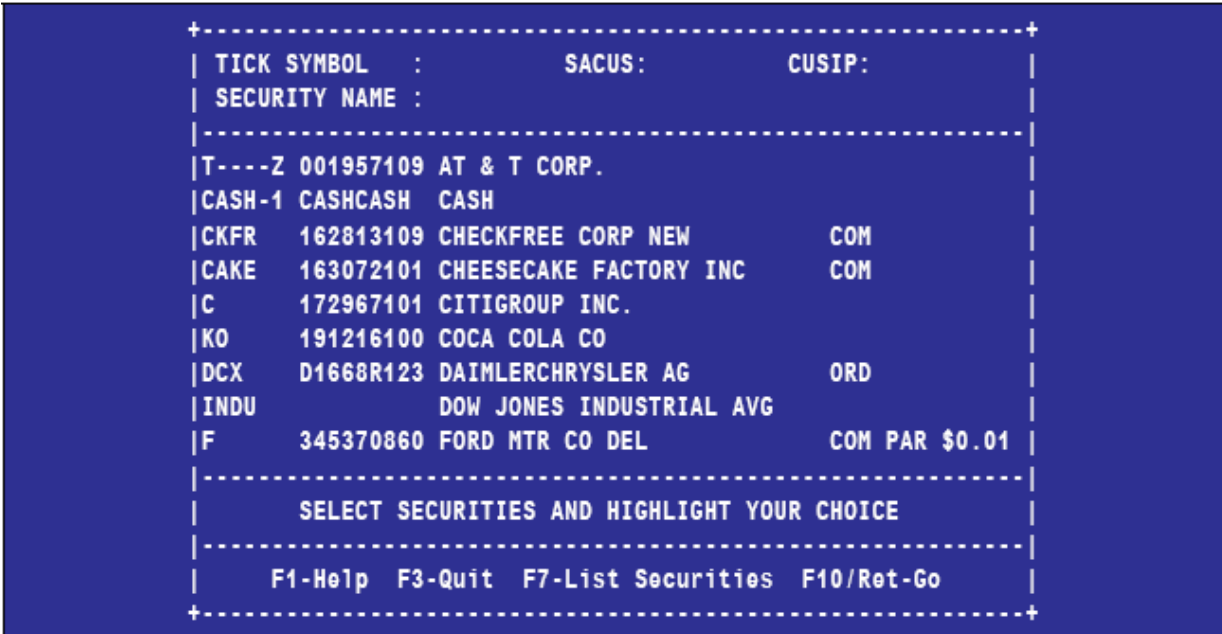
2. Select the submodel you want to use, and press F10. The account selection window will appear, enabling you to select specific accounts



3. Select the accounts you want to include in your report, and press F10. Or, simply press F10 to include all accounts. The following screen will appear, allowing you to excluded sleeve cash from the report calculations. Choosing this option can improve report generation speed

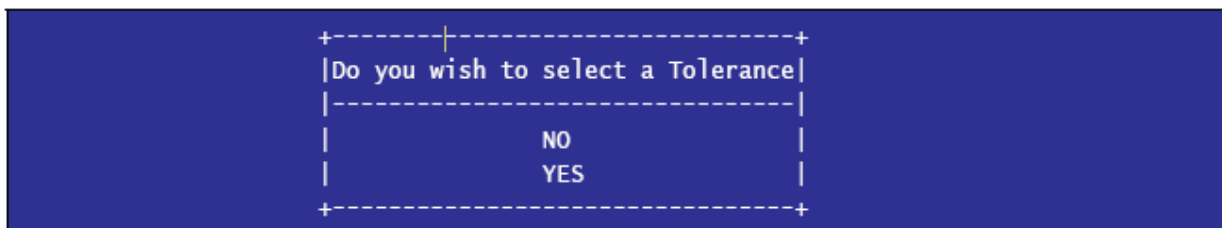


4. Choose Yes to exclude sleeve cash from the report, or No to include sleeve cash. Choosing Yes can improve report generation speed. The ticker selection screen will open



5. Type the ticker, CUSIP, or SACUS for the security to cross reference. Press F7 to select from a list of securities held within the selected range of accounts. Then, press F10 to continue

You are prompted to include a tolerance range. This option allows you to display only those accounts that violate a given tolerance range so you can focus only on those accounts that need additional research.



6. Select NO to report on all accounts. Select YES to select a tolerance range and report only on accounts that fall outside the tolerance

If YES is selected, the next prompt will ask the user to select the type of tolerance range:

- MARKET VALUE: Current market value of the selected security
- GAIN/LOSS: Total unrealized gain/loss for the selected security
- % GAIN/LOSS: Percent of unrealized gain/loss for the selected security
- % PORTFOLIO: Percent of the submodel which is made up by the selected security
- % ASSET CLASS: Percent of the asset class in the submodel which is made up by the selected security
- NO SORT

9. Then, press ENTER. The report is generated. It can be viewed using the BROWSE function, or printed. An example of this report is shown below:

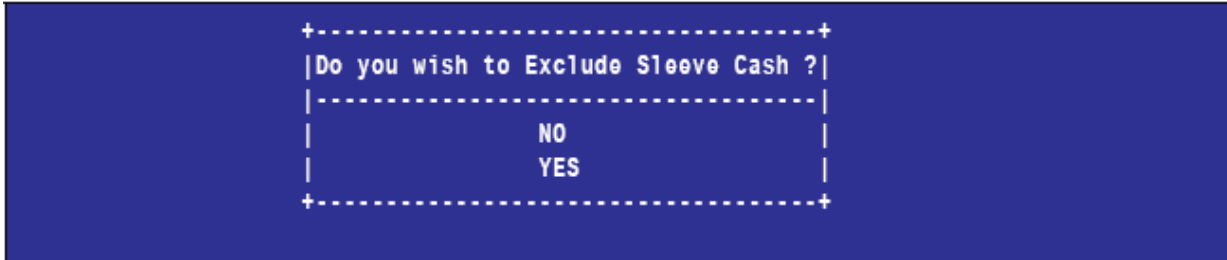
```

CROSS REFERENCE REPORT AS OF 08/05/04 - 21 OUT OF 21 ACCOUNTS OWN CKFR
SORT: SNAM
FISERV CORP NEW          COM          DPS = 0.00 YLD = 0.000
MPS = 25.510    TCK = CKFR    EXCH = OTC          EPS = -0.21 PE =*****
SACUS = 6169459  CUSIP = 162813109  SUBMODEL = SUBABC
    
```

| ACCOUNT | QUANTITY | COST | CPS | MKT VALUE | UNR. G/L | % PORT |
|----------------------|-----------|------------|-------|------------|------------|--------|
| TOTAL | 1,611,000 | 26,692,000 | 16.57 | 41,096,610 | 14,404,610 | 74.12 |
| MSPTST MSPTST | 11,000 | 220,000 | 20.00 | 280,610 | 60,610 | 52.19 |
| MSP1 MULTIPLE STRAT | 80,000 | 1,323,600 | 16.55 | 2,040,800 | 717,200 | 74.34 |
| MSP10 MULTIPLE STRAT | 80,000 | 1,323,600 | 16.55 | 2,040,800 | 717,200 | 74.34 |
| MSP11 MULTIPLE STRAT | 80,000 | 1,323,600 | 16.55 | 2,040,800 | 717,200 | 74.34 |
| MSP12 MULTIPLE STRAT | 80,000 | 1,323,600 | 16.55 | 2,040,800 | 717,200 | 74.34 |
| MSP13 MULTIPLE STRAT | 80,000 | 1,323,600 | 16.55 | 2,040,800 | 717,200 | 74.34 |
| MSP14 MULTIPLE STRAT | 80,000 | 1,323,600 | 16.55 | 2,040,800 | 717,200 | 74.34 |
| MSP15 MULTIPLE STRAT | 80,000 | 1,323,600 | 16.55 | 2,040,800 | 717,200 | 74.34 |
| MSP16 MULTIPLE STRAT | 80,000 | 1,323,600 | 16.55 | 2,040,800 | 717,200 | 74.34 |
| MSP17 MULTIPLE STRAT | 80,000 | 1,323,600 | 16.55 | 2,040,800 | 717,200 | 74.34 |
| MSP18 MULTIPLE STRAT | 80,000 | 1,323,600 | 16.55 | 2,040,800 | 717,200 | 74.34 |
| MSP19 MULTIPLE STRAT | 80,000 | 1,323,600 | 16.55 | 2,040,800 | 717,200 | 74.34 |
| MSP2 MULTIPLE STRAT | 80,000 | 1,323,600 | 16.55 | 2,040,800 | 717,200 | 74.34 |
| MSP20 MULTIPLE STRAT | 80,000 | 1,323,600 | 16.55 | 2,040,800 | 717,200 | 74.34 |
| MSP3 MULTIPLE STRAT | 80,000 | 1,323,600 | 16.55 | 2,040,800 | 717,200 | 74.34 |
| MSP4 MULTIPLE STRAT | 80,000 | 1,323,600 | 16.55 | 2,040,800 | 717,200 | 74.34 |
| TOTAL | 1,611,000 | 26,692,000 | 16.57 | 41,096,610 | 14,404,610 | 74.12 |

Note: The reporting functionality has been optimized to increase the speed of the results when running against a large number of accounts.

To speed report creation, exclude sleeve cash from the reporting calculations when prompted.



Cross Reference by ISSTY Report

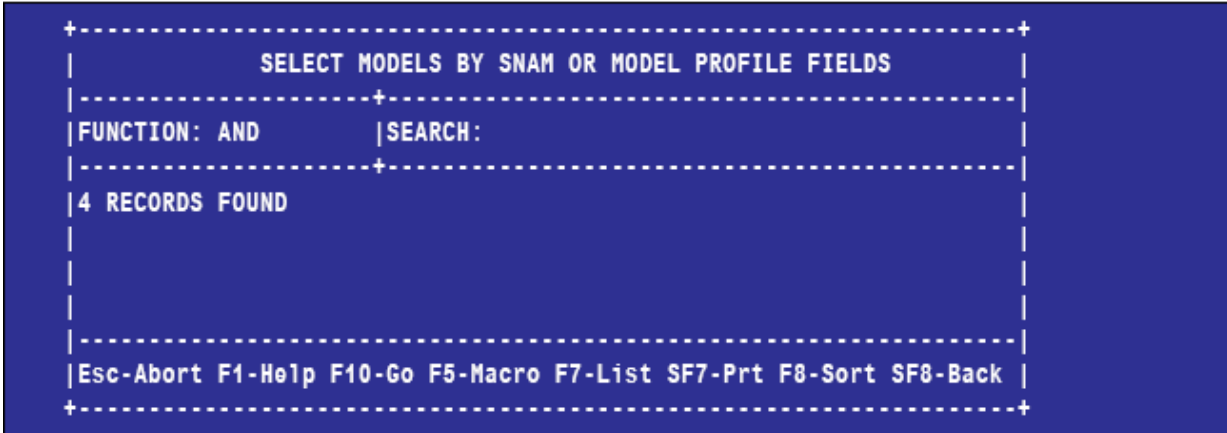
This report uses the submodel to calculate the issue type percent target and then displays outliers based on a tolerance range.

To run the Cross Reference by ISSTY Report:

1. Select CROSS REFERENCE BY ISSTY from the Reports menu. You are prompted to enter an “As of” date



2. Enter the date of the last business day you wish to include in the report and press ENTER. The model selection screen will open:



3. Choose one model and press F10. To choose from a list of models, press F7, choose a model, and press ENTER. The account selection screen will open:

```
+-----+
| SELECT ACCOUNTS BY SNAM, BNUM OR ACCOUNT PROFILE FIELDS |
+-----+
| FUNCTION: AND      | SEARCH:              |
+-----+
| 22 RECORDS FOUND  |
+-----+
| Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back |
+-----+
```

4. Choose an account or a range of accounts and press F10. A prompt will appear asking you which issue type you wish to report on

```
+-----+
| Which Issue Type Do You Want to Report On? |
+-----+
```

5. Type the Issue Type number(s) for the issue type(s) you wish to include or type ALL to include all issue types in the report. Press ENTER
6. You are prompted to include a tolerance range. The tolerance range is based on the issue type target within the submodel. By including a tolerance range, you will display only those accounts that violate a given tolerance range so you can focus only on those accounts that need additional research

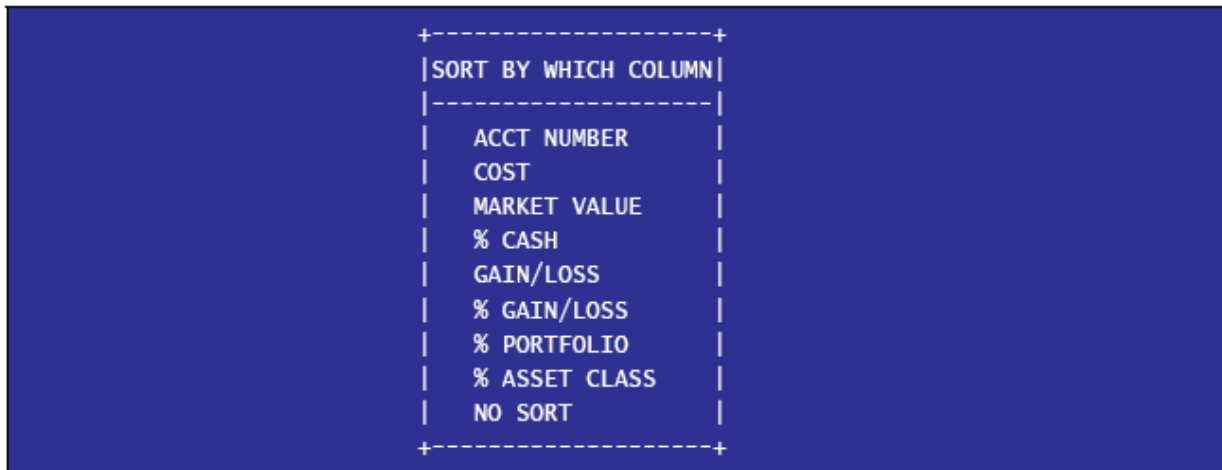
```
+-----+
| Do you wish to select a Tolerance |
+-----+
| NO |
| YES |
+-----+
```

7. Select NO to report on all accounts. Select YES to select a tolerance range and report only on accounts that fall outside the tolerance

If YES is selected, the next prompt will ask the user to select the type of tolerance range:

- **ABSOLUTE PERCENT:** A specific tolerance range based on the model target. For example, if the target allocation for a security is 5% of a sleeve and a tolerance of 2% is selected, the report will not display accounts that hold 3-7% of the security in the sleeve
- **PERCENT RELATIVE:** A tolerance relative to the model target. For example, if the target allocation for a security is 10% of a sleeve and a tolerance of 10% is selected, the report will not display accounts that hold 9-11% of the security in the sleeve. In this example, the tolerance band is +/- 1% since 1 is 10% of 10
- **STANDARD DEVIATION:** A tolerance based on the a selected number of standard deviations based on the average of the selected group of accounts

8. Choose the appropriate tolerance level. You are prompted to choose a column to sort the report by



9. Choose the appropriate sort option. The report generates

```

CROSS REFERENCE BY ISSUE TYPE
SORT: ACCT NUMBER
COMMON STOCKS                TYPE:28
AS OF: 08/05/04
    
```

```

SUBMODEL: SUBABC
    
```

| ACCOUNT | | COST | MKT VALUE | % CASH | UNR. G/L | % G/L | % PORT |
|---------|---------------------------|------------|------------|--------|------------|-------|--------|
| 0 | MSPTST | 451,000 | 536,180 | 0.28 | 85,180 | 18.89 | 100.00 |
| 820 | MULTIPLE STRATEGY PORTFOL | 1,912,284 | 2,741,695 | 0.13 | 829,412 | 43.37 | 100.00 |
| 830 | MULTIPLE STRATEGY PORTFOL | 1,912,284 | 2,741,695 | 0.13 | 829,412 | 43.37 | 100.00 |
| 840 | MULTIPLE STRATEGY PORTFOL | 1,912,284 | 2,741,695 | 0.13 | 829,412 | 43.37 | 100.00 |
| 850 | MULTIPLE STRATEGY PORTFOL | 1,912,284 | 2,741,695 | 0.13 | 829,412 | 43.37 | 100.00 |
| 860 | MULTIPLE STRATEGY PORTFOL | 1,912,284 | 2,741,695 | 0.13 | 829,412 | 43.37 | 100.00 |
| 870 | MULTIPLE STRATEGY PORTFOL | 1,912,284 | 2,741,695 | 0.13 | 829,412 | 43.37 | 100.00 |
| 880 | MULTIPLE STRATEGY PORTFOL | 1,912,284 | 2,741,695 | 0.13 | 829,412 | 43.37 | 100.00 |
| 890 | MULTIPLE STRATEGY PORTFOL | 1,912,284 | 2,741,695 | 0.13 | 829,412 | 43.37 | 100.00 |
| 900 | MULTIPLE STRATEGY PORTFOL | 1,912,284 | 2,741,695 | 0.13 | 829,412 | 43.37 | 100.00 |
| 910 | MULTIPLE STRATEGY PORTFOL | 1,912,284 | 2,741,695 | 0.13 | 829,412 | 43.37 | 100.00 |
| 920 | MULTIPLE STRATEGY PORTFOL | 1,912,284 | 2,741,695 | 0.13 | 829,412 | 43.37 | 100.00 |
| 930 | MULTIPLE STRATEGY PORTFOL | 1,912,284 | 2,741,695 | 0.13 | 829,412 | 43.37 | 100.00 |
| 940 | MULTIPLE STRATEGY PORTFOL | 1,912,284 | 2,741,695 | 0.13 | 829,412 | 43.37 | 100.00 |
| 950 | MULTIPLE STRATEGY PORTFOL | 1,912,284 | 2,741,695 | 0.13 | 829,412 | 43.37 | 100.00 |
| 960 | MULTIPLE STRATEGY PORTFOL | 1,912,284 | 2,741,695 | 0.13 | 829,412 | 43.37 | 100.00 |
| 970 | MULTIPLE STRATEGY PORTFOL | 1,912,284 | 2,741,695 | 0.13 | 829,412 | 43.37 | 100.00 |
| 980 | MULTIPLE STRATEGY PORTFOL | 1,912,284 | 2,741,695 | 0.13 | 829,412 | 43.37 | 100.00 |
| 990 | MULTIPLE STRATEGY PORTFOL | 1,912,284 | 2,741,695 | 0.13 | 829,412 | 43.37 | 100.00 |
| 1001 | MULTIPLE STRATEGY PORTFOL | 1,912,284 | 2,741,695 | 0.13 | 829,412 | 43.37 | 100.00 |
| 1002 | MULTIPLE STRATEGY PORTFOL | 1,912,284 | 2,741,695 | 0.13 | 829,412 | 43.37 | 100.00 |
| TOTAL | | 38,696,676 | 55,370,088 | ***** | 16,673,412 | 43.09 | 100.00 |

Audit general ledger transactions for missing or invalid submodel codes (MSPGLAUDIT)

The MSPGLAUDIT function runs a report that allows submanagers to audit general ledger transactions for missing or invalid submodel tags.

The report will automatically audit a selected group of accounts that have missing, “BLANK,” or invalid submodel tags:

- Dividends (DIV)
- Coupon payments (INT)
- Accrued interest payable/receivable (INTACC)
- Flows into sleeves (MSPRCV)
- Flows out of sleeves (MSPDLV)

The report audits general ledger transactions within a specified date range and displays a separate section for each account selected. You may also audit any other general ledger transaction type for missing or invalid submodel tags.

1. Type MSPGLAUDIT at a WHICH FUNCTION? prompt (or make the appropriate selection from a Windows menu)
2. Select the appropriate date range for auditing general ledger transactions

```
BEGINNING DATE (MM/DD/YY) - HIT ENTER FOR 07/23/03 : 20030601ENDING DATE (MM/DD/YY) -  
HIT ENTER FOR 07/23/03 : 20030630
```

3. At the AUDIT FOR WHICH SUB MODEL CODES prompt, select the desired type of audit:

```
AUDIT FOR WHICH SUBMODEL CODES:  
B: Blank submodel codes only  
I: Invalid submodel codes only  
A: Blank and Invalid codes  
<Type B, I, or A>? B
```

- B: Audit for general ledger transactions with blank or missing submodel codes only
 - I: Audit for invalid submodel codes only (Invalid submodel tags are tags which have never been part of the allocation history of the master model associated with a selected account.)
 - A: Audit for missing, blank, and invalid submodel codes
4. Select the appropriate account range for auditing. (The report will ignore any non-UMA accounts selected.)

```
SEARCH FOR WHAT? RR EQ 12
45 RECORDS FOUND
NEXT OPERATION (HIT RETURN WHEN DONE, OR TYPE HELP) :

** Looking for MSP accounts **

** 40 MSP ACCOUNTS FOUND **
```

The report will always audit dividends, coupon payments, accrued interest payable/receivable, flows into sleeves, and flows out of sleeves.

5. At the Include additional GL codes prompt, select whether or not to audit for additional general ledger transactions. Answer YES or NO

If the user answered YES to the above prompt, type the specific additional general ledger transaction codes, such as RCV or DLV. The user may list several codes with a space between each.

Type ALL to audit for all general ledger transaction codes.

```
Searching the following codes
DIV INT INTACC MSPRCV MSDLV
Additional GL codes:
DLV      TFR      FEEADV   RCVINC   PRI
RCV      INC      DIVRNV   DLVINC   MEMO
Include additional GL codes? ? Y
Include which codes or type ALL? ALL
```

6. At the next prompt, the user has the option to select a sorting option. Answer Y for Yes or N for No as appropriate. If you select Y, choose the desired sorting option:

- SNAM: Account short name
- TRDTY: General ledger transaction code
- TICK: Ticker symbol
- SACUS: Sacus symbol
- DATE: Transaction date
- MSPTAG: Submodel tag

Select the sorting method:

- Ascending order
- Descending order

```
Sort Report (Y/N) ? Y
Available sort columns: SNAM TRDTY TICK SACUS DATE MSPTAG
Sort by which column? TRDTY

Ascending or Decending? A
```

- An MSPGLAUDIT.LSD report is produced. Each selected account is displayed in a separate section on the report

```

SAMPLE ASSET MANAGEMENT      RUN DATE: 09/15/03

Account Selection: MGR EQ MSP

DATE RANGE: 01/01/03 to 09/09/03

Audit for: B: Blank submodel codes only

Audit for the following GL transactions: DIV INT INTACC MSPRCV MSPDLV DLV RCV TFR INC
FEEADV DIVRNV RCVINC DLVINC PRI MEMO

Sort by: TRDTY

1 account(s) out of 40 with missing or invalid sub model codes
*****
A12345      MSP Test Account                                MASTER MODEL MSPTST
*****
TRDTY      TICK      SACUS      DATE          UNITS      AMOUNT      MSP DESCRIPTION
*****
DIV        ZYX        123        06/15/03     7500.0000  1500.00     *ZYX Corp.
DIV        SRQ        456        06/15/03     10000.0000 500.00      *SRQ Corp.
RCV        CASH-1     13321     06/09/03     0.0000     1000.00     *Receiv
    
```

Viewing performance data using the FASTPMSECT Report

Performance files can also be viewed by using the FASTPMSECT function, which enables the submanager to view performance values for an account, either in its entirety, or over a selected period of time.

- At the WHICH FUNCTION? prompt, type FASTPMSECT and press ENTER. The following prompt opens:

DATES? (R)ANGE or (A)LL?

- If you want to look at a specific period, type R and press ENTER. If you want to look at all data, type A and press ENTER. The following prompt will appear if you chose a date range:

BEGINNING DATE (MM/DD/YY) - HIT ENTER FOR \CURPRDATE:

- Type the beginning date and press ENTER. The following prompt displays:

ENDING DATE (MM/DD/YY) - HIT ENTER FOR \CURPRDATE:

4. Type the ending date and press ENTER. The following prompt displays:

SEARCH FOR WHAT?

5. Enter the account selection and press ENTER. The following prompt displays:

NEXT OPERATION (HIT RETURN WHEN DONE, OR TYPE HELP)

6. If you want to sort, narrow or broaden the account selection, type additional database commands and press ENTER. The following prompt displays:

WHICH FILE(M=MANUAL 01=TOTAL 02=EQUITY 03=FIXED INCOME 04=CASH RET=EXIT)

7. Type the sector identifier for the sector you want to view and press ENTER. The requested data will appear on screen

```

SNAM: BOGAHU   BNUM:   -001550   DTCNO: 654328123
WHICH FILE(M=MANUAL 01=AUTO TOTAL 02=EQUITY 03=FIXED INCOME 04=CASH RET=EXIT)
02
HISTORICAL PERFORMANCE DATA FOR: SNAM= BOGAHU,   BNUM:   -001550
PORT      TYPE      DATE      AMOUNT      CHNGE DATE
----      -
TOTAL    A      19981231  1349.13      19990226
TOTAL    V      19981231  5824842.35   19990226
TOTAL    I      19990116  1349.13      19990226
TOTAL    A      19990131  2440.42      19990401
TOTAL    V      19990131  3682079.51   19990401
TOTAL    I      19990214  604.80       19990401
TOTAL    A      19990228  4956.36      19990424
TOTAL    V      19990228  5279077.66   19990424
TOTAL    I      19990316  5800.61      19990424
TOTAL    A      19990331  1652.92      19990528
TOTAL    V      19990331  5361776.84   19990528
TOTAL    I      19990401  382.88       19990528
LOCKED   A      19990406  1270.04      19990528
LOCKED   V      19990406  5555009.65   19990528
TOTAL    C      19990407  559000.00    19990528
    
```

Submanager AIMRMEMO Report

AIMRMEMO is a composite report that allows the submanager to specify the composites used. This report helps facilitate AIMR-compliant reporting at the composite level. This report is based on EDMEMO coding and accommodates EDMEMO coding and/or sorting preferences.

Creating AIMRMEMO composites

Define when an account enters and leaves a composite in EDMEMO. Using AIMRMEMO, the submanager can put an account into many different composites for many different time periods. Remember the report will only include full calendar quarters (or months if you are set up that way).

Following is the syntax and sample EDMEMO entries:

AIMR: (composite name) (start date) (end date)

```
AIMR: E1 10/31/97 06/30/98
AIMR: E2 7/31/98
```

Tip:

- Every line with information for this report begins “AIMR:”
- Keep the composite name short, 3 characters or fewer. It forms part of the filename of the output file. The files produced for an account would be “SNAM1.LAM” and “SNAM2.LAM”
- Ending date may be left empty until an account leaves a composite

Generating the AIMRMEMO Report

1. Select AIMRMEMO from the Report menu and press ENTER. The following prompt displays:

```
AS OF DATE (MM/DD/YY) :
```

2. Type the month end date that you wish to report through and press ENTER. The model selection screen will open:

```
+-----+
|                                     |
|           SELECT MODELS BY SNAM OR  |
|           MODEL PROFILE FIELDS     |
|-----+-----+
| FUNCTION: AND      | SEARCH:          |
|-----+-----+
| 12 RECORDS FOUND  |
|                   |
|                   |
|-----+-----+
| Esc-Abort F1-Help F10-Go F5-Macro  |
| F7-List SF7-Prt  F8-Sort SF8-Back  |
|-----+-----+
```

3. Type the submodel selection and press ENTER. Or, press F7 to view a list and choose an item from the list. Press F10 to process the final selection

The account selection screen will open:



4. Make an account selection and press F10. A menu of sort options opens:



5. Select the field to sort by and press ENTER. The following prompt will appear, allowing you to sort in descending order:

```
+-----+
|SORT IN DESCENDING ORDER ?|
+-----+
|           NO           |
|           YES          |
+-----+
```

6. Select Yes or No as appropriate. The following prompt displays:

```
WHAT BENCHMARK? (I.E. SP500 DJIA)
```

7. Type the SNAMs for the benchmarks you want to use and press ENTER. The following prompt displays:

```
+-----+
|SUB-UNIVERSE BENCHMARKS:|
+-----+
```

8. Type in the sub-universe benchmarks you want to use, and press ENTER. The report runs and the following prompt will appear, indicating the report file names:

```
COMPOSITE: (TITLE)
SUMxx.LSM
SUMxx.LAM
SELECT MGR SUB-UNIVERSE
```

Note: The AIMRMEMO Report will not be created unless EDMEMO is coded with the submodel code.

```

SAMPLE ASSET MANAGEMENT
RUN: 03/26/04 2:19 P.M.
LARGE CAP GROWTH COR
                2004 DISCRETIONARY ACCOUNTS PERFORMANCE COMPOSITE
                COMPOSITE: SUB TEST MODEL
                PAGE
    -1QTR--      -2QTR--      -3QTR--      -4QTR--      2004
  -JAN-- -FEB-- -MAR-- COMPND -APR-- -MAY-- -JUN-- COMPND -JUL-- -AUG-- -SEP-- COMPND -OCT-- -NOV-- -DEC-- COMPND COMPND
    MTD   MTD   MTD   QTD   MTD   MTD   MTD   QTD   MTD   MTD   MTD   QTD   MTD   MTD   MTD   QTD   YTD
  PERF%  PERF%  PERF%  PERF%  PERF%  PERF%  PERF%  PERF%  PERF%  PERF%  PERF%  PERF%  PERF%  PERF%  PERF%  PERF%  PERF%
-----
HIGH    1.28
LOW     1.28
MEDIAN  1.28
AVERAG  1.28
STD     0.00
OBS     1.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00

ACCTS:
HIGH  MSP1
LOW   MSP1
MEDIAN MSP1

AVERAGE VALUE
MEDIAN VALUE
TOTAL VALUE

% TOTAL
AIDR  1.28  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  1.28
STD   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
DJTAT 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00

AIDR: MONTHLY COMPOSITE RETURNS ARE CALCULATED USING WEIGHTS EQUAL TO
      BEGINNING VALUES ADJUSTED FOR TIME-WEIGHTED CASH FLOWS.
      QUARTERLY AND YEARLY RETURNS DERIVED FROM LINKING MONTHLY RETURNS.
STD:  THIS SHOWS DISPERSION AROUND WEIGHTED COLUMN AVERAGES.
    
```

Generating the Fixed Income Screen Report in InvestCloud Windows

The Fixed Income Screen (WIND_FIX_GWK) Report provides summary fixed income data and lists individual fixed income securities for individual portfolios.

To generate this report:

1. Select the FIXED INCOME SCREEN option within the Windows menu
2. Type an individual account short name (SNAM) or account number (BWNUM) for the account for which the report will be run



A report is produced which lists fixed income data summarized for the entire portfolio, market value subtotals by fixed income issue type (ISSTY), and data for individual fixed income securities grouped by maturity range.

| PAR/ COST | MARKET | MARKET PRICE | YRS-TO MATY | DUR | COUPON | CURR YIELD | YLD-TO MATY | MOODY RATNG | PCT PORT |
|---|---------------|-----------------------|----------------|----------|----------------|---------------|----------------|----------------|----------------|
| LISAPI - - LISA PIZZA | | | | | | | | | |
| ADM:MVC MGR:FIX | | DATE - 09/07/01 (000) | | | | | | | |
| LONG TERM BONDS OVER 10 YEARS | | | | | | | | | |
| 100,000 | PACIFIC BELL | DTD 02/01/9 | 7.500% | 02/01/33 | | 694032A06 | | | |
| 98,000 | 100,253 | 100.253 | 31.42 | 11.95 | 7.50 | 7.48 | 7.48 | AA3 | 5.3 |
| 174,000 | U S TREAS BDS | DTD 02/15/97 | 6.625%% | 02/15/27 | | 912810EZ7 | | | |
| 200,387 | 199,448 | 114.625 | 25.46 | 13.03 | 6.63 | 5.78 | 5.55 | AAA | 10.5 1,000,000 |
| GOVT NATL MTGE ASSN TBA 9.000% 06/15/20 | | | | | | | | | |
| 1,030,000 | 1,030,000 | 103.000 | 18.78 | 5.27 | 9.00 | 8.74 | 8.54 | N/R | 54.4 |
| 1,328,387 | 1,329,701 | | 20.74 | 6.94 | 8.53 | 8.20 | 8.01 | | 70.2 |
| RESERVES LESS THAN 1 YEAR | | | | | | | | | |
| 564,121 | CASH | | | | | | | | |
| 564,121 | 564,121 | | | | 3.15 | 3.15 | 3.15 | AAA | 29.8 |
| | | | | | | | | | More --> |
| PRESS <ESC> TO EXIT | | | <F1> FOR HELP | | <F3> MAIN MENU | | FISERV APL | | |

```

LISAPI - -                LISA PIZZA
ADM:MVC   MGR:FIX        DATE - 09/07/01 (000)

*-----SECTOR-----*

NAME                MKT VALUE      %
-----
CASH AND CASH EQUIV    564,121    29.8
CORPORATE BONDS        100,253     5.3
GOVERNMENT OBLIGATI    199,448    10.5
MORTGAGE BACKED SEC    1,030,000  54.4
TOTAL                  1,893,822

<-- More -----
PRESS <ESC> TO EXIT  <F1> FOR HELP  <F3> MAIN MENU      FISERV APL
    
```

Fixed Income Screen Report (second screen). Market value subtotals displayed by fixed income issue type.

Security Drift Report

The Security Drift Report provides drift information on individual securities within an account without involving the use of the Strategy Rebalancer.

To run the Security Drift Report:

1. Select Security Drift Report from the submanager Reports menu. You are prompted to select a sub-model



2. Select a submodel on which to run the report. Press F7 to obtain a list of submodels to choose from or type the submodel name in the Search field

You are prompted to select an account or accounts to include in the report.



3. Type the SNAMS of the accounts on which to run the report. Press F7 to obtain a list of accounts. You may also run the report on all accounts in the submodel by not specifying a particular account and proceeding to the next step
4. Press F10 to run the report. The report is saved to the SECDRIFT.LRP file

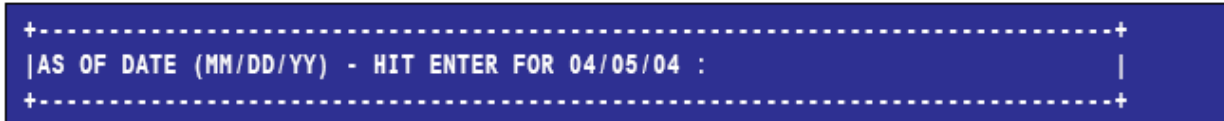
| | | *** Model *** | | | *** Actual *** | | | *** Drift *** | | |
|---|---------|---------------|---------|--------|----------------|---------|---------|---------------|----------|---------|
| Sub Model | Tick | % | Value | Units | % | Value | Units | % | Value | Units |
| PAGE 1 Drift Report SAMPLE ASSET MANAGEMENT As of January 5, 2004 01/05/04 10:54 A.M. ADELOACH | | | | | | | | | | |
| CIFRMI - MICHAEL CIFRESE | | | | | | | | | | |
| Rebalancing Model Used : SUBABC-SUBABC | | | | | | | | | | |
| SUBABC | CASH-1 | 0.00 | 0 | 0 | 100.00 | 940,920 | 940,920 | 100.00 | 940,920 | 940,920 |
| SUBABC | CKFR | 40.00 | 376,368 | 13,656 | 0.00 | 0 | 0 | -40.00 | -376,368 | -13,656 |
| SUBABC | IBM | 40.00 | 376,368 | 4,111 | 0.00 | 0 | 0 | -40.00 | -376,368 | -4,111 |
| SUBABC | INVN | 5.00 | 47,046 | 1,370 | 0.00 | 0 | 0 | -5.00 | -47,046 | -1,370 |
| SUBABC | IP | 5.00 | 47,046 | 1,101 | 0.00 | 0 | 0 | -5.00 | -47,046 | -1,101 |
| SUBABC | MMM | 5.00 | 47,046 | 564 | 0.00 | 0 | 0 | -5.00 | -47,046 | -564 |
| SUBABC | TIVO | 5.00 | 47,046 | 5,978 | 0.00 | 0 | 0 | -5.00 | -47,046 | -5,978 |
| Total | | 100.00 | 940,920 | | 100.00 | 940,920 | | 0.00 | 0 | |
| SECTOR WEIGHTINGS | | | | | | | | | | |
| CASH | 100.00% | | | | | | | | | |
| EQUITY | 0.00% | | | | | | | | | |

DURPORT Fixed Income Summary Report

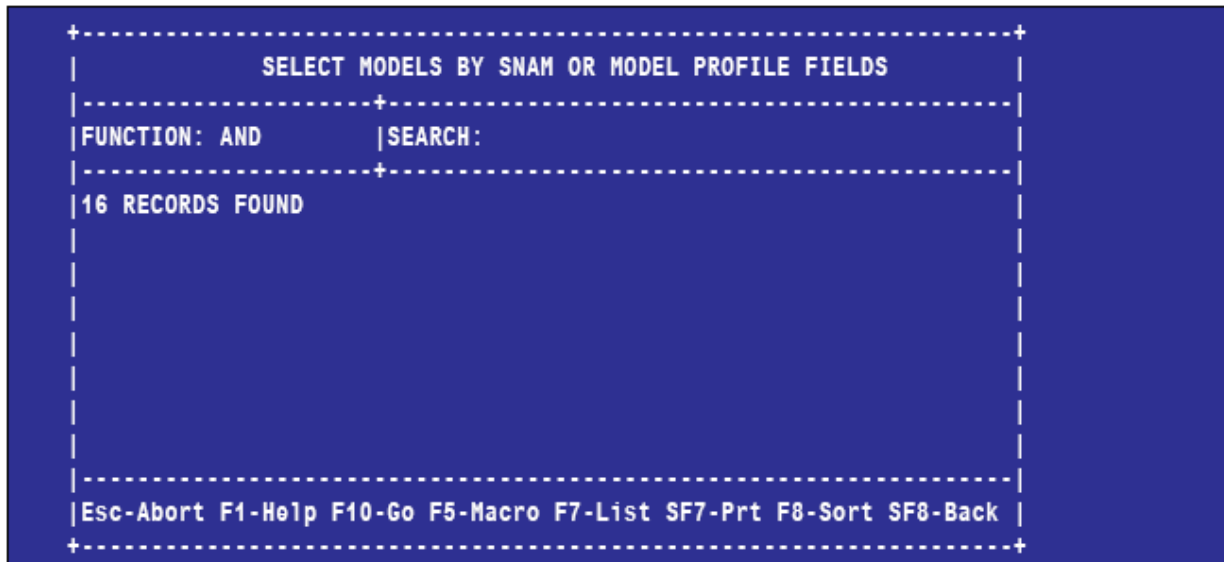
The DURPORT Fixed Income Portfolio Summary Report assists fixed income managers in monitoring fixed income sleeves. They may run the report for all fixed income securities in a sleeve, for selected securities, or for select issue types. When running this report, the user may choose whether to include or exclude cash from the calculations.

To run this report:

1. Select DURPORT from the Reports menu. You are prompted to enter an “As of” date



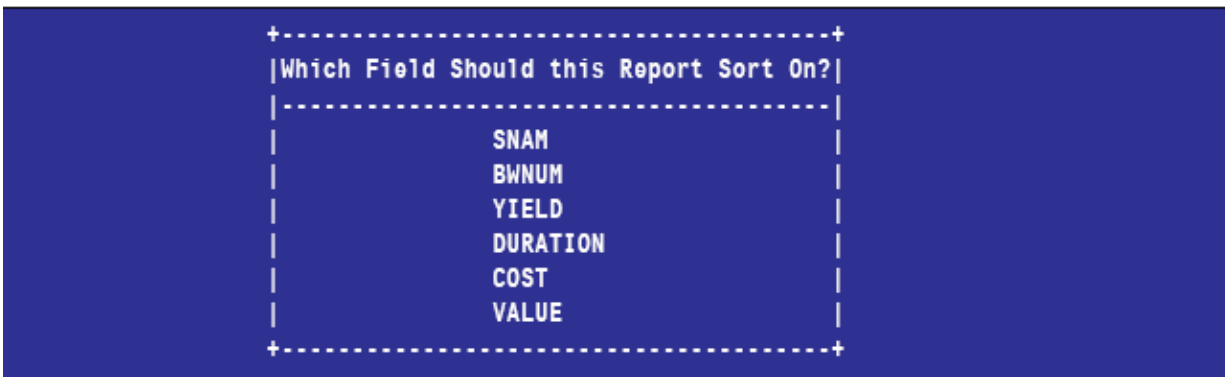
2. Enter the date of the last business day you wish to include in the report and press ENTER. The model selection screen will open:



3. Choose one model and press F10. To choose from a list of models, press F7, choose a model, and press ENTER. The account selection screen will open:



4. Choose an account or a range of accounts and press F10. A menu will appear listing the various sorting options available to the report



5. Choose a sort option and press ENTER. A prompt will appear asking if you prefer the data sorted in ascending or descending order
6. Choose Ascending or Descending as appropriate and press ENTER. You are prompted to specify both a lower and an upper range

The lower and upper ranges allow you to choose only accounts whose weighted average duration falls within the range. Leave the prompts blank if you do not wish to choose a range.



7. Enter the lower range number, or leave the prompt blank if you do not wish to choose a range. Press ENTER. You are prompted to enter an upper range

```
+-----+  
|Enter Upper Range:|  
+-----+
```

8. Enter the upper range, or leave the prompt blank if you do not wish to choose a range. Press ENTER. You are prompted to include or exclude cash equivalents from the report calculations

```
+-----+  
|Do You Want to Include Cash and Cash Equivalents ?|  
+-----+  
|                NO                |  
|                YES               |  
+-----+
```

9. Choose YES or NO as appropriate. You are prompted for a SACUS, CUSIP, or TICKER to report on. Type ALL to view a list of available options
- Press SHIFT+F5 to choose all issue types. An asterisk will appear to the left of a selected option
 - To choose a single issue type, highlight its respective line and press ENTER
 - For additional selection and usage options, please refer to the bottom of the screen

```
+-----+
| WHICH ISSTY TYPES DO YOU WISH TO INCLUDE |
+-----+
| *60 ASSET BACKED SECURITIES |
| *86 BOND FUTURES RESERVES |
| 36 CERT OF DEPOSITS / COMM PAPER |
| 93 COLLATERALIZED MORTGAGE OBLIGATIONS |
| *31 CONVERTIBLE BONDS |
| *5 CORPORATE BOND FUNDS |
| *34 CORPORATE BONDS |
| *88 EQUITY FUTURES RESERVES |
| 64 FLOATING RATE NOTES |
| 45 FOREIGN BONDS |
| 63 FOREIGN CDS / COMM PAPER |
| *441 GOVERNMENT AGENCIES |
| *7 GOVERNMENT BOND FUND |
| *44 GOVERNMENT OBLIGATIONS |
| 66 HIGH YIELD BONDS |
| 101 LIABILITIES |
| 65 MISCELLANEOUS BONDS |
| 444 MORTGAGE BACKED SECURITIES |
| 6 MUNICIPAL BOND FUNDS |
| 50 MUNICIPAL BONDS |
| 12 MUNICIPAL BONDS (GEN OBLIG) |
| 14 MUNICIPAL BONDS (REVENUE) |
| 80 MUTUAL FUNDS - FIXED INCOME |
| 39 PAY IN KIND BONDS |
| 77 PROMISSORY NOTES |
| 78 REPURCHASE AGREEMENTS |
+-----+
|| Esc-Exit F1-Help F4-Search SF5-Select ALL SF6-Clear ALL ||
|| F7-Refresh Search F8-Options F10-Go Return-Select/Un-Select ||
```

10. Press F10 to generate the report

| SAMPLE ASSET MANAGEMENT | | FIXED INCOME PORTFOLIO SUMMARY | | | | | | | | | | PAGE 1 | |
|---------------------------------|----------|--------------------------------|--------|--------------|------------------|--------------------|-------------|----------|---------|---------|---------|------------|------------|
| Run Date: 03/30/04 | | As Of March 29, 2004 | | | | | | | | | | | |
| MSP Sleeve: XYZFIX:FIXED INCOME | | | | | | | | | | | | | |
| BWNUM | DTCNO1/2 | ACCOUNT NAME | CASH | MARKET VALUE | ACCRUED INTEREST | TOTAL MARKET VALUE | # OF ISSUES | AVG LIFE | AVG CPN | AVG YTM | AVG DUR | AVG SNPRAT | AVG MRATNG |
| 10000001 | 20000001 | TEST ACCOUNT 1 | 8,898 | 191,952 | 2,050 | 194,001 | 18 | 3.92 | 5.28 | 2.97 | 3.28 | AA+ | AA1 |
| 10000002 | 20000002 | TEST ACCOUNT 2 | 6,296 | 155,335 | 1,656 | 156,991 | 20 | 3.94 | 5.30 | 3.01 | 3.30 | AA+ | AA1 |
| 10000003 | 20000003 | TEST ACCOUNT 3 | 2,521 | 88,564 | 944 | 89,508 | 19 | 4.02 | 5.38 | 3.04 | 3.35 | AA+ | AA1 |
| 10000004 | 20000004 | TEST ACCOUNT 4 | 2,765 | 85,936 | 927 | 86,863 | 20 | 4.35 | 5.51 | 3.41 | 3.57 | AA+ | AA1 |
| 10000005 | 20000005 | TEST ACCOUNT 5 | 1,407 | 50,680 | 574 | 51,254 | 17 | 4.73 | 5.47 | 3.29 | 3.80 | AA+ | AA1 |
| 10000006 | 20000006 | TEST ACCOUNT 6 | 3,115 | 193,237 | 2,131 | 195,368 | 19 | 4.92 | 5.42 | 3.21 | 3.93 | AA+ | AA1 |
| 10000007 | 20000007 | TEST ACCOUNT 7 | 11,168 | 189,240 | 2,023 | 191,264 | 20 | 5.18 | 5.19 | 3.25 | 4.13 | AA+ | AA1 |
| 10000008 | 20000008 | TEST ACCOUNT 8 | 1,777 | 108,170 | 1,213 | 109,383 | 17 | 5.46 | 5.44 | 3.39 | 4.30 | AA+ | AA1 |
| 10000009 | 20000009 | TEST ACCOUNT 9 | 930 | 51,805 | 598 | 52,403 | 17 | 5.68 | 5.49 | 3.46 | 4.39 | AA+ | AA1 |
| 10000010 | 20000010 | TEST ACCOUNT 10 | 4,492 | 88,676 | 892 | 89,568 | 17 | 6.20 | 5.27 | 3.65 | 4.81 | AA+ | AA1 |
| AVERAGE | | | 4,337 | 120,360 | 1,301 | 124,697 | 18 | 4.84 | 5.37 | 3.27 | 3.89 | | |
| STANDARD DEVIATION | | | 3,246 | 54,137 | 580 | 56,673 | 1 | 1.28 | 0.10 | 0.21 | 0.50 | | |
| HIGHEST VALUE | | | 11,168 | 193,237 | 2,131 | 200,850 | 20 | 6.20 | 5.51 | 3.65 | 4.81 | | |
| LOWEST VALUE | | | 930 | 50,680 | 574 | 52,087 | 17 | 3.92 | 5.19 | 2.97 | 3.28 | | |

Yield/Duration Net of Commits Report

This report shows sleeve-level yield-to-maturity and modified duration for each selected account before and after committed trades.

This report gives fixed income managers a convenient way to view the effects of trades on the sleeves. It can be run for multiple accounts and for multiple sleeves.

Since this is a submanager report, the submanager may select only her/his own sleeves.

Note: To activate this functionality, please contact InvestCloud to set up an overnight process that will calculate the initial sleeve yield-to-maturity and modified duration calculations. Based on your choice, InvestCloud can configure the report to include or exclude cash from the yield and duration calculations.

To run this report:

1. Select YIELD/DURATION NET OF COMMITS from the Reports menu. The submodel selection screen will open:



2. Input the SNAM of a submodel and press F10. Or, to choose from a list of models, press F7, choose a model, and press ENTER. The account selection screen will open:



3. Choose an account or a range of accounts and press F10. A menu will appear listing the various sorting options available to the report

```

+-----+
|           Select Field for Sorting           |
+-----+
| SNAM                                         |
| Account Name                               |
| Yield Excluding Committed Trades           |
| Duration Excluding Committed Trades        |
| Yield Including Committed Trades           |
| Duration Including Committed Trades        |
+-----+
    
```

4. Choose a sort option and press ENTER. A prompt will appear asking if you prefer the data sorted in ascending or descending order
5. Choose Ascending or Descending as appropriate and press ENTER. The report is generated and will appear on the screen

Note: This report is not generated as a print file accessible from the holdings queue list.

04/08/04 8:55 A.M. Yield/Duration Analysis Summary

| Account | Account Name | Excluding Commits | | Including Commits | | |
|----------|-----------------|-------------------|-------|-------------------|-------|--------|
| | | Yield | Durat | Yield | Durat | |
| 10000001 | TEST ACCOUNT 1 | 2.95 | 3.03 | 3.04 | 3.44 | XYZFIX |
| 10000002 | TEST ACCOUNT 2 | 3.71 | 4.58 | 3.76 | 4.90 | XYZFIX |
| 10000003 | TEST ACCOUNT 3 | 3.08 | 3.11 | 3.15 | 3.46 | XYZFIX |
| 10000004 | TEST ACCOUNT 4 | 3.08 | 3.11 | 3.16 | 3.50 | XYZFIX |
| 10000005 | TEST ACCOUNT 5 | 3.09 | 3.12 | 3.17 | 3.50 | XYZFIX |
| 10000006 | TEST ACCOUNT 6 | 3.11 | 3.14 | 3.16 | 3.40 | XYZFIX |
| 10000007 | TEST ACCOUNT 7 | 3.10 | 3.13 | 3.17 | 3.49 | XYZFIX |
| 10000008 | TEST ACCOUNT 8 | 3.11 | 3.16 | 3.17 | 3.44 | XYZFIX |
| 10000009 | TEST ACCOUNT 9 | 3.09 | 3.12 | 3.17 | 3.48 | XYZFIX |
| 10000010 | TEST ACCOUNT 10 | 3.12 | 3.18 | 3.18 | 3.45 | XYZFIX |

Top Holdings Report

The UMA Top Holdings Report allows submanagers to view top holdings across all submodels that they manage or by individual submodels.

To run the top holdings report:

1. From the Report Menu, choose TOP HOLDINGS REPORT. The following prompt opens:

```

+-----+
| AS OF DATE (MM/DD/YY) - HIT ENTER FOR 01/07/08 : |
+-----+
    
```

2. Enter the report date in MM/DD/YY format and press ENTER. You are prompted for the number of positions to include:

```

+-----+
|HOW MANY POSITIONS WOULD YOU LIKE TO SEE?|
+-----+
    
```

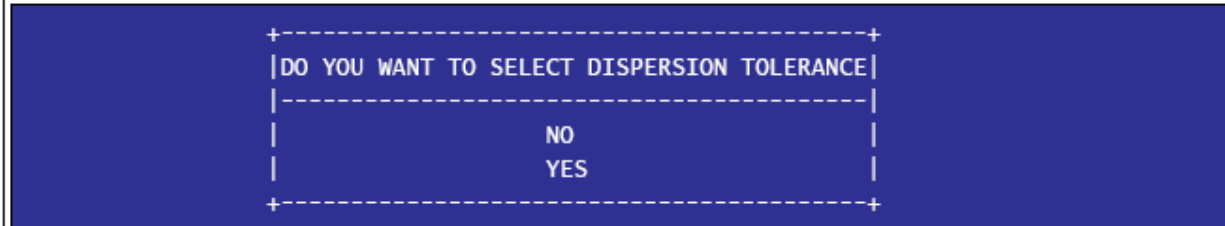
3. Enter number of positions to include on the report and press ENTER. You are prompted to specify the issues types to include in the report

```

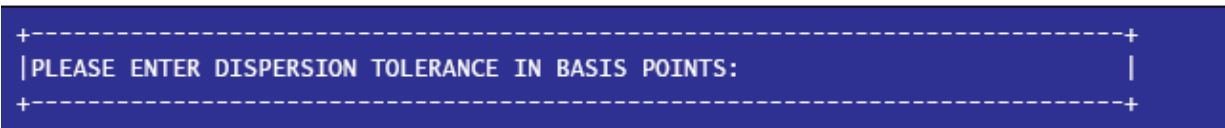
+-----+
|          Select Issue Types          |
+-----+
|71  ADJUSTABLE RATE PREFERRED        |
|220 ALT.INVESTMENT - EQUITY          |
|225 ALT.INVESTMENT - FIXED          |
|38  ANNUITIES                        |
|60  ASSET BACKED SECURITIES          |
|85  BOND FUTURES CONTRACTS          |
|86  BOND FUTURES RESERVES           |
|1   CASH AND CASH EQUIVALENTS       |
|36  CERT OF DEPOSITS / COMM PAPER   |
|93  COLLATERALIZED MORTGAGE OBLIGATIONS|
|28  COMMON STOCKS                  |
|31  CONVERTIBLE BONDS               |
|46  CONVERTIBLE PREFERRED STOCKS    |
|5   CORPORATE BOND FUNDS            |
+-----+
| Esc-Exit  F1-Help  F4-Search  SF5-Select ALL  SF6-Clear ALL |
| F7-Refresh Search  F8-Options  F10-Go  Return-Select/Un-Select |
+-----+
    
```

4. To select an issue type, place the cursor on it and press ENTER. To select all issue types, press SHIFT+F5. To deselect a single issue type, place the cursor on it and press ENTER. To deselect all issue types, press SHIFT+F6
5. Press F10 to continue. The next prompt is dependent on whether you choose to include CASH AND CASH EQUIVALENTS
 - If not selected, a prompt will ask whether cash should be included in the market value. Choose YES or NO as appropriate and press ENTER
 - If selected, a prompt will ask whether to include cash as a separate position. Choose YES or NO as appropriate and press ENTER

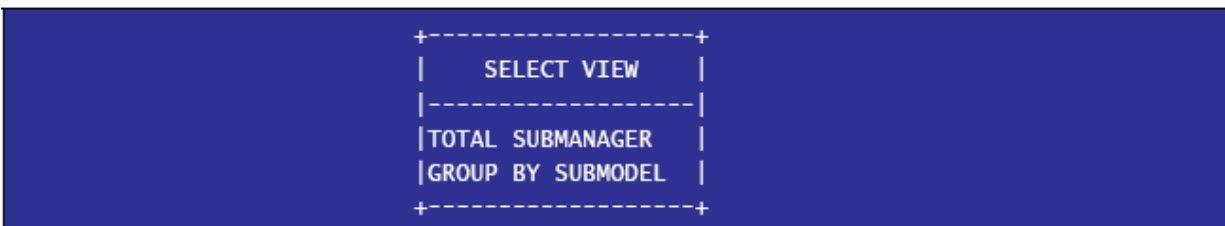
You are prompted to specify a Dispersion Tolerance. Dispersion Tolerance is the permissible limit of variation in a security holding between the total portfolio and individual accounts in the total portfolio. It is measured in basis points.



If you choose Yes, you are prompted to enter the tolerance level.



6. Type the tolerance level in basis points and press ENTER. You are prompted for a grouping preference for the report



7. Select the appropriate grouping for the report information and press ENTER
 - TOTAL SUBMANAGER. Choose this option to view the holdings for all the submodels that you manage
 - GROUP BY SUBMODEL. Choose this option to view holdings in one or more submodels that you manage

The MSPRECWIMSUBnnn.LIN and MSPRECWIMSUBnnn.CSV report files generate. To view the report, by selecting the BROWSE REPORTS option on the Reports Menu.

```

BIG BUCKS MGMT LLC
AS OF: 01/07/2008

TOP 10 HOLDINGS
ISSUE TYPES: SUB
GROUP BY SUBMODEL

ACCOUNTS: RR EQ 99
NUMBER OF ACCOUNTS: 2

TOTAL ACCOUNT

```

| SECURITY DESCRIPTION | SIC CODE | TICK / CUSIP | TOTAL SHARES | PRICE/ SHARE | ORIGINAL COST | CURRENT VALUE | PORT OWNED | PCT PORT | +3 BP | -3 BP |
|----------------------|----------|--------------|--------------|--------------|---------------|---------------|------------|----------|-------|-------|
| CASH | | CASH-1 | 252812 | 1.00 | 252,812 | 252,812 | 2 | 7.12 | 1 | 1 |
| Pimco CP Opportunity | -2005 | PTY | 31956 | 14.37 | 211,549 | 203,560 | 1 | 5.73 | 1 | 0 |
| Ishares Lehman 3-7 Y | -2010 | IEI | 1792 | 107.33 | 0 | 174,415 | 1 | 4.91 | 1 | 0 |
| SPDR DJ Wilshire MID | -1910 | EMV | 6020 | 52.84 | 105,771 | 119,437 | 1 | 3.36 | 1 | 0 |
| Vanguard SM-Cap Val | -1910 | VBR | 4965 | 60.47 | 105,755 | 116,529 | 1 | 3.28 | 1 | 0 |
| Exxon Mobil Corp | -125 | XOM | 734 | 91.22 | 27,765 | 66,955 | 2 | 1.88 | 1 | 1 |
| Suncor Energy Inc | -125 | SU | 662 | 92.13 | 25,947 | 60,990 | 2 | 1.71 | 1 | 1 |
| Intl Business Mach | -870 | IBM | 1662 | 34.61 | 50,148 | 57,522 | 2 | 1.62 | 1 | 1 |
| General Elec Co | -345 | GE | 1528 | 102.18 | 53,017 | 55,283 | 2 | 1.55 | 1 | 1 |
| Health Care REIT | -740 | HCN | 680 | 45.22 | 15,000 | 55,230 | 1 | 1.55 | 1 | 0 |
| | | | | | ----- | ----- | | | ----- | ----- |
| | | | | | 847,764 | 1,162,732 | | | 32.71 | |

Note: Due to space limitations, when dispersion tolerance is selected, the following columns will appear only on the .CSV version of the report: HIGH %, HIGH % SNAM, LOW %, LOW % SNAM, AVE % and DIFF.

The report contains the following information:

| Column | Description |
|----------------------|--|
| Security Description | Security name or description. |
| SIC Code | Industry code |
| TICK | Security ticker |
| Total Shares | Total shares in all selected portfolios. |
| Price/Share | Security price per share on the report's As Of Date. |
| Original Cost | Total cost of a security holding in all selected portfolios. |
| Current Value | Total market value of a security holding in all portfolios on the report's As Of Date. |
| Port Owned | Number of portfolios in the selection holding the security on the report's As Of Date. |

| Column | Description |
|---------------|--|
| PCT Portfolio | Aggregate percentage of the holding across all selected portfolios. |
| High % | Among all portfolios holding a particular security, the highest concentration of that security in an individual portfolio as a percentage. |
| High % SNAM | Account number with the highest security concentration. |
| Low % | Among all portfolios holding a particular security, the lowest concentration of that security in an individual portfolio as a percentage. |
| Low % SNAM | Account number with the lowest security concentration. |
| Ave % | Average percentage of a security holding among the individual portfolios. |
| Diff | Difference between the High % and the Low %. |
| +<#>bp | Number of portfolios where the security holding exceeds the PCT Portfolio by more than the specified tolerance. |
| -<#>bp | Number of portfolios where the security holding is less than the PCT Portfolio by more than the specified tolerance. |

8.3 Report functions

When you select REPORTS from the Submanager menu, the Reports menu is displayed.

```
-----
REPORTS
```

```
SELECT DESIRED OPTION
```

```
ESC TO EXIT
-----
```

```
PORTFOLIO VALUATION REPORT
```

```
TRANSACTION ACTIVITY REPORT
```

```
AUDIT REPORT
```

```
TAX LOT HOLDINGS REPORT
```

```
RELATIVE WEIGHTINGS BY SUBMODL REPORT
```

```
HISTORICAL PERFORMANCE ANALYSIS
```

```
DAILY BLOTTER
```

SEC13F REPORT

ASSETS BY

CASH BALANCES BY ACCOUNT

CASH TRANSACTION REPORT

CROSS REFERENCE BY SECURITY

CROSS REFERENCE BY ISSUE TYPE

FASTPMSECT

AIMRMEMO

FIXED INCOME REPORT

SECURITY DRIFT REPORT

DURPORT

YIELD/DURATION NET OF COMMITS

TOP HOLDINGS REPORT

CASH LEDGER REPORT

BROWSE

TRADE NETWORK EXCEPTION VIEWER

HELP

|-----|

- SUBMODEL WEIGHTING REPORT shows the submodel allocations within a selected group of portfolios
- SECURITY DRIFT REPORT shows the percent and percentage drift of a portfolio from its associated master model and submodel
- SUB MANAGER CURRENT TRADING CASH shows the unaffiliated cash in each submodel
- PORTFOLIO VALUATION REPORT provides a high-level summary of one or many portfolios
- SUB MANAGER HISTORICAL CASH provides a snapshot of the cash available within submodels at the end of the trading day for any specified date
- ASSET UNDER MANAGEMENT REPORT summarizes the total assets under management for each submodel
- PERFORMANCE EVALUATION BY STYLE evaluates the performance of groups of portfolios based on their styles
- CASH FLOW REPORT shows a master model portfolio's cash flow by detailing the flows from its individual submodel portfolios
- CASH LEDGER REPORT lists transactions that cause cash to flow into or out of a submodel within a portfolio
- DUPLICATE SECURITY REPORT shows any overlapping securities within a specific master model

- REBALANCING RULES REPORT displays drift and rebalancing rules for selected accounts
- CASH THRESHOLD displays accounts and general ledger transactions with sleeve cash flows greater than the selected threshold on the previous business day
- SUBMODEL DRIFT generates Summary Weights or Security Drift reports
- AIMRMEMO is a composite report based on EDMEMO coding and sorting preferences that allows you to specify the composites used. This report helps facilitate AIMR-compliant reporting at the composite level
- DURPORT is a fixed income summary report that provides fixed income managers another option for monitoring fixed income sleeves
- CROSS REFERENCE BY ISSTY uses the master model to calculate the issue type percent targets and then display the outliers based on a tolerance range
- UMA ASSET MIX REPORT provides information regarding the portfolio asset mix
- TOP HOLDINGS. The UMA Top Holdings Report allows master managers to view top holdings across selected accounts. In addition to displaying top holdings among all accounts, master managers can generate reports that show top holdings by submanagers or submodels
- Asset Class Drift Report allows user to report drift on asset class level

Note: To prevent certain submanager users from accessing Reports functions, contact InvestCloud and provide the user's APL ID. This will prevent them from accessing the Reports menu.

Chapter 9: Cash Management

Both the master manager and the submanagers have tools to manage the allotment of cash within each sub-model.

Notes:

- Initial cash check Includes Money Market funds
- Cash floor restrictions are checked when evaluating an account's total cash holdings
- Calculations mitigate cash shortfalls or cash surpluses where appropriate

How cash is used

Each submanager can trade within their own submodel using their own cash, and invest new incoming cash allotted to them by the master manager. The master manager can still run the UMA Rebalancer or other tools to invest new incoming cash, or to rebalance the account at pre-set times (e.g., quarterly or on account anniversary date), or to rebalance the account when the submodel allocation percentages have drifted outside of their tolerances.

The submanager can apply the What If, Account Adjuster, and UMA Strategy Rebalancer tools, using and affecting only cash and tax lots allotted to their own submodel. The master manager uses the UMA Rebalancer and Swap Rebalancer tools for working with the whole account and generating or using the cash for the whole account.

Master Manager and Submanager trading is mutually exclusive

It should be noted that in the default setting, only one type of trade can be committed each day for each portfolio on any account: either the submanager creates and commits blocks with his set of tools, or the master manager creates and commits blocks with the UMA Rebalancer or Swap Rebalancer. Once one type of manager has committed a block, the other type is not able to do so on the committed account until the InvestCloud Trading system is rebuilt the following morning. Since both the master manager and the submanager have trading access, it requires another level of portfolio accounting to maintain accurate submodel cash "buckets" from day to day.

9.1 Cash allocation to submodels by the master manager

Master managers are able to specify the percentage cash to assign to each submodel. If a cash allocation percent is not specified, the system uses the submodel allocation percent in the master model.

When the master manager updates either the submodel allocation percent or the cash allocation percent in the master model, this history is tracked in an audit file. This audit file can be found on the master manager level under Administration Tools by selecting MODEL AUDIT TRAILS. (See "Viewing the Audit Trail Report".)

Submodel cash allocation method

UMA calculates the cash available to each submanager or submodel by building beginning-of-day (BOD) submanager cash "buckets" into Windows, based on the APL General Ledger and tax lot submodel holdings. For the purposes of building these "buckets", there are two types of cash: affiliated and unaffiliated.

- Affiliated cash is cash associated with a specific submodel. For instance, any dividends, interest, pay-downs, or accrued interest are affiliated with the submodel that generated them. It also includes any submodel with cash held in CASH-1
- Unaffiliated cash is any cash not tied to a specific model. For instance, a \$10,000 deposit is not affiliated with any particular model

The unaffiliated cash is broken up based on one of two ways:

- The cash allocation percentage ("% CASH") found in the master model. OR
- The master model allocation ("%") if the % CASH field is not filled in

The formula for affiliated cash is as follows:

$(\text{Account opening cash balance} \times \text{Submodel allocation percent}) + \text{Submodel tagged items}$

where:

"Submodel tagged items" include dividends, interest, paydowns, accrued interest, foreign taxes, buys, sells, receives, delivers, etc.

The formula for unaffiliated cash is as follows:

$\text{CASH transactions} \times \text{Cash allocation percent for each transaction date}$

where:

Scenario: The Rebalancer buys more than the target

Scenario: The "virtual" and real cash buckets may show different amounts

"CASH transactions" consist of free receives, free delivers, money market interest, or advisory fees.

We use the same methodology as if we were building the whole account's available cash balance (WCASH field). The calculation starts at the account cash opening date in the General Ledger and calculates forward, taking into account all cash and security transactions that are tagged for each submodel. Free cash receives and delivers, as well as management fees and money market interest are left as single entries in the General Ledger (mostly for reconciliation reasons), so the final step would be to prorate these out to the submodels using the desired cash allocation percent specified by the master manager.

You should notice a few interesting things about the calculations above:

In the affiliated cash calculation, notice that the opening cash balance for each submodel in a new account is generated by multiplying the submodel allocation.

Unaffiliated cash is broken out by the cash allocation that is present on the day the cash is received, and that cash allocation stays with that particular amount of cash for as long as it is in the account. For instance, if a \$10,000 deposit is received today, and the cash allocation is 50%/50%, then each submodel receives \$5,000. If the cash allocation is changed to 75%/25% tomorrow, it has no effect on the original \$10,000 deposit—each submodel continues to receive \$5,000 each from that particular deposit. If another cash deposit of \$10,000 is received the second day, then one submodel receives an additional \$7,500, and the other receives \$2,500. The cash buckets would then be \$12,500 (\$5,000 + \$7,500) and \$7,500 (\$5,000 + \$2,500), respectively.

Negative cash flows

Because of the calculations used, it is possible to have a negative balance if a sleeve bought more than it sold.

For instance, if you rebalance an account to the Master Model, and the Rebalancer buys slightly more than the target - for instance, 50.3% instead of a 50% target - because of rounding, the sleeve actually took more cash than was planned, and as a result, the other sleeves received less. Thus, when the cash buckets for the sleeves are created, some sleeves may show a slightly negative balance, equal to 0.3% of the market value of the account.

In another situation, if you run the Strategy Rebalancer and go to commit a block, you may receive a message that there is not enough cash available in the account. If you check your "virtual" cash bucket, you may even see enough cash available to trade.

Even though your cash bucket may be positive, there may not be enough cash in the actual account if one of the other sleeves is negative. For instance, you have two styles: Submodel A has a cash balance of \$15,000, and Submodel B has a cash balance of -\$5,000. Thus, the entire account has a cash balance of \$10,000. When you trade with the Strategy Rebalancer, the system thinks \$15,000 is available, and it will try to use all of it. But when you go to commit the block, only \$10,000 is actually available and you will receive a message to this effect.

To avoid this type of issue, always keep a portion of your model in cash. This will ensure cash reserves and should prevent you from generating a negative cash balance.

How to avoid a negative cash balance for a sleeve

If you have a negative cash balance for your sleeve, the system will indicate that a net sell is required. To avoid this type of issue, always keep a portion of your model in cash

Otherwise, if you use the Strategy Rebalancer and have your cash balance set to zero, you may unwittingly rebalance your sleeve to the target and return your cash balance to zero at the same time. This may transfer cash back to other sleeves and create additional, unwanted, trades.

9.2 Cash allocation to the submodels using the Strategy Rebalancer at the master manager level

Cash allocated to the submodels by the Strategy Rebalancer is divided based on where it comes from or how it is allocated in the master model. Any cash received from dividends or interest is "tied" to the security that generated it, and thus that cash remains with that submodel, or "sleeve," for trading purposes. This is also true for any cash specifically allocated to a submodel. The unknown in the equation is the amount of cash deposited into an account.

The master manager can change the cash allocation for the sleeves during the day, and any cash flow that comes into the trading system after that change will be divided based on the new allocation. The new allocation will also work overnight to calculate new cash bucket values for the next trading day.

If the master manager needs to move actual cash amounts between sleeves during the day, use the Submodel Cash Adjuster. Enter a negative number to remove cash from a submodel and a positive number for the sleeve (s) receiving cash. The sum of the entries must equal zero.

Example: Assume a 50/50 model - half equity, half fixed income - has a cash allocation of 60/40. An account with this same master model has \$10,000 in cash. Of the \$10,000, \$500 is from dividends on stocks, and is attributed to the Equity Submodel, and \$1,000 is interest and accrued interest from bonds, and that is attributed to Fixed Income Submodel. The remaining \$8,500 is from a deposit from the previous and is considered unaffiliated cash. In the trading system, APL will take 60% of that \$8,500, or \$5,100, and make that available to the equity manager to use when trading with the Strategy Rebalancer. The remaining \$3,400 (or 40% of \$8,500) will be available for the fixed income manager.

9.3 Intraday trading limitations on submodels

When a submanager creates a trade and commits a block, the cash buckets for the accounts involved are updated. However, if the master manager runs the UMA Rebalancer and takes cash from all cash buckets and commits a block, the submanager can no longer trade any account involved in that rebalancing. Thus, when the submanager goes to trade a group of accounts, the accounts that already have committed trades against them from the UMA Rebalancer are not included.

9.4 Using cash deposits and withdrawals to rebalance an account (intraday trading)

The ADD INTRADAY CASH tool, by default, allocates deposits and withdrawals according to the cash allocation in the master model regardless of drift.

This tool also offers you the option to rebalance sleeve weights while adding or removing cash. The tool applies intraday deposits and adjustments to the most under-weighted sleeves first. Then, it applies the remaining funds for adjustment based on the cash allocation in the master model. The reverse is true of a withdrawal; cash will be taken from the over-weighted sleeves first.

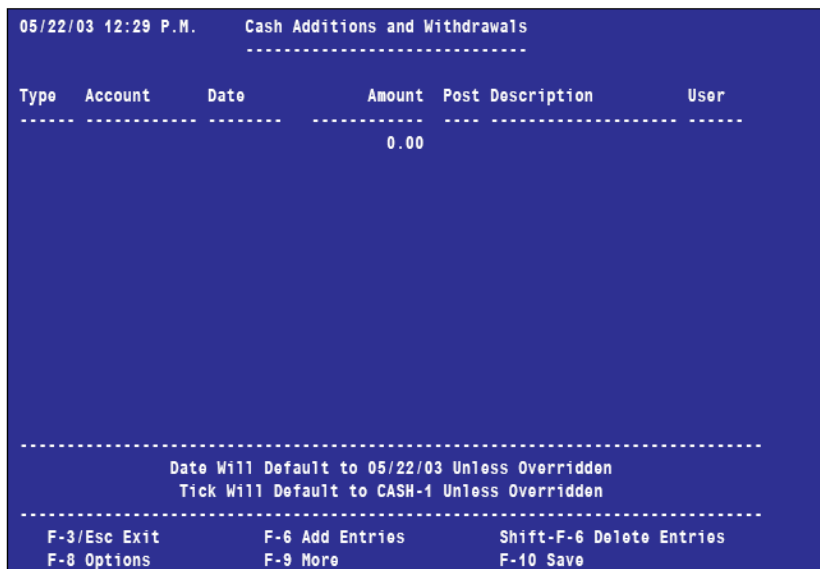
Important: Cash allocations will not return their original amounts by deleting a ADD INTRADAY CASH posting. Once an entry is made in the ADD INTRADAY CASH screen, deleting the entry from the screen using SHIFT+F6 treats the transaction as a withdrawal and allocates the withdrawal to the most overweighted sleeves first and then follows the cash allocation in the master model.

The adjustments can post to APL at the end of the business day, but the Post column in this tool must be set to YES.

Note: To turn this functionality on, please contact InvestCloud. Once this is turned on, it will be turned on for all UMA deposits and withdrawals via ADD INTRADAY CASH. Turning it off will need to be done by InvestCloud as well. Once this is turned on, all deposits and withdrawals will be added or removed in this manner for these accounts.

To run this function:

Select ADD INTRADAY CASH from the MSP Windows Menu. The Cash Additions and Withdrawals screen will open:



2. Make additions and deletions using the information below to complete the fields. Use the F6 key to add an entry and the SHIFT+F6 key to remove an entry
3. Press F10 to save the transactions. Answer YES or NO at the prompt to confirm that the transactions should be saved

The Results of Latest Cash Adjustments screen will appear, listing the transactions that were saved and indicating the updated available cash amount.

| Field | Description |
|-------------|--|
| Type | RCV, Receive of principal cash. RCVINC, Receive of income cash. DLV, Deliver of principal cash. DLVINC, Deliver of income cash. FEEADV, Advisory fee. |
| Account | SNAM or BWNUM of the account to which you are adding cash. |
| Date | Transaction date. Date will default to the current date unless you override the system by inputting one. |
| Amount | Amount of the transaction. |
| Post | Option to have the transaction posted to the general ledger in the EXPERT system during nightly processing. Answer NO if an automatic posting of the transaction (such as an interface) is already setup to occur in order to prevent a double posting. |
| Description | A 20-character maximum description of the transaction. |
| User | The APL user. |
| Tick | Ticker symbol for the security related to the cash transaction. The system will use CASH-1 as a default. A simple receive or deliver of cash, as well as an advisory fee transaction, should have the ticker CASH-1. An income posting should have the ticker of the appropriate security. |

Functionality available on this screen includes:

| Field | Description |
|----------|--|
| F3 | Exit the screen. |
| F6 | Add a deposit or withdrawal. |
| | Remove a deposit or withdrawal. |
| SHIFT+F6 | <div style="border: 1px solid black; padding: 5px;"> <p>Important: Cash allocations will not return their original amounts by deleting a ADD INTRADAY CASH posting. Once an entry is made in the ADD INTRADAY CASH screen, deleting the entry from the screen using SHIFT+F6 treats the transaction as a withdrawal and allocates the withdrawal to the most over-weighted sleeves first and then follows the cash allocation in the master model.</p> </div> |
| F8 | Allows you to sort data according to column name. |
| F9 | Toggles between columns not visible due to screen limitations. |
| F10 | Saves your changes. |

Prorating cash

The UMA Rebalancer can prorate buys if the prorate cash restriction is coded for the account in EDMEMO. A prorate cash restriction is indicated by adding *PRORATE at the end of a restriction.

For instance, if an account is restricted to keep \$10,000 in cash in the account, but the cash restriction should be prorated across all of the styles, the following restriction should be added:

RESTRC: \$DOLCASH LT 10000*PRORATE

The cash is prorated after all suggested buys and sells are calculated -- only buys are prorated to bring cash up to the proper level to avoid violating the cash restriction.

9.5 UMA submodel cash calculation for historical performance and reporting

For historical reporting and performance calculations, the system uses the module above to determine cash holdings in a particular submodel for any as-of date. The master manager can view this "historical" cash bucket by selecting the Submanager Historical Cash Report.

Calculating flows between submodels

Flows between submodels occur only when the master manager is effecting an entire account rebalance or using the submodel cash adjuster. The system, therefore, only posts flows between submodels for accounts with executed trades that were created by the master manager. These flows are noted with two trade types: MSPRCV (receive) and MSPDLV (deliver).

These are internal flows between submodels. No cash is coming into or leaving the account.

1. For each submodel, compute beginning-of-day available cash for that day and include that day's trades. For instance, for a submodel that was overweighted before rebalancing, rebalancing reduces the holdings in that submodel by selling some securities. Thus, that submodel should have additional cash available to it (for the time being). An under-weighted model would have bought during the rebalancing; therefore, it would have spent some of its cash and reduced its cash balance, possibly forcing it below zero
2. Compare submodels with negative cash to submodels with positive cash
3. Record flows in the Cash general ledger from submodels with positive cash to submodels with negative cash. The submodel with the most positive cash gives the most on a pro-rated basis. Similarly, the submodel with the most negative cash gets the most on a pro-rated basis

Example 1: Submodel D was extremely underweight before the master manager rebalance. Therefore, it needed to buy securities to rebalance itself:

| | BOD cash + trades | GL Flow | New cash balance |
|------------|-------------------|---------|------------------|
| Submodel A | 30 | -15 | 15 |

| | BOD cash + trades | GL Flow | New cash balance |
|------------|-------------------|---------|------------------|
| Submodel B | 50 | -25 | 25 |
| Submodel C | 20 | -10 | 10 |
| Submodel D | -50 | 50 | 0 |

Pro-ration: Total positive cash is \$100. \$50 was borrowed by submodel D from the other submodels.

Remove from each submodel proportionately:

$$A = (30/100) \times 50 = \$15$$

$$B = (50/100) \times 50 = \$25$$

$$C = (20/100) \times 50 = \$10$$

Example 2: Submodel A was extremely overweighted before the master manager rebalance:

| | BOD cash + trades | GL Flow | New cash balance |
|------------|-------------------|---------|------------------|
| Submodel A | 120 | -100 | 20 |
| Submodel B | -50 | 50 | 0 |
| Submodel C | -30 | 30 | 0 |
| Submodel D | -20 | 20 | 0 |

Pro-ration: Total positive cash is \$120. \$100 total was traded by submodels B, C, and D. Some was borrowed from submodel A.

Add the positive cash to each Submodel proportionately.

$$B = (50/100) \times 100 = \$50$$

$$C = (30/100) \times 100 = \$30$$

$$D = (20/100) \times 100 = \$20$$

The importance of tracking trade flows between submodels

For example, UMA account, MSP001, is fully invested, has a \$100K market value, and is mapped to master model ABC, which is weighted as follows:

| | Target | Target \$ | Actual | Actual \$ | \$ Drift |
|---------------|--------|-----------|--------|-----------|----------|
| SM1 | 50% | \$ 50K | 40% | \$ 40K | \$10K |
| SM2 | 30% | \$ 30K | 35% | \$ 35K | +\$ 5K |
| SM3 | 20% | \$ 20K | 25% | \$ 25K | +\$ 5K |
| Total Account | | \$100K | | \$100K | |

If the master manager runs the UMA Rebalancer today, \$5K each is taken out of submodels SM2 and SM3, and invested into submodel SM1 to bring account MSP001 back into line.

Beginning-of-day cash:

- SM1 Cash available for trading: 0
- SM2 Cash available for trading: 0
- SM3 Cash available for trading: 0

Intraday activity:

- BUY SM1 -10K
- SELL SM2 + 5K
- SELL SM3 + 5K

Next day beginning-of-day cash:

The next morning when we calculate the cash to build SubModel Available trading cash into WINDOWS, SM2 and SM3 might expect to retain \$5K cash: each since they sold yesterday, right? If we gave it to them, the cash buckets would look like this:

- SM1 Cash available for trading: -10K
- SM2 Cash available for trading: + 5K
- SM3 Cash available for trading: + 5K

This would be incorrect. Without generating an offsetting flow for our beginning-of-day calculation, the system arrives at an incorrect starting balance the next day. In real life, available cash is 0 for all 3 submodels. Our flows would post to the Cash general ledger as follows: ...and get calculated into the submanager cash buckets:

```

(0) INCOME CASH LEDGER FOR: SNAM= TEST  BWNUM: -          RR: 99 MGR: MSP
(1) TRDTY TICK  SACUS  DATE    UNITS  $ AMOUNT  MSP  DESCRIPTION
(2) -----
(3) OPE   CASH-1 13321  20020627 0          1000000.00  BLANK  **OPENING
(4) MSPDLV CASH-1 13321  20020628 0          -5000  SM2   MSP MODEL TRD FLOW
(5) MSPDLV CASH-1 13321  20020628 0          -5000  SM3   MSP MODEL TRD FLOW
(6) MSPRCV CASH-1 13321  20020628 0          10000  SM1   MSP MODEL TRD FLOW
    
```

... and get calculated into the submanager cash buckets:

- SM1 Cash available for Trading: -10K + 10K = 0
- SM2 Cash available for Trading: + 5K -5K = 0

- SM3 Cash available for Trading: + 5K -5K = 0

Notes:

- When a submanager rebalances within their own submodel using any of the submanager trading tools (Strategy Rebalancer, What-If, Account Adjuster), a forced flow is not needed. Also, flows are not created by the Swap tool. It is only the UMA Rebalancer which causes this
- A new account that is added to Windows intraday and is added using the WINBUILDACTS function must be added twice for the new cash “buckets” to be built

Enabling a different cash calculation start date

Master Managers can enable a different cash start date for sleeves that were converted to a UMA or for accounts that had a master model conversion. Master managers can refer to the Master Manager Utilities chapter for additional details.

Intraday master model changes (submodel adding/deleting)

If the master manager changes the actual submodels in a master model during the day, the cash buckets for each submodel need to be adjusted intraday as well before the submanagers can go ahead and trade their submodel. For instance, if one master model hold 20% of submodel ABCLV, and the master manager switches it for 20% of XYZLV, the cash bucket for ABCLV needs to be eliminated and XYZLV needs a cash bucket.

To do this, the client or account manager need to run MSPSUBSWAP for the affected accounts. For instance, if the master model in question is called MSTR01 and is stored in the FDTYPE field on the account level, the master manager needs to run MSPSUBSWAP to move cash and holdings from ABCLV to XYZLV for all affected accounts. Then, WINBUILDACTS needs to be run for all affected accounts.

Chapter A: Tax Rules

A.1 How tax rules are applied

The following parameter combinations apply to tax sensitive trading situations as defined in the Edit Tax Table screen.

| <u>Tax Table Setting</u> | <u>Trading Tool Prompt</u> | <u>Trading Tool Setting</u> | <u>Consideration</u> |
|------------------------------|------------------------------|---|--|
| No | Apply Wash Sale? | No | Standard Calculations without tax table or 30-day wash sale check. |
| | Create Tax Sensitive Trades? | No | |
| | Apply Wash Sale? | No | Calculations will consider the tax table settings for all transactions. Wash sale violations will not be considered. |
| | Create Tax Sensitive Trades? | Yes | |
| Apply Wash Sale? | Yes | Calculations will consider the tax table settings for all transactions. The standard 30-day wash sale check will apply. | |
| Create Tax Sensitive Trades? | Yes | | |
| Apply Wash Sale? | Yes | The standard 30-day wash sale check will apply. The tax table will be ignored. | |
| Create Tax Sensitive Trades? | No | | |
| Yes | Apply Wash Sale? | No | Standard Calculations without tax table or 30-day wash sale check. |
| | Create Tax Sensitive Trades? | Yes | |
| | Apply Wash Sale? | Yes | The standard 30-day wash sale check will apply. The tax table will be ignored. |
| | Create Tax Sensitive Trades? | No | |
| | Apply Wash Sale? | No | Standard Calculations without tax table or 30-day wash sale check. |
| | Create Tax Sensitive Trades? | No | |
| | Apply Wash Sale? | Yes | Calculations will consider the tax table ONLY for wash sale violations. Tax sensitive trades will be ignored. |
| | Create Tax Sensitive Trades? | Yes | |

A.2 Application of tax rules based on selection

Application of tax rules based on selection

| <u>Wash sale violation?</u> | <u>Tax table violation?</u> | <u>Apply tax table only to trades violating wash sale rule?</u> | <u>Value of Apply Wash Sale field in the trading tool?</u> | <u>Action</u> |
|-----------------------------|-----------------------------|---|--|---------------|
| No | No | No | Yes | Keep Trade |
| No | No | Yes | Yes | Keep Trade |
| No | Yes | No | Yes | Remove Trade |
| No | Yes | Yes | Yes | Keep Trade |
| Yes | No | No | Yes | Remove Trade |
| Yes | No | Yes | Yes | Keep Trade |
| Yes | Yes | No | Yes | Remove Trade |
| Yes | Yes | Yes | Yes | Remove Trade |
| No | No | No | No | Keep Trade |
| No | No | Yes | No | Keep Trade |
| No | Yes | No | No | Remove Trade |
| No | Yes | Yes | No | Keep Trade |
| Yes | No | No | No | Keep Trade |
| Yes | No | Yes | No | Keep Trade |
| Yes | Yes | No | No | Remove Trade |
| Yes | Yes | Yes | No | Keep Trade |