



APL Unified Managed Account (UMA) Trading

User Guide for Sub-Managers



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About This Document

The APL UMA Submanager User Guide provides detailed instructions for submanagers who oversee and trade individual portfolio strategies within Unified Managed Accounts (UMA). This guide covers key tasks, such as maintaining submodels, executing strategy-specific trades, handling cash management, and generating reports. It also outlines tools for rebalancing, customizing allocations, and running simulations to align portfolios with client mandates.

APL's Unified Managed Account (UMA) Submanager module is a comprehensive platform that enables submanagers to implement and adjust their investment strategies within a multi-manager account structure. The solution supports real-time trading, portfolio drift monitoring, and automated rebalancing at the submodel level.

By integrating model maintenance, trading, and reporting functions, the UMA Submanager module enhances collaboration with master managers and ensures precise execution of investment goals. Its robust functionality allows submanagers to focus on strategy while maintaining transparency and alignment with overall portfolio objectives.

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 3: Managed Account Platform](#) for information about features related to the managed account platform.

See the Mutual Fund Advisory User Guide for additional information about MFA features and options.

1.2 What you need 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 the 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 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

UMA enables a submanager to:

- Maintain models for strategies, called submodels
- Trade portions of client portfolios without impacting 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 switched from “Multiple Strategy Portfolios” or MSP to 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 APL?

The APL system is an online, real-time portfolio management system developed and maintained by InvestCloud. The system includes a relational database with pricing for more than 65,000 securities. Users can obtain up-to-date portfolio valuations, tax and broker fee reports, client bills, and a wide variety of performance reports.

2.7 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 a managed account platform, models are created and managed using MMS.

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

If you are a managed account platform client, you can access Single Sleeve MFA through the UMA Sub Manager Menu.

```
PORTVUE- PRIVATE MENU12.1.1PRICES AS OF:11/08/11
ABC INVESTMENT MANAGEMENT DI SUB-SELECT: CUST2 EQ MSP◇AND◇RR LT 99◇*MSPUNIV←1
SUB-MANAGER SCREEN
-----
MENUS
-----
1. SUB-MANAGER TOOLSD. LOGOFF THE SYSTEM
2. SPNSR FROM MGR MODEL RECEIVE
3. SHOWRESTRC REPORT
4. REMOVE EXPIRED WASH SALE RESTRICTIONS
5. REPORT WRITER
SYSTEM TOOLS
-----
6. SET PRICES TO 15 MIN DELAY
7. 15 MINUTE DELAYED QUOTE
8. BROWSE REPORTS
9. PRINT REPORTS
A. DELETE ALL .L** REPORTS
B. ELECTRONIC MAIL
C. KERMIT - FILE TRANSFER
```

Note: Your screen may differ from the above illustration. It depends on client configuration.

1. Select SUB-MANAGER TOOLS

The Welcome to the MSP Control Menu opens.

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

The Mutual Fund Advisory Trading Tool screen will open.

PORTVUE- PRIVATE MENU11.9.1PRICES AS OF:11/08/11¢

ABC INVESTMENT MANAGEMENT DIVISION

MUTUAL FUND ADVISORY TRADING TOOLS

ACCOUNT MAINTENANCEREPORTING

1. PRODUCT AND FUND ALLOCATION SCREENS

A. 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 Sleeve Tags

Sleeve tags have been added to MFA sleeves. Sleeve tags are added automatically during Ad Hoc Trading functions as well as the Nightly function.

A Sleeve column has been added to the Block Status Edit window.

To view the sleeve tag,

1. In the Mutual Fund Advisory Trading Tools window select Option 5. Block Order Status

The Block Status table is displayed.

```

BLOCK STATUS AS OF11/10/111:05 P.M.
M = MUTUAL FUND TRADE INCLUDED ON EOD
* = COMMITTEDG = GOOD-TILL-CANCELLED ORDER$ = COMMITTED G-T-C ORDER
NAME DATETIME BLOCK TITLE B/STOTAL DONE
-----
ABLOC11/1012:47 ABLOCKB/SN/A0
ABC12311/1011:0111111111112222222B/SN/A0
UCF204 R11/0915:36 OMS- TN #1BUY145,000145,000
MC113M11/0915:24 FI MF B/S3SELL7,8700
UCF203 R11/0915:24 OMS- AL #1BUY50,00050,000
UCF001 R11/0915:17 OMS-3 YEAR CORPORTEBUY3,035,0003,035,000
FIKB01 M11/0914:53 NATL MF TRADES ON11/09/11BUY26,0400

```

```
UCF202 R11/0913:40 OMS- RI #2BUY100,000100,000  
MPW905 R11/0913:19 OMS- MPW N/A ETF EPSELLCOMPLETE
```

2. Select the desired block

The Do What With Block opens.

```
DO WHAT WITH BLOCK ABLOC  
-----  
SHOW DETAIL  
CREATE .CSV REPORTS  
EDIT  
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 TRADES BY VP DATE  
CHANGE STATUS OF THIS BLOCK  
SORT BLOCKS  
CHANGE BLOCK NAME  
RECEIVE GALAXY WRAP BLOCKS  
SEPARATE BLOCK BY FIXED/EQUITY/MUTUAL FUNDS
```

3. Select Edit

The block table displays and the sleeve column is displayed.

```
ABLOCK
F2-COMMITF7-EFFECTS
F1-HLP F6-INS SF6-DEL F9-OPTIONS CONTRACTSF8-OPTIONS F10-SAVE
O/C
SS ACCT          TOTAL          DESIRE
CURRENT
SC NAMESHARESTICKDATEBROKER SLEEVE  PRICE  ERR
-- -----
-- -----
O A12345$39.92GHIJLK20121109 ABCAAA10014.390253
O A67890$24.36LMNOP20121109 DEFBBB20036.169265
```

Chapter 4: Unified Managed Account Portfolio Concepts

Unified Managed Accounts (or UMAs) enable the diversified management of a single account by sectioning off portions of the account and assigning the management of each portion to a manager or managers (called sub-managers) who specialize in a certain strategy. Rather than dividing assets into separate accounts at separate firms, a UMA enables each manager to manage a portion of the same UMA account, under the overall direction of a sponsoring firm (also referred to as the master manager).

This user guide details the procedures and processes of managing UMA accounts, both from the master manager and submanager views. Chapter 2 details the tasks and procedures associated with the master manager role, while Chapter 3 details the tasks and procedure associated with the submanager role.

4.1 UMA product overview

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.”

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.

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.

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.

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 submodel allocations dynamically.

4.2 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 flow 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. Submanagers create a submodel containing 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.

4.3 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.

4.4 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 example, 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.

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.

4.5 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
2. Day 2 Liquidation Rebalance
3. Anniversary Rebalance
4. 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 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 submodels. Choosing not to combine across submodels will result in new separate blocks and the new block names above prefixed by the associated sleeve code name.

APL blocks are classified as UMA blocks, and tagged as either Master Manager or Submanager.

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.

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.

Chapter 5: Submanager Functions

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. Their 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

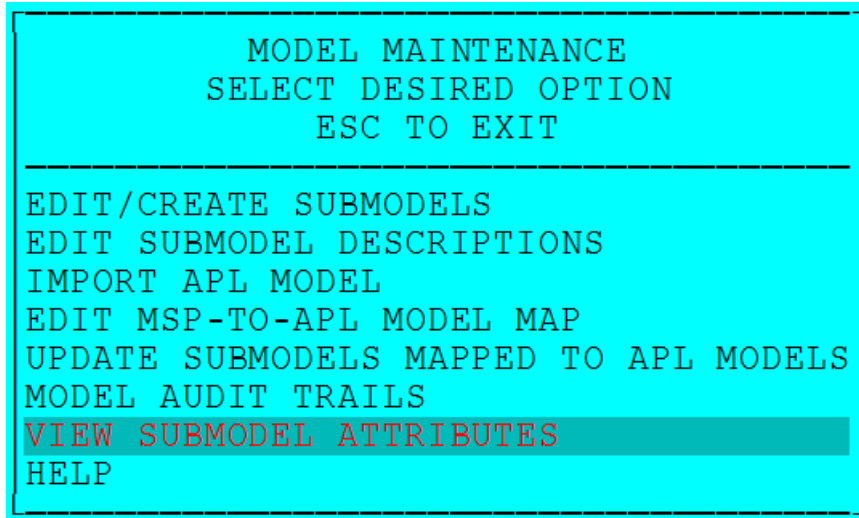
This capability is available from the Submanager Functions menu that displays the following submenu:

```
Welcome to the MSP Control Menu|
Select Desired Option
Esc to Exit
-----
MODEL MAINTENANCE
TRADING
REPORTS
BROWSE REPORTS
HELP
-----
```

- Model Maintenance enables you to create, view, or edit submodels
- Trading contains functions for managing the composition of submodels
- Reports contain report available to submanagers so that they can review the composition of individual accounts, and to examine drift of account from the proportions defined in a submodel
- Browse Reports enables submanagers to view the most recent report generated. Select the report, and it is displayed on the screen. A similar function (BROWSE) is described in the InvestCloud APL USER GUIDE

5.1 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.



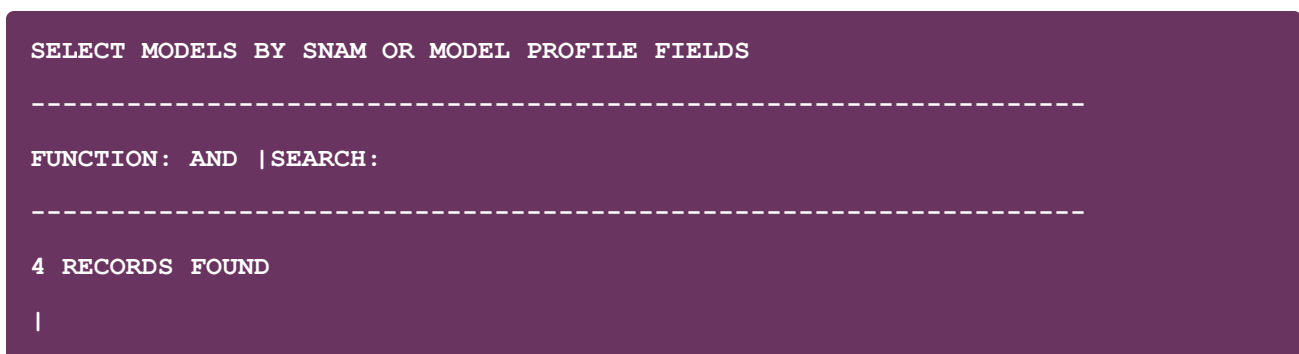
- EDIT/CREATE SUBMODELS enables the submanager to edit or create submodel portfolios (sub-models) and rank the securities contain therein
- EDIT SUBMODEL DESCRIPTIONS enables the submanager to edit submodel descriptions
- IMPORT APL MODEL enables the submanager to import a non-UMA model into the UMA 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 and ranking the securities contained therein.

To edit or create a submodel,

1. From the submanager menu, select MODEL MAINTENANCE
2. Select the EDIT/CREATE SUBMODELS function. The following screen displays:



```
|  
|  
|  
|  
|  
|  
|  
|  
|
```

```
-----  
Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back  
-----
```

3. At this screen, you can press the F& key to view a list of existing submodels, such as:

```
-----  
HIT RETURN TO CHOOSE OR ESCAPE TO CONTINUE SEARCH
```

```
MODEL DESCRIPTION  
-----
```

```
USE THIS SD MODEL TO CREATE A NEW ONE
```

```
SUBABC SUBABC
```

```
SUBMVC SUB TEST MODEL 1
```

```
SUBSUB SUB HOLD TEST  
-----
```

The first selection in the list, GENSDM, is an empty submodel template to which you can add securities.

Note: In the following steps, we assume that you want to create a new submodel. (Modifying an existing submodel requires nearly identical steps.)

A screen similar to the following opens:

```
XYZ INVESTMENT MANAGERS F-9 Refresh
```

```
06/06/03 9:35 A.M. F-10 To Save
```

```
Shift F-7 to Print
```

```
Model Name: SUBVAL - VALUE PORTFOLIO F-3 To Quit
```

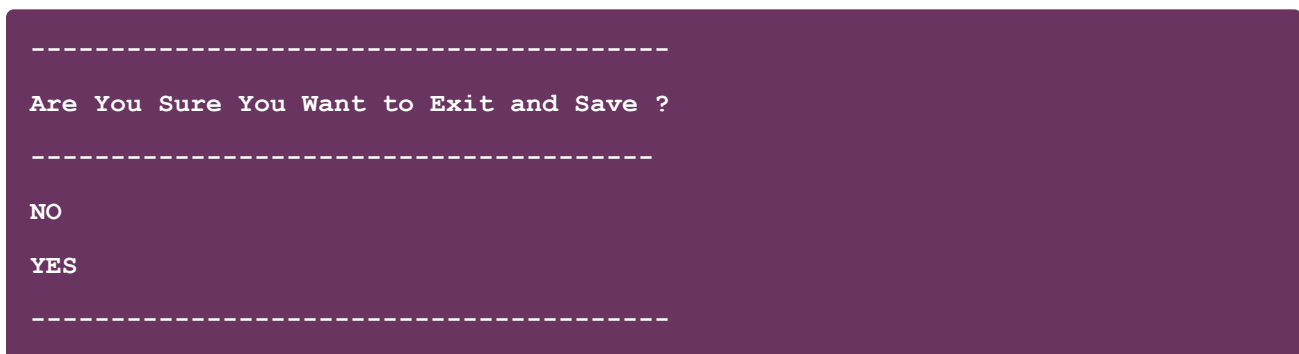
RELATED						
SECURITY	%	DATE	OUT	SECURITY	ACTION	DATE
						INRANK
ABC	3.032	0	00			
BCD	2.868	0	0	1		
CDE	2.9040	00				
DEF	3.304	0	0	5		
EFG	3.488	0	0	3		
GHI	3.164	0	0	0		
HIJ	3.012	00	0			
IJK	3.308	0	0	2		
CASH-1	0.000	00	0			
JKL	2.640	0	00			
KLM	2.908	0	0	0		
LMN	3.060	0	0	4		
MNO	3.4600	0	0			
NOP	2.908	00	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.

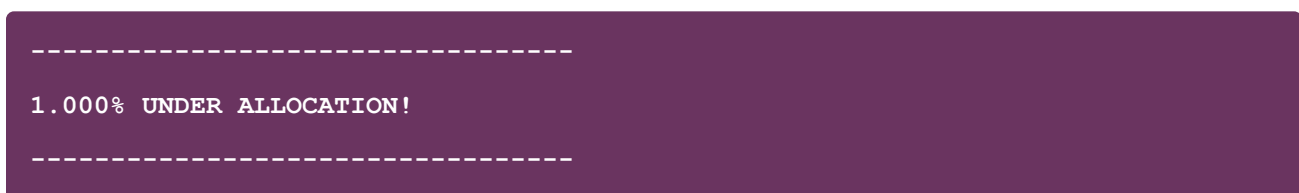
Field	Description
ACTION	<p>Pressing F9 enables you to cycle through the following options:</p> <p>HOLD - Do not buy any shares of this security. If the number of shares falls below the percent value, buy additional shares of the security specified in the RELATED TICKER column. Do not sell this security 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> <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;"> <p>Note: Swaps are not automatically processed as part of rebalancing. The submanager 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>
RANK	Order in which the security should be bought or sold. You may rank as many or as few securities as needed. Use number one to indicate which security to buy first. If the purchase order of a security does not matter, set its rank to 0.

4. 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
5. When you are through editing, press F10. The following selection box opens:



6. 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 opens:



```

PRO-RATE OVER SECURITIES
DISTRIBUTE OVER SECURITIES
SELECT SECURITY TO APPLY LEFT-OVER
RETURN TO MODEL
-----
    
```

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.
SELECT SECURITY TO APPLY LEFTOVER	Select the security that you want to adjust to bring the percent values to 100%.
RETURN TO MODEL	Redisplay the model to make corrections.

7. Make the required changes, and press F10 to save them

- If modifying an existing model, this is the last step. You return to the Model Maintenance menu
- If creating a new model, a selection box similar to the following one opens: +-----+

```

Select Strategy Style
-----
EQUITY CORE
GROWTH CORE
LARGE CAP CORE
LARGE CAP GROWTH CORE
LARGE CAP VALUE CORE
SMALL CAP CORE
SMALL CAP GROWTH CORE
SMALL CAP VALUE CORE
CASH
-----
    
```

8. 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 edit a submodel description,

1. Select EDIT SUBMODEL DESCRIPTIONS from the submanager menu. The following 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 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

These functions are described:

To create a new submodel based on a non-UMA model:

1. Select IMPORT APL MODEL from the submanager menu. The following screen will open:

```
IMPORT WHICH APL MODEL?
```

```
-----  
SYSTEM GENERC
```

```
SYSTEM RLT
```

```
SYSTEM BALMOD
```

```
SYSTEM TECH
```

```
SYSTEM TRD
```

```
SYSTEM LARGE-
```

```
SYSTEM BALANC
```

```
SYSTEM TECHGR
```

```
SYSTEM TRAIN
```

```
SYSTEM MIDCAP
```

```
SYSTEM SONMOD
```

```
SYSTEM CONVER
```

```
SYSTEM LISA
```

```
SYSTEM MUTUAL
SYSTEM CLEAR
SYSTEM JDDTST
-----
```

2. Select the non-UMA model you want to import. The following prompt opens:

```
-----
-----
DO YOU WANT TO LINK THE APL MODEL TO THE MSP MODEL FOR DYNAMIC UPDATES? ?
-----
NO
YES
-----
-----
```

3. Select either YES or NO as appropriate

- Select YES to select a UMA submodel to dynamically link to the non-UMA model
- Select NO. The Model Allocation screen will open, with the values from the non-UMA model

```
SAMPLE ASSET MANAGEMENT F-9 Refresh
12/20/02 11:34 A.M. F-10 To Save
Shift F-7 to Print`
      Model Name: GENSDM - USE THIS SD MODEL TO CREATE A NEW ONE
F-3 To Quit
RELATED ACTION
SECURITY %          DATE OUT SECURITY ACTION DATE
-----
AAPL 15.000 0      0
CASH-1 10.000 0    0
INTC 15.000 0      0
LU 15.000 0        0
MSFT 15.000 0      0
```

```
-----  
-  
F-2 to Sort F-6 to Insert a Line Shift F-6 to Delete a Line
```

4. Make any necessary changes, and press F10 to save, or F3 to quit without saving. A prompt displays asking if you want to save your work. Select YES to save, or NO to return to the menu

The system returns to the IMPORT WHICH APL MODEL screen. 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 open:

```
-----  
| IMPORT WHICH APL MODEL  
-----
```

```
SYSTEM GENERC  
SYSTEM RLT  
SYSTEM BALMOD  
SYSTEM TECH  
SYSTEM TRD  
SYSTEM LARGE-  
SYSTEM BALANC  
SYSTEM TECHGR  
SYSTEM TRAIN  
SYSTEM MIDCAP  
SYSTEM SONMOD  
SYSTEM CONVER  
SYSTEM LISA  
SYSTEM MUTUAL  
SYSTEM CLEAR  
SYSTEM JDDTST  
-----
```

2. Select the non-UMA master model you want to import. The following prompt displays:

```
-----  
-----  
DO YOU WANT TO LINK THE APL MODEL TO THE MSP MODEL FOR DYNAMIC UPDATES? ?  
-----  
-----
```

```
NO
```

```
YES  
-----  
-----
```

3. Select YES. A list of UMA submodels opens:

```
-----  
LINK TO WHICH SUBMODEL  
-----
```

```
SUBABC SUBAC
```

```
SUBMVC SUB TEST MODEL 1
```

```
SUBDB1 MSP TEST SUB MODEL
```

```
SUBKAM KAREN TRAINING
```

```
SUBK1 FTB TRAINING MODEL  
-----
```

4. Select the submodel to link to the non-UMA master model. Press F10 to save, or F3 to quit without saving. The system returns to the IMPORT WHICH APL MODEL screen. If you are finished linking models, press ESC to return to the Model Maintenance menu

To verify which non-UMA models are linked to UMA submodels, see “Editing a UMA-to-APL model map”.

Editing a UMA-to-APL model map

This function displays the links between non-UMA master models and UMA submodels.

```
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, select 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:

Using the MULTIMODELLOAD function,

1. At the WHICH FUNCTION? prompt, type MULTIMODELLOAD, and press ENTER

```
Enter the Model Data File Name:
```

2. Type the name of the file containing the list of models, and press ENTER. 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 displays:

```
All Model Names Will be Truncated At 6 Char., Want To Continue ?
```

3. Type Y to continue, or N to abort, and press ENTER. The following prompt displays:

```
Models will Models will be overwritten. Do you want to continue?
```

4. Type Y to continue, or N to abort, and press ENTER. 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. 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.

```
-----  
Would you like to View Accounts with No holdings of this Security ?  
-----
```

```
NO
```

```
YES  
-----
```

View Submodel Attributes

This option allows a 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. This feature requires InvestCloud configuration.

When View Submodel Attributes is selected from the menu:

1. The standard model selection screen is displayed
2. Select from the list of submodels or select all models. At least one model must be selected
3. 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 client 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 (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	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

5.2 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.

```

-----
TRADING
SELECT DESIRED OPTION
ESC TO EXIT
=====
STRATEGY REBALANCER
MSP WHAT IF
MSP MULTI WHAT IF
MSP ACCOUNT ADJUSTER
LIQUIDATE SPECIFIC FUNDS
MSP SUPERTICK
TBA SWAP TOOL
BLOCK STATUS
HELP
-----
    
```

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. See “MSP Multi What-if function”
- MSP ACCOUNT ADJUSTER function enables you to adjust cash or other positions manually at the tax lot level for individual accounts or adjust cash for multiple accounts at one time within the submodel
- LIQUIDATE SPECIFIC FUNDS presents the choices listed in [Liquidating Model Securities via LSF Day 1 from Sub Manager](#) below
- MSP SUPERTICK allows you to look at a group of TBA securities held in an account, based on defined criteria, as a single security
- TBA SWAP TOOL allows a user to exchange currently held TBA security positions for actual bonds. See [TBA Swap Trading Tool](#) below
- 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.

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

Liquidating Model Securities via LSF Day 1 from Sub Manager

Proceeds apply only to the submanager’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.

When selecting the OVERRIDE or PRORATE options, you are asked if you want to generate corresponding buy trades on the same day.

- YES = corresponding buy trades are generated on the same day and buys and sells will exist in the same block. The previous day's NAV price (CLSEP) are used to calculate the proceeds
- NO = The proceeds for reinvestment are a part of the existing Day 2 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

Notes:

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.

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 are 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 automatically applies 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:

From the Trading Tools menu to access the tool, select 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
```

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 open when you press F10.

CLOSEOUT

The close-out feature enables you to close out TBA positions that remain after a delivery 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 ZYZ000  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 7:16 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	
ABC132	*05/21	07:16	TBA SWAP C33724 IN FOR S2CRX3	SELL	3,000	0	
ABC999	05/21	07:16	ACP006 - ACCOUNTS WITH ERRORS	BUY	3,000	0	
XYZ123	05/21	06:20	ACP004 - ACCOUNTS WITH ERRORS	BUY	553	0	
ABC999	05/21	06:19	TBA SWAP C33724 IN FOR S2CRY1	SELL	553	0	

Strategy Rebalancer function

The Strategy Rebalancer function enables submanagers to make their portion of portfolios, also known as a “sleeve,” conform to an associated model, while respecting restrictions on individual portfolios. 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      Min Equity Lots : TABLE
      Round Bonds by : TABLE        Min Bonds Lots : TABLE
      Round MF Buys by ($): TABLE    Min MF Buys ($): TABLE
      Round MF Sales by (Sh): TABLE  Min MF Sales(Sh): TABLE
      Report on what % Accts: 100
      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.

Field	Description
	<p>SELECT ACCOUNTS: Apply rebalancing to the selected accounts. To display the Account Selection screen, press F10. To display a list of accounts, press F7.</p> <p>ALL ACCOUNTS: Apply rebalancing to all accounts.</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 ignore it.</p> <p>NO: Ignore the tax table and sell lots based on selling priority for the account. Versus purchase (VP) dates will not be populated.</p> <p>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.</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 the wash sale rule.</p>
Apply Wash Sale	<p>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.</p> <p>NO: Trades are not checked for wash sale rule violations.</p>
Target	<p>SECURITY ALLOCATION purchases securities according to their established percentages.</p> <p>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.</p> <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p>Note: To enable this functionality, please contact your relationship manager.</p> </div>
Cash From Restrict Sec's	<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> <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>

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 non-restricted model security based on those securities targets. A new target is calculated as $\text{Old Target} + \frac{\text{Old Target}}{\text{sum of unrestricted securities}} \times \text{total target of restricted securities}$.</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> <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>
Cash From Restrict Sec's continued	<p>PRORATE ACROSS THE SAME RA69 CODE: Cash will be prorated among all model securities that have the same RA69 code as restricted security. If there are no securities with the same RA69 code then the restricted cash remains in cash.</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. If there are no securities with the same SIC2 code then the restricted cash remains in cash.</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 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>The additional prorated 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>

Field	Description
-------	-------------

Note: If configured for the Restriction at Sleeve or Account Level feature, this run-time screen prompt is disabled. The sleeve 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.

	Sets limits on the types of transactions that can occur:
	SELL+BUY allows the rebalancer to both sell and purchase securities.
	BUY ONLY allows the rebalancer to only purchase securities.
Buy/Sell Mode	SELL ONLY allows the rebalancer to only sell securities.
	BUY UNOWNED / SELL NON-MODEL - the rebalancer is restricted to buying securities that exist in submodels but do not exist in the account, and selling securities that exist in the account but not in submodels.
	The level of unowned buys is contingent upon available cash taking into account all minimum cash parameters.

Report on what % Accts	The Strategy Rebalancer runs a report for a percentage of accounts.
------------------------	---------------------------------------------------------------------

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.
Minimum Trade Percentage	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. Example: 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.

Field	Description
	<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>
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.

Notes:

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. For firms with custom block naming, this feature is not available.

If enabled, a prompt is displayed before trades are generated where a 6-character block name can be entered.

- If a block name is not entered, to ensure trades are not discarded erroneously, 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 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			% of Accounts with Trades		
MSPCS1- CS DEMO MODEL #1		5			4			80.0		
		=====			=====			=====		
		5			4			80.0		
										PAGE 2
Multi Strategy Product Drift Report SAMPLE ASSET MANAGEMENT LLC As of July 23, 2002										
Sub Model	Tick	*** Model %	*** Value	*** Actual %	*** Value	*** Drift %	*** Value	** Resulting Trades	** %	Value
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	CSCO	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

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 follows:

UMA Rebalancer Exceptions Report PAGE 1
Report Created: 05/16/12 7:04 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 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 CHECKFREE 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 use MSP What-if tool,

1. Select TRADING from the submanager menu. Then, select the MSP WHAT IF function. The following prompt displays:

```

+-----+
|ENTER SECURITY (CUSIP, TICKER OR SACUS)|
+-----+
|                                     |
|                                     |
+-----+
    
```

2. Type the CUSIP, ticker symbol, or SACUS number, and press ENTER

The What-if Input screen will open.

If you input the CUSIP, TICK, or SACUS of a mutual fund, a screen displays 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        |
+-----+

```

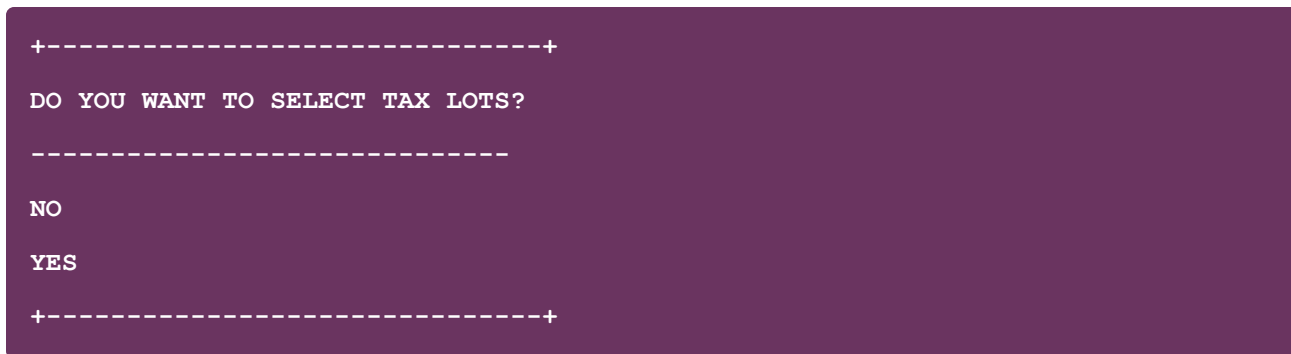
Field	Description
REPORT TITLE:	The full description of the security to be added or adjusted, from the security master. This information can be edited.
DESIRED PERCENTAGE:	The target percent for this holding.
LEVEL:	<p>Specifies what to do if the specified security is not at the target percent.</p> <p>EXACT - Buy or sell to desired percent.</p> <p>MINIMUM - Buy only if below desired percent.</p> <p>MAXIMUM - Sell only if above desired percent.</p> <p>UNOWNED - Buy only for portfolios that do not already hold the security; but do not buy if a portfolio already holds it.</p>
PERCENT OF:	<p>Defines the basis for the specified percent.</p> <p>TOTAL - Percent of the selected submodel's total market value.</p> <p>ACTUAL - Calculates trades using the actual market value for the sleeve.</p> <p>TARGET - Calculates trades based on the targeted sleeve weights, not the actual sleeve weights.</p>
<p>Note: If you select TARGET, the percentages that are displayed in the What-If Report will reflect the targeted market value.</p>	

Field	Description
	<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 (\$) ¹	Increment to which mutual funds securities are rounded, in dollars and cents, for buys.
MINIMUM BUY (\$) ¹	Minimum amount, in dollars and cents, that a mutual fund lot must have before it is added to the trading block.
ROUND SALES BY (u) ¹	Increment to which mutual funds securities are rounded, in shares, for sells.
MINIMUM SALE (u) ¹	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.
DISPLAY:	Range of accounts appearing in the report associated with this function.

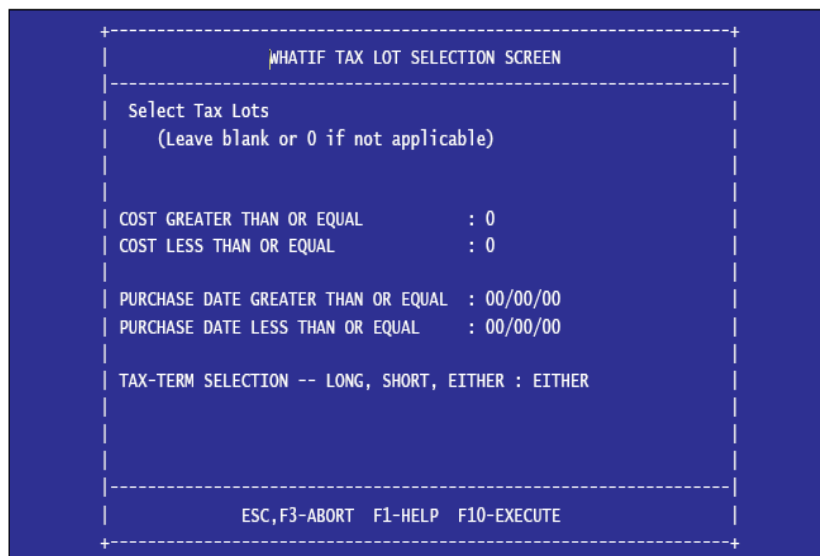
Field	Description
	<p>ACCOUNTS THAT REQUIRE CHANGE - Only accounts requiring change appear on the report.</p> <p>ALL ACCOUNTS - All accounts appear on the report.</p>
CHOOSE:	<p>Range of accounts that are affected by the function.</p> <p>ALL ACCOUNTS - All accounts associated with the selected submodel 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.</p> <p>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> <p>NOTES:</p> <p>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.</p> <p>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.</p>

3. 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 opens. 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, as shown below:



Adding real-time cash deposits and withdrawals to sleeves:

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.
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.

Field	Description
-------	-------------

EITHER - Sell shares regardless of how long they have been held.

4. Then, press F10. The following prompt displays:

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

5. Type in the block name, and press ENTER. The following prompt displays:

```
+-----+
Display SNAM, BWNUM, LNAME, or ACCT NUMBERS on WHAT-IF Report?
-----+

SNAM
BWNUM
LNAME
DTCNO
+-----+
```

6. To identify each account on the What-If Report, select the account profile. The available choices are:

- SNAM: Account short name
- BWNUM: Internal account number
- LNAME: Account long name
- DTCNO: Custodian account number

The report is generated. An example is displayed below:

BLOCK: DAK123	07/25/02 3:35 P.M. CHECKFREE INVESTMENT SERVICES MSP: CS DEMO MODEL #1	PAGE 1
DAKTRONICS INC COM - DAKT		
LEVEL OF PORTFOLIO: MINIMUM 1.0% OF TOTAL		
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
=====		
% OF	% OF	% OF
CASH & TOTAL	DAKT	DAKT TOTAL
SNAME DISCRT	EQUIVALENTS	PORT
UNITS	BID VALUE	PORT
COST	% OF	UNITS % OF
DAKT	DAKT	DAKT TOTAL
CASH & CASH &	DAKT TOTAL	EQUIVALENTS EQUIVS

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.

7. 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

```
+-----+
Please Select an Option
-----
Exit What-If
Edit Block MSPSBL
Commit Block MSPSBL
+-----+
```

8. Select the appropriate option and press ENTER

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-mortgage 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 open

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.
Trading Instructions	The trading method: <ul style="list-style-type: none"> • BUY AND SELL • BUY ONLY • SELL ONLY
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	The order in which sells should be created posted in accounts that exceed the target percentage: PURCHASE DATE - LOWEST TO HIGHEST

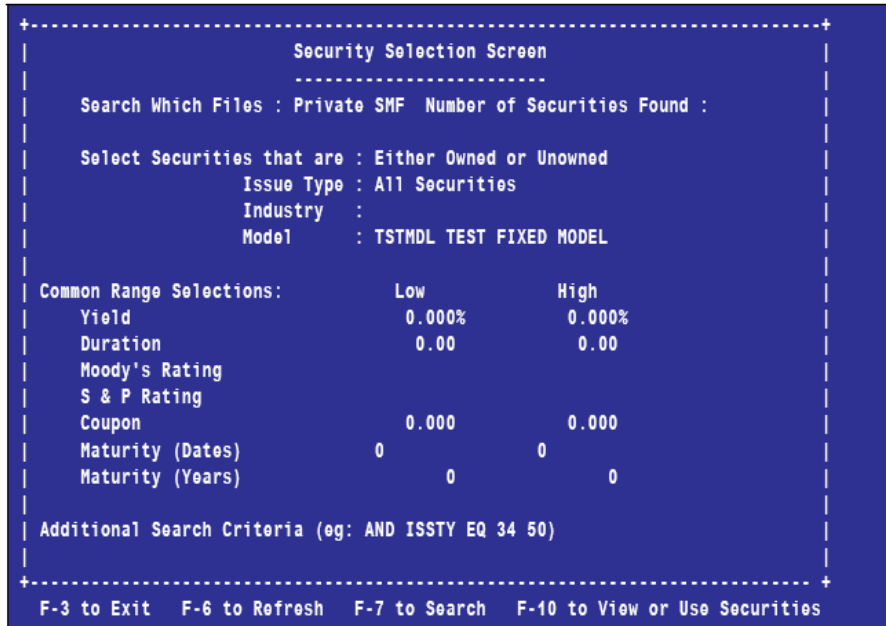
Field	Description
	(FIFO) PURCHASE DATE - HIGHEST TO LOWEST (LIFO) COST BASIS - LOWEST TO HIGHEST COST BASIS - HIGHEST TO LOWEST Because this function looks at more than one security, a method for determining which security or securities to be sold must be defined.
Override Price	Price to use. Leave blank to use 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	Minimum holding that remains if the security is not fully liquidated.
Rounding Method	The rounding method: <ul style="list-style-type: none"> • NEAREST • UP • DOWN
Settlement Date	The settlement date used to calculate accruals.

After saving the selections, the submodel selection screen will open.

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 will open:

```
+----- 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 opens

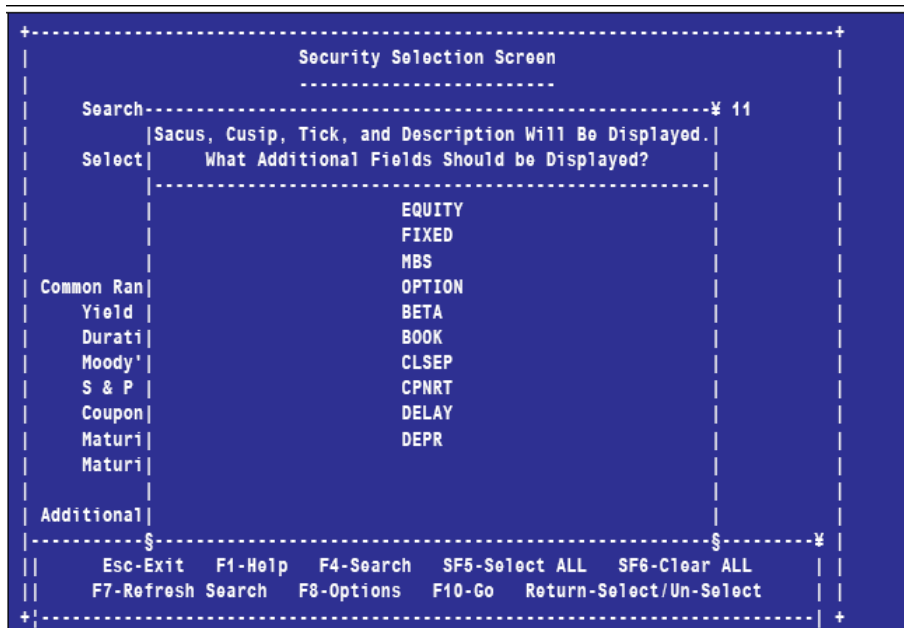


5. Fill in the fields on the Security Selection Screen using the following table for reference. Press F10 to save the changes

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> <p>All SMF (xxxHOT, xxxSEC, BW:SECSA,BW:SECOPT, BW:SEMISC)</p> <p>Private SMF (xxxHOT, xxxSEC)</p> <p>Public SMF (BW:SECSA, BW:SECOPT, BW:SEMISC).</p>
Select Securities that are:	<p>Press F1 to display the following options:</p> <p>Owned</p> <p>Unowned</p> <p>Either Owned or Unowned</p> <p>Issue Type: Press F1 to display the following options:</p> <p>Fixed Income Securities</p> <p>Equities</p> <p>All Securities</p>

Field	Description
	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.
	Select highs and lows for security fields. Press F1 to display options:
	Yield
	Duration
Common Range Selections:	Moody's Rating
	S & P Rating
	Coupon
	Maturity (Dates)
	Maturity (Years)
Additional Search Criteria:	Narrow or broaden the security selection. To narrow your search by security issue type, for example common stock type AND ISSTY EQ 28. To broaden the search, simply replace AND with OR.

Once the security selection is made, 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

The Security Viewing Screen opens.

```

Security Viewing Screen Screen 1 of 5
-----
SACUS CUSIP TICK DESCRIPTION
-----
* 123456 589923200 MAMTX ***BGBankCo. Mun Sr Tr Mun Cl I
* 13321 000000BLANK CASH-1 CASH
123456 A012AB012 ABC123 XYZ543,3.50-4.25%,GO 3.50000 Due 06/01/2009 (
654123 A013AB013 ABC124 XYZ544,3.50-4.25%,REV 3.50000 Due 06/01/2009
324651 A014AB014 ABC125 XYZ545,3.75-4.50%,GO 3.75000 Due 06/01/2010
653216 A015AB015 ABC126 XYZ546,3.75-4.50%,GO 3.75000 Due 06/01/2011
864316 A016AB016 ABC127 XYZ547,3.75-4.50%,REV 3.75000 Due 06/01/2011
303212 A017AB017 ABC128 XYZ548,4.00-4.75%,GO 4.00000 Due 06/01/2012
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 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                              |
+-----+
    
```

- 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
9. Press F10 to use the selected securities. A window opens listing the number of securities chosen and asks you to confirm the selection

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

10. To use the securities, select YES and press ENTER
11. To abandon the security selection and return to the Security Viewing screen to narrow or broaden the search, select NO and press ENTER

If YES is selected, the Security List of the Multiple What-If screen is populated 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 MSP MULTI WHAT IF from the submanager TRADING menu. The MSP Multiple What-If screen will open

```

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 |
+-----+
-+
    
```

2. Enter or select the parameters necessary for processing, and press F10-Go

Refer to the table below for descriptions and options available for each parameter.

Parameter	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	Name of the block created by this function, up to six characters. If the block name is configured to be automatically generate, this parameter is not editable
Block Title	The long name of the block you are creating

Parameter	Description
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. Ignores 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. Follows 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 - The market value of the selected submodel.</p> <p>EQUITY - The market value of only the equities within the selected submodel.</p> <p>FIXED - The market value of only the fixed income securities within the selected submodel</p>
--------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

- The Security List table opens. The list columns span two screens. Toggle to access additional columns in screen two using the F9 - Cycle key

First Screen

ADVISORS		Screen 1 of 2				
12/02/15 1:37 P.M.		F-9 to Next screen F-10 to Continue				
Security List of the Multiple What-If						
Security	Description	Target	Target Basis	Round Lot Units	Round Lot \$	Rounding Method
		0.00	Total	1.0000	0.00	Nearest
F-7 Populate Target from Submodel				F-8 To Select Securities by Characteristic		

Second Screen

ADVISORS		Screen 1 of 2				
12/02/15 1:37 P.M.		F-9 to Next screen F-10 to Continue				
Security List of the Multiple What-If						
Security	Description	Target	Target Basis	Round Lot Units	Round Lot \$	Rounding Method
		0.00	Total	1.0000	0.00	Nearest
F-7 Populate Target from Submodel				F-8 To Select Securities by Characteristic		

- 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. See the "Select Securities by Characteristic (F8)" section below
- 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	Ticker symbol, CUSIP, or SACUS number for each security in the group
Description	Long description of the security. (The system automatically updates this field.)
Target	Target percent of the selected security to be contained in the submodel

Field/Column	Description
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> <ul style="list-style-type: none"> • Act Eq - Market value of the equities in the selected submodel • Act Fx - Market value of the fixed income securities in the selected submodel <p>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>
Round Lot	<p>Number of securities in a round lot, for the purposes of this transaction. Values from 1 to 10,000 are accepted. 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. In respect to mutual funds, not establishing this parameter will enforce the WHATIFTABLE parameters set by the master manager</p>
Rounding Method	<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 if rounding up or rounding down</p>
Minimum Lot Units	<p>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.</p> <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-top: 10px;"> <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-top: 10px;"> <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>

Field/Column	Description
	<p>Buy & Sell - Both buy and sell trades can be created.</p> <p>Buy Only - Only buy trades can be created.</p> <p>Sell Only - Only sell trades can be created.</p> <p>Add to a Position - Only buy trades that add to an existing position are created.</p> <p>Trim an Existing Position - Only sell trades that reduce an existing position are created.</p> <p>Raise Cash 1 - Use Cash First - First use available cash for purchases, then create sales to raise additional funds.</p> <p>Raise Cash 2 - Use Cash Last - First create sales to raise funds, then use available cash.</p> <p>Unowned - Buy Only - Buy the security only if it is not already owned</p>
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>

- When the securities list is complete, press F-10. A prompt to confirm if the security list is correct is displayed. If it is, select YES and press Enter. Otherwise choose NO
- If you added or modified security settings in the submodel, the following message displays

```

+ - -----+
DO YOU WANT TO APPEND TO EXISTING BLOCK SUBABC ?
-----
NO
YES
+ - -----+
    
```

- Select YES to append the changes to the submodel. Select NO to void the changes. You are prompted to choose securities to report on

```

+-----+
|Select Securities to Report On|
-----
*CKFR
*SEBL
    
```

```
+-----+
Esc-Exit F1-Help F4-Search SF5-Select ALL SF6-Clear ALL
F7-Refresh Search F8-Options F10-Go Return-Select/Un-Select
```

- Select the securities to include in the report, and press Enter. An asterisk displays next to the ticker symbol, indicating that the security is included. Then, press F-10. The following selections display:

```
+-----+
Display Percentages Based on Which Value?
-----
TOTAL
EQUITY
FIXED
+-----+
```

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 and 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 STATUS	Display the Block Status screen
VIEW CHANGES.LRP	Displays the CHANGES.LRP report file using the BROWSE function
PRINT CHANGES.LRP	Sends CHANGES.LRP to the print queue
EDIT BLOCK xxxxxx	Enables you to edit the block
	Enables you to commit the block. <ul style="list-style-type: none"> Splitting Blocks during Commit Process
COMMIT BLOCK xxxxxx	<div style="border: 1px solid gray; padding: 5px;"> <p>Note: 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> </div>

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 *****
          % of          % of          % of
Tick  Cusip  Security  Units  Value Total  Units  Value Total  Units  Value 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
    
```

Select Securities by Characteristic (F8)

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.

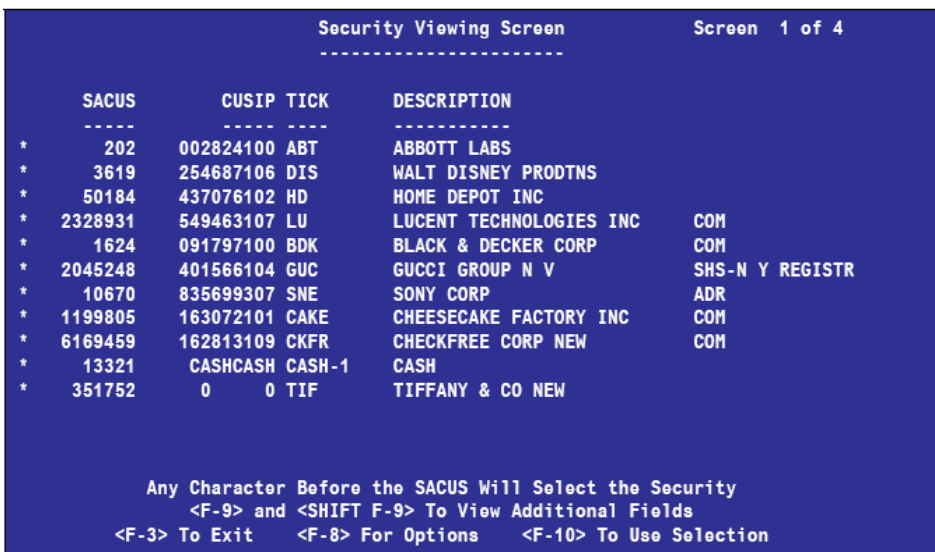
Field	Description
Search Which Files	<p>Pick the databases you want to search.</p> <p>A11 SMF searches all five databases: HOT, SEC, BW:SECSA, BW:SECOPT, and BW:SECMISC</p> <ul style="list-style-type: none"> • Private SMF searches your SEC and HOT files only • Public SMF searches the BW:SECSA, BW:SECOPT, and BW:SECMISC files only
Select Securities	<p>Specify whether you want owned or unowned securities.</p> <ul style="list-style-type: none"> • Either Owned or Unowned selects all securities

Field	Description
	<ul style="list-style-type: none"> Owned selects only those securities held in any of your accounts Unowned selects only those securities not held in any accounts
Issue Types	<p>Specify the types of securities you want.</p> <ul style="list-style-type: none"> All Securities selects all securities Fixed Income Securities selects only those securities categorized as fixed income securities according to issue type (ISSTY) Equity Securities selects only those securities categorized as equity securities according to issue type (ISSTY)
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 criteria 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
04/26/04 12:29 P.M. F-3 To Quit
F-10 to Continue

security List of the security Rebalance

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

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

MSP Account Adjuster

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,

1. 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.

2. In addition to minimum and rounding values, users also specify values of the following fields:

Field	Description
Tax Lot Trading	YES

Field	Description
	NO
Wash sale	<p>Determines if wash sale rules are applied.</p> <p>YES</p> <p>NO</p>
Freeze Option	<p>Selects tax lots which may not be traded as part of adjusting cash. The following options appear when you press F1:</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 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>
When Raising Cash	<p>Despite its label, When Raising Cash controls how cash is invested or raised during a single or multiple account adjustment.</p> <p>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> <ul style="list-style-type: none"> • TRADE BY DRIFT - Generates trades for entered cash flows based on security drift within sleeve. The following parameter options are affected <ul style="list-style-type: none"> ▪ Freeze Options is set to RESTRC ▪ Asset Class is set to TOTAL ▪ Mode SINGLE ACCOUNT ADJUSTMENTS is not available ▪ Do you want to use the Sub Model in Account Adjuster? is set to YES

Field	Description
	<ul style="list-style-type: none"> ▪ Tax lot Trading is set to No <p>Submodel selection is required</p>
Asset Class	<p>Specifies which asset class to adjust within the submodel. Press F1 to display a list of options.</p> <p>TOTAL - Adjust the entire portfolio.</p> <p>EQUITY - Adjust only equities.</p> <p>FIXED INCOME - Adjust only fixed income securities</p>
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> <p>YES -Rebalance this portfolio to the submodel.</p> <p>NO - Do not rebalance this portfolio</p>

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. To use the minimum and rounding tables, change this prompt to YES
 - All minimum and rounding fields display default numeric values, which are client-specific
3. 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)
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

Notes:

Rounding parameters 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

4. Adjust the values as necessary, and press F10 to continue
5. The MODE option selected determines the next step in the process flow
 - a. If MODE is SINGLE ACCOUNT ADJUSTMENTS, A single account selection window opens, as illustrated below. To view a list of accounts available for selection, press F7



6. 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	Depending on the selection from the F8- Options selection SHOW DOLLARS / SHOW SHARES toggle. The corresponding TARGET SHARES/TARGET DOLLARS column is displayed. TARGET SHARES - target number of shares to be held in this submodel. This editable field has 4 decimal places.

Field/Column	Description
	TARGET DOLLARS - target dollar amount of the security or mutual fund to be held in this submodel. This editable field reflects two decimal places
	Target percent of the tax lot or cash to be held in this submodel. This value can be edited.
PCT	<p>Notes: Rounding parameters entered on the initial screen do not take effect unless:</p> <ul style="list-style-type: none"> • The PCT field is used to edit the security value • Cash target shares are adjusted • The user recalculates trades <p>Entering a value in the dollar or share field overrides the rounding criteria set</p>
	Indicates if a tax lot or position can be traded. (none) - The tax lot can be traded.
FREEZE	<p>F - Tax lot is to be frozen (not traded). You can type this value in the field if it is blank.</p> <p>R - Tax lot is frozen due to trading restrictions. This value cannot be changed.</p> <p>T - Tax lot frozen because it is part of a committed trade. This value cannot be changed</p>
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

7. 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

8. 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: EQUITY FIXED RESTRICTED TRADES
REPRICE OPTIONS	Reprice securities according to the most recent 15-minute delayed quotes. (Contact your Account Manager regarding this service.)
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: TICK DESCRIPTION YIELD DURATION INDUSTRY PERCENTAGE UNREALIZED G/L
SHOW SHARES/SHOW DOLLARS	Selects to trade in shares or dollars when trading mutual funds

Option	Description
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

9. Press F10 to save the changes and continue

b. If MODE is one of the MULTI ACCOUNT CASH options a multiple account selection screen will open

```

SELECT ACCOUNTS BY SNAM, BWNUM 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
    
```

1) Select one or more accounts and press F10 to continue.

2) 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
    
```

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

4) After entering amounts, press F10 to continue.

10. 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
+-----+
+
```

11. 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 :													
07/25/02 2:25 P.M.													
Account Name : CRS TEST ACCOUNT 2													
Security	SACUS	Price	BEFORE			CHANGE			AFTER				
			Units	Value	Pct	Units	Value	Pct	Units	Value	Pct		
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	4382927	29.590	0	0	0.00	0	0	0.00	0	0	0.00		
CKFR	6189459	11.390	0	0	0.00	0	0	0.00	0	0	0.00		
CSCO	684274	13.090	0	0	0.00	0	0	0.00	0	0	0.00		
KO	2626	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.

If When Raising Cash was set to TRADE DRIFT, this report is not generated.

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	Minimum Tick	Side VP	Trade	
	Type	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 the 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 Trade Report										
Investment Management										
TRADE ENTIRE ACCOUNT; TRADE CASH TO TARGET										
Block Name: MSP000										
Number of Accounts: 1 of 1										
Contribution: 2,000.00										
111111111 Mr. John Doe										
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	-5,000	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%					

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.

Cash Flow Trading Exceptions Report							
Report Created: 12/02/15 11:57 A.M.							
PAGE 1							
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	Submodel	Transaction Type	Cash Flow Amount	Adjusted Cash Flow Amount	Trade Amount	Difference
ACCT01	Name	SLVABC	Contribution	3,500.00	3,500.00	1,681.77	1,818.23
ACCT02	Name	SLVDEF	Withdrawal	4,000.00	4,000.00	1,797.03	2,202.97

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

Note: 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 are also 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 displays. 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

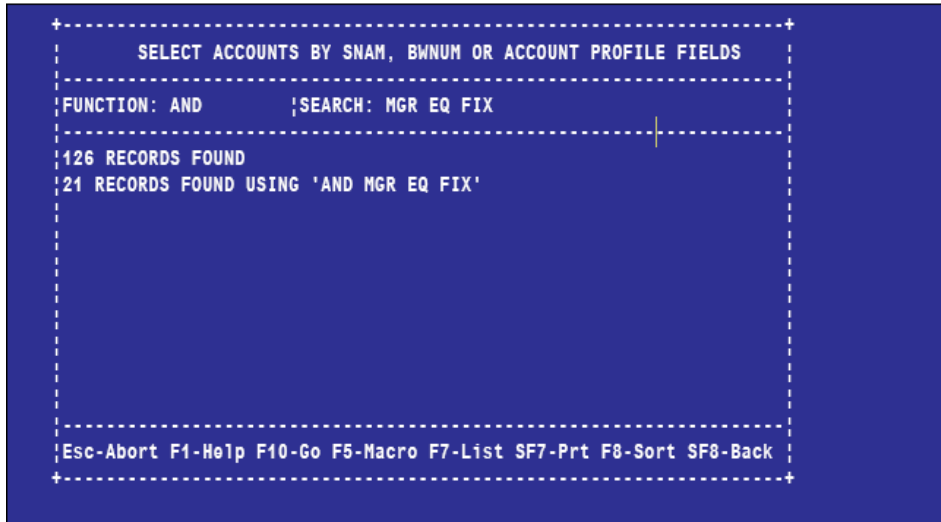
Field	Description
Single Account Selection	Press F1 for the option list and select either MATURITY or DURATION
Sort Order	Press F1 for the option list and select LONGEST or SHORTEST maturity or duration to narrow down the selection of bonds. If you prefer to not specify either, choose N/A
Other Security Criteria	You may use other Security Master fields to reduce the selection criteria

5. In the Miscellaneous section of the screen, select:

Field	Description of input
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 displays, 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 clear an account selection 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
ACCOUNT SELECTION FEATURES	INCLUDE ALL ACCOUNTS: This is the default option. Initially all accounts are selected.

Option	Description
	<p>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.</p> <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 • 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> <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;"> <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</p> </div>

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

Screen 1 (Weighted Average Duration, Weighted Average Price):

Model Statistics		Weighted Avg Duration		Weighted Avg Price		Weighted Avg Coupon	
MUNICI-401	MUNICIPAL B	4.6		102.32		7.5	
Snam Account Name		Weighted Avg Duration		Weighted Avg Price		Weighted Avg Coupon	
		Pre	Post	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 2 (Weighted Average Coupon, Total Annual Income):

Model Statistics		Weighted Avg Duration		Weighted Avg Price		Weighted Avg Coupon	
MUNICI-401	MUNICIPAL B	4.6		102.32		7.5	
Snam Account Name		Weighted Avg Coupon		Total Annual Income		Total Annual Income	
		Pre	Post	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

- 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

A standard trading block is created using the name selected on the first screen.

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.

3/17/04 10:57 A.M. Snam: FIXED1		Generic Security Swap Results CHARLIE CHEESESTEAK		PAGE 1				
Cusip	Amount Traded	Face Held	Security Description	Proceeds/ Price	Accr Cost Traded	% of Durat	Coupon	Port
36214ECY9	0	1,596,956	GNMA PL #103687 SF	12.500%	05/15/14 116.43	0	0	3.70 12.50 5.38
362078L82	0	1,000,196	GNMA PL #045351 SF	12.500%	11/15/10 117.22	0	0	2.77 12.50 1.13
3620982U8	0	1,591,177	GNMA PL #065587 SF	12.000%	09/15/11 116.50	0	0	3.57 12.00 5.09
041033BC4	0	144,000	ARKANSAS P & L	10.125%	07/01/05 103.38	0	0	1.18 10.13 19.68
737679BL3	0	73,000	POTOMAC ELEC PWR CO	7.000%	01/15/18 101.00	0	0	8.70 7.00 9.67
0 0	0	529,700	US TREASURY BONDS	6.500%	02/15/15 29.83	0	0	4.52 6.50 20.50
694032AQ6	-131,000	0	PACIFIC BELL DTD 02/01/9	7.500%	02/01/33 102.94	-134,851	0	11.85 7.50 0.00
0 0	0	170,000	U S TREAS BONDS DTD 02/15/96	6.000%	02/15/26 95.33	0	0	11.79 6.00 21.03
BUY:								
912810EZ7	106,000	106,000	U S TREAS BDS DTD 02/15/97	6.625%	02/15/27 127.38	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:

- 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
- 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 is BLOCK1.LTG
- 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	89316055	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	WHT
Buy:	F97227	6CL80672	97227	AAPL	037833100	34.0000	02/10/09	MLUMA	NUBZ1X	WHT
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

Checking Block for Violations during Commit Process

When committing a block, the Commit Check process checks the block for certain violations, based on the Minimum Trade 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

O   ABC123  1000.0000    111111AA  MKSMCN < $1000.00
O   XYZ123  1000.0000    222222AB  NWQNSM < $1000.00
O   XYZ321  1000.0000    333333AA  NWQNSM < $1000.00
O   ABC321  1000.0000    444444AB  NWQNSM < $1000.00
O   12345678  1.0000      555555AA  BLANK  < 1000 units
O   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:

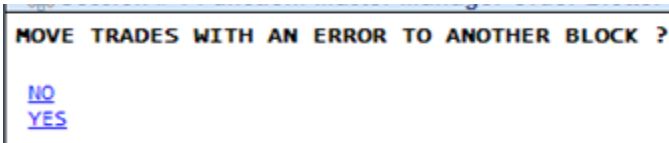
Do you want to allow these minimum violations ?

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

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

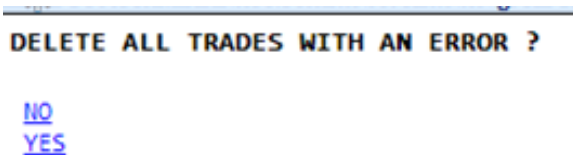
OR

Move trades that contain errors to another block:



OR

Delete all trades that contain an error:



No Violations Configuration:

If the block, at the Commit or Multi-Commit check, violates minimum trades 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.

5.3 Reports

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 sub-model
- 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
- ASSET MIX BY ACCOUNT indicates the percent of cash, fixed income securities, and equities within a specific submodel for a selected range of accounts
- CASH BALANCES BY ACCOUNT displays the beginning of day cash balances for a selected range of accounts for a specific submodel
- CASH TRANSACTION REPORT displays cash transactions within a specific submodel for a selected account
- CROSS REFERENCE BY SECURITY displays accounts that hold specific securities within specific submodels
- FASTPMSECT displays performance sector data for a specified time frame
- 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
- FIXEDINCOME is the Windows report, WIND_FIX_GW, that provides summary fixed income data and lists individual fixed income securities for individual portfolios
- 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
- YIELD DURATION NET OF COMMITS shows sleeve-level yield-to maturity and modified duration for each selected account before and after committed trades
- Top Holdings allows submanagers to view top holdings across all submodels that they manage or by individual submodels

Portfolio Valuation Report

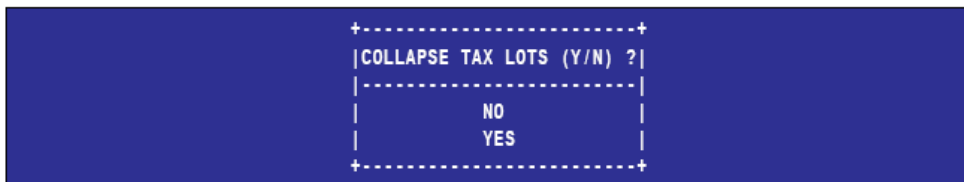
The Portfolio Valuation Report contains a variety of information for portfolio submanagers, including:

- 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

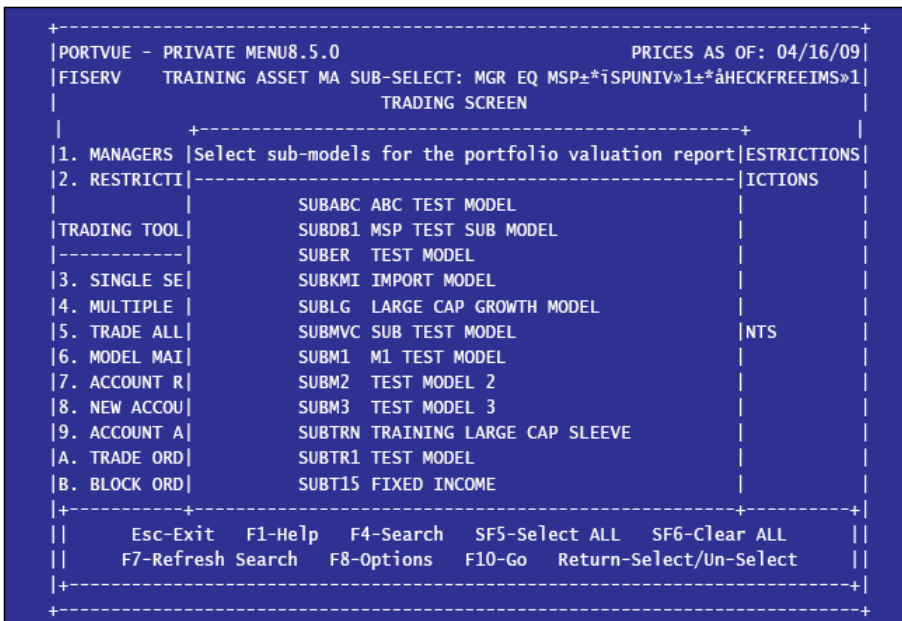
The submanager can select one account or an entire range for this report. They may also choose to collapse tax lots for individual securities.

To generate the Portfolio Valuation Report,

1. Select Portfolio Valuation Report from the Reports menu. The following prompt displays:



2. Select NO 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



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
4. Press F10 to save the selection and proceed to an account selection window that opens:



- Select one or more accounts for which you want reports, and press ENTER. The report is written to the SNAM.LRP file and a browse window containing the report displays

SHARON - 473171958		SHARON SMITH		R: RESTRC HAS A		
		AS OF DATE: 04/16/09		R: TICK EQ HP		
Next Anniversary Rebalancing Date: 08/27/2009						
SLEEVE	MV					
-----	---					
SUBABC12,527,191						
		TOTAL COST	CURRENT VALUE	% TOT	ANNUAL INCOME	CURR YLD
		-----	-----	----	-----	----
SUBABC CASH AND CASH EQUIVALENTS		12,527,191	12,527,191	100.00	394,607	3.1
ACCRUED INCOME			0			
			=====			
GRAND TOTAL WITH ACCRUED INCOME			12,527,191			
		12/31/08 TO DATE	03/31/09 TO DATE	MONTH TO DATE	LAST DAY	LAST UPDATE
		-----	-----	-----	-----	-----
PORTFOLIO		1.86	1.61	1.61	0.80	04/09/09
S & P 500 Total		0.00	0.00	0.00	5.27	
Dow Jones Industrial		0.00	0.00	0.00	4.72	
MER LYNCH GOV/CORP		0.00	0.00	0.00	0.03	
						----- More -->
F-3/Esc Exit F-7 Previous Account F-8 Next Account F-9 Jump to an Account						

- If you 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 a Transaction Activity Report,

1. Select Transaction Activity Report from the Reports menu. The following prompt displays:

```
+-----+
+
| BEGINNING DATE (MM/DD/YY) - HIT ENTER FOR 09/12/02 : |
+-----+
+
```

2. Enter the beginning date for the report, and press ENTER. The following prompt displays:

```
+-----+
+
| ENDING DATE (MM/DD/YY) - HIT ENTER FOR 09/12/02 : |
+-----+
+
```

3. Enter the ending date for the report, and press ENTER. The account selection window opens:



The system generates a report that can be viewed using the BROWSE REPORTS function in the Reports menu. An example of one such report follows:

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
(MDITST) 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	69,667.90		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	65,266.00				BLANK
06/28/02	OPEN	740 CHECKFREE CORP NEW	06/28/02	10,876.00				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	5,046.10				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	6,730.60				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 an Audit Report,

1. Select Audit Report from the Reports menu. The following prompt displays:

```
+-----+
+
AS OF DATE (MM/DD/YY) - HIT ENTER FOR 09/11/17 :
+-----+
+
```

2. Enter the As Of date, and press ENTER, or press ENTER to select the date of the previous day

If you manage multiple strategies, a list of available submodels is displayed. If you manage only one strategy, the system displays 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±*âHECKFREEIMS»1|
|                                     TRADING SCREEN                                     |
|-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|1. MANAGERS MENU |Select sub-models for the audit report|TIONS/RESTRICTIONS|
|2. RESTRICTIONS MEN|-----+-----+-----+-----+-----+-----+-----+-----+-----+
|TRADING TOOLS     | SUBABC ABC TEST MODEL                |LS                |
|                   | 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  |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+
```

The system generates a series of reports that can be viewed using the BROWSE REPORTS function in the Reports menu. An example of this report follows:

CHECKFREE TRAINING ASSET MANAGEMENT PORTVUE - MSPTS2.LBX RR: 45 ACUM: -		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			12,260.00	20.000	47.540	29,142.02
854	FORD MTR CO DEL	COM PAR \$0.01			5,978.00	7.000	4.000	3,416.00
122	I B M				9,516.00	78.000	101.270	12,354.94
3,000	KELLOGG CO				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 ACUM: -		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			70,360.00	20.000	47.540	167,245.72
3,333	CHEESECAKE FACTORY INC	COM			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 ACUM: -		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			82,620.00	20.000	47.540	196,387.74
3,333	CHEESECAKE FACTORY INC	COM			68,882.00	20.667	14.330	47,761.89
854	FORD MTR CO DEL	COM PAR \$0.01			5,978.00	7.000	4.000	3,416.00
122	I B M				9,516.00	78.000	101.270	12,354.94
3,000	KELLOGG CO				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

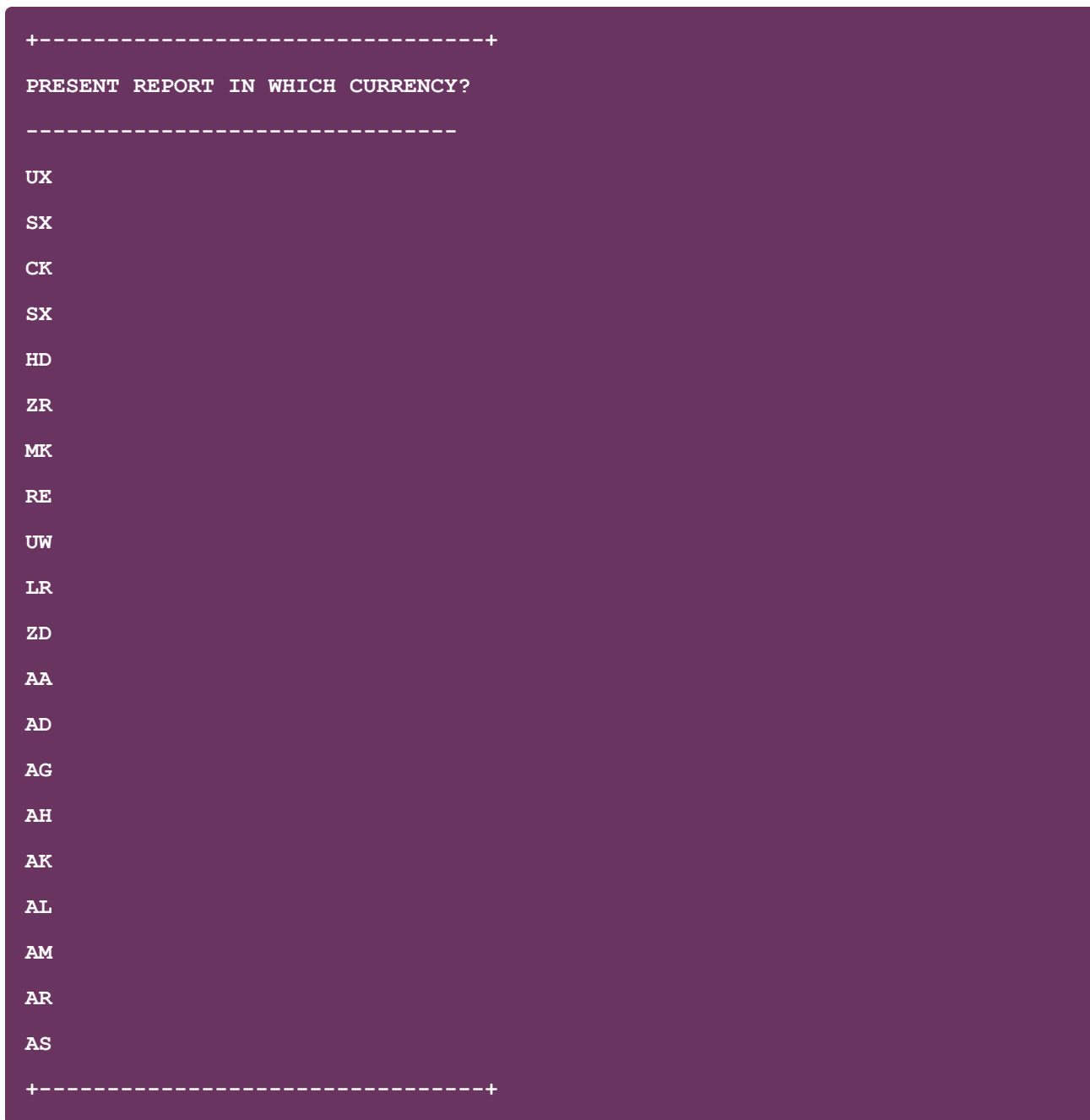
The Tax Lot Holdings Report displays all open tax lots for each submodel. Tax lots are grouped and subtotaled by position. Short- and long-term gain/loss information is displayed at the end of each report.

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 the Tax Lot Holdings 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 displays:

```
+-----+
+
AS OF DATE (MM/DD/YY) - HIT ENTER FOR 09/12/02 :
+-----+
+
```

3. Type the basis date for the reports, and press ENTER. To select today, press ENTER. The account selection window opens:

```
+-----+
| SELECT ACCOUNTS BY SNAM, BNUM OR ACCOUNT PROFILE FIELDS |
+-----+
| FUNCTION: AND      | SEARCH: |
+-----+
| 26 RECORDS FOUND |
|                   |
|                   |
|                   |
|                   |
+-----+
| Esc-Abort F1-Help F10-Go F5-Macro F7-List SF7-Prt F8-Sort SF8-Back |
+-----+
```

4. Select the accounts for report generation. The system generates a report that can be viewed using the BROWSE REPORTS function in the Reports menu. An example of a report follows:

```

CHECKFREE INVESTMENT SERVICES
PORTVUE - CRSNEWALBX          PORTFOLIO EVALUATION FOR      DOW JONES INDUSTRIAL AVG      8379.41
MGR: MSP                      CRS NEW TEST ACCOUNT          STANDARD & POORS 500      888.91
ACNUM: -032172
RUN: 09/13/02 2:58 P.M.      AS OF DATE: September 12, 2002
                                XCHG RATE MAURITANIA QUGUIYA

MSPCS1 - CS DEMO MODEL #1

SECURITY DESCRIPTION          PURCHASE DATE          ORIGINAL COST          COST/ MARKET          LOCAL          PRICE          % ANNUAL YTM/          INCOME YLD
                                DATE          COST          UNIT          $PRICE          VALUE          VALUE          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          51,868          85.40          59.19          12,718,784          3.9          40,398          0.3
@ 4,580 CHECKFREE CORP NEW     07/03/02           59,540          13.00          12.81          15,968,232          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          79,808          56.80          49.55          19,003,471          5.8          306,817          1.8
@ 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          198,276          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.

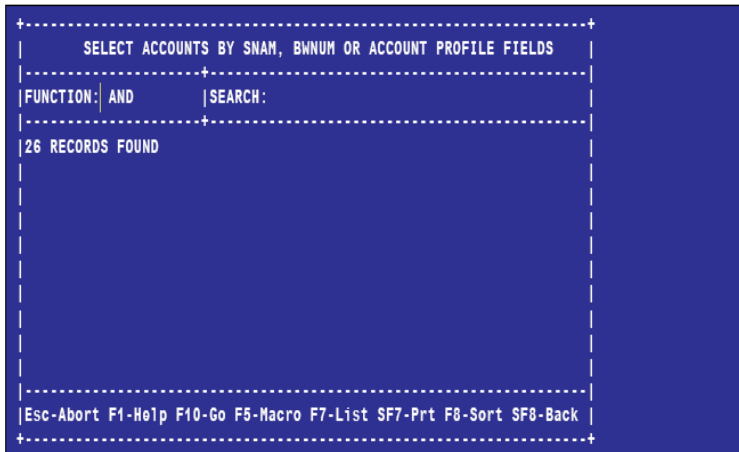
To generate the Relative Weightings by Submodel Report:

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. Enter the beginning date, and press ENTER, or press ENTER to select today's date. The account selection window opens:



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 a 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 Historical Performance Analysis Report,

1. Select HISTORICAL PERFORMANCE ANALYSIS from the Reports menu. The following prompt displays:

```
+-----+
+
BEGINNING DATE (MM/DD/YY) - HIT ENTER FOR 09/11/17 :
+-----+
+
```

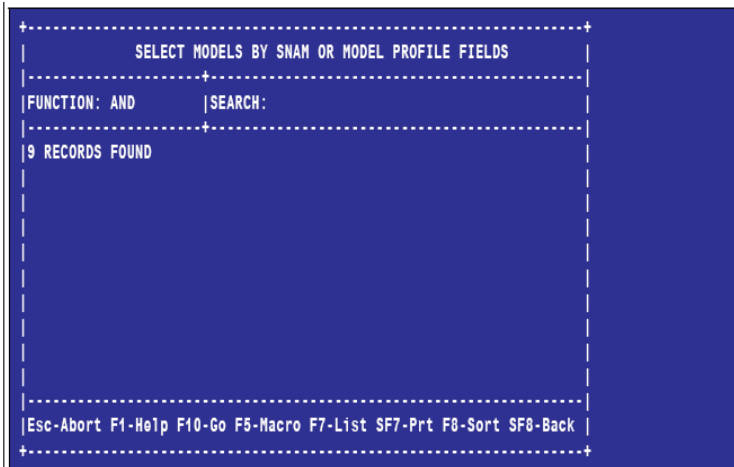
2. Type the beginning date for the report, and press ENTER. The following prompt displays:

```
+-----+
+
ENDING DATE (MM/DD/YY) - HIT ENTER FOR 09/11/17 :
+-----+
+
```

3. Type the ending date for the report, and press ENTER. The following prompt displays:

```
+-----+
+
YEARS TO INCLUDE IN THE QUARTERLY PERFORMANCE
+-----+
+
```

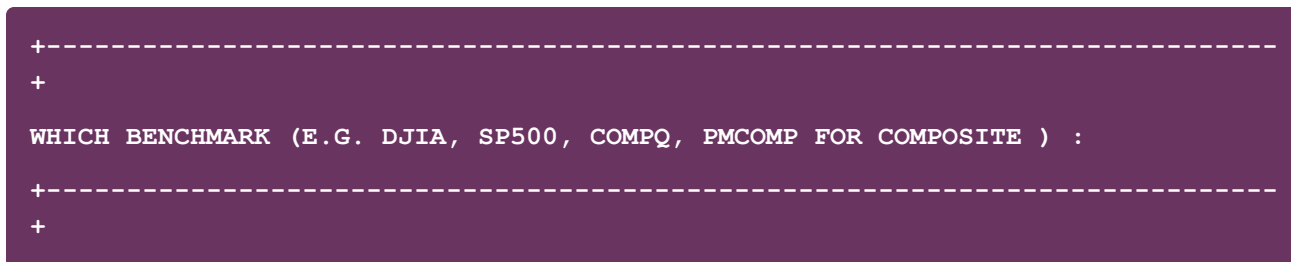
4. Type the number of years of quarterly performance measurement periods to display on the report. Press ENTER. The Model Selection window opens. Only one model may be selected



5. Enter the short name of the submodel of the report to run. Alternatively, you can select from a list of available submodels by pressing the F7 key. Then, press F10. The Account Selection window opens:



6. Select the accounts to include in the report, and press F10. The following prompt displays:



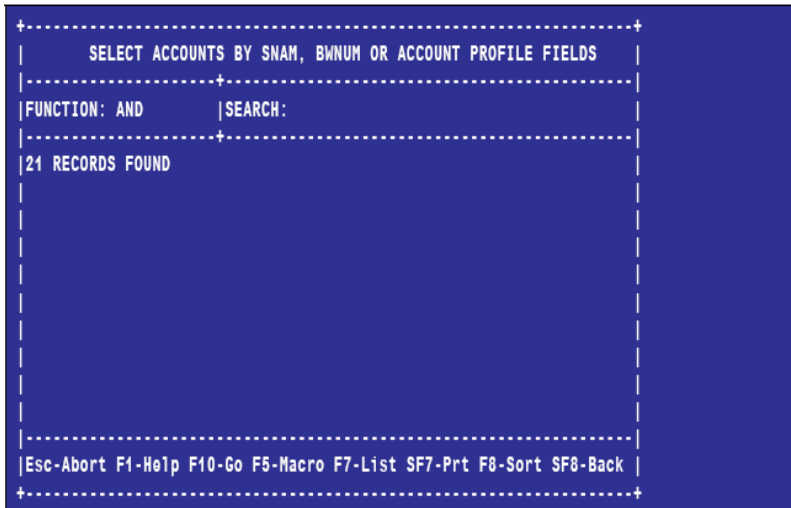
7. Type the code for the benchmark to use for comparison, and press ENTER

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 the report follows:

2. Select the submodel to use, and press F10. The account selection window opens, enabling you to select specific accounts



3. Select specific accounts, and press F10. Alternatively, 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
- EQUCLD.LBT: Equity sells
- FXDBUY.LBT: Fixed income buys
- FXDCLO.LBT: Fixed income sells

An example is shown below:

SAMPLE ASSET MANAGEMENT
Run Date: 11/18/02 1:36 P.M. PAGE 1

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 (162813108) (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
I B M (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
MSP5	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 to determine when investment managers need to file a Form 13F with the Securities and Exchange Commission, pursuant to Section 13(f) of the Securities Exchange Act of 1934.

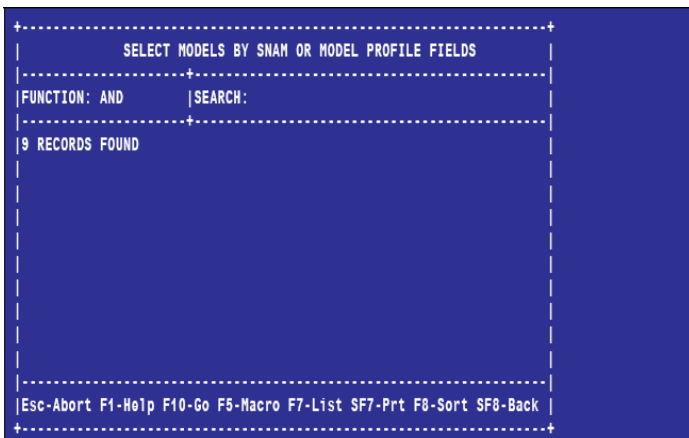
To run the 13F Report,

1. Select SEC13F REPORT from the Reports menu. The following prompt displays:

```

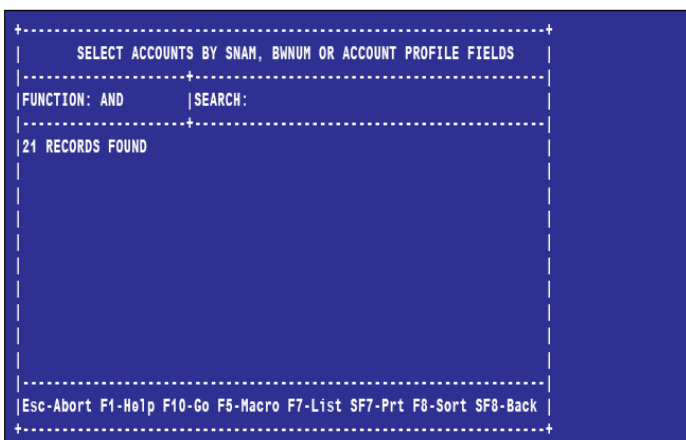
+-----+
+
AS OF DATE (MM/DD/YY) - HIT ENTER FOR 12/11/10:
+-----+
+
    
```

2. Enter the "as-of" date for the report, and press ENTER. The following selection window opens:

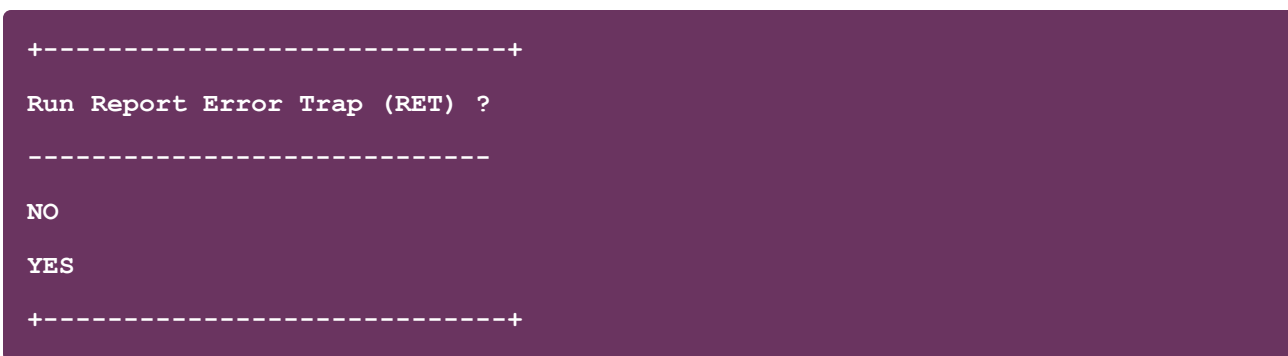


3. Select the submodel for report generation, and press F10

Only one submodel may be selected. The following selection window opens:



4. Select the account range for report generation, 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 as of that date

- 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 below:

DISCRETIONARY OWNERSHIP FOR 13F											
AS OF DATE: 12/11/02											
(ITEM 1)	(ITEM 2)	(ITEM 3)	(ITEM 4)	(ITEM 5)	(ITEM 6)	(ITEM 7)	(ITEM 8)				
				INVESTMENT	VOTING AUTHORITY						
				DISCRETION	(SHARES)						
NAME OF ISSUER	TITLE OF CLASS	CUSIP NUMBER	FAIR MARKET VALUE	SHARES OR PRINCIPAL AMOUNT	SOLE (A)	SHARED (B)	OTHER (C)	SOLE (A)	SHARED (B)	NONE (C)	
CHEKFREE CORP	NEW CO	COMMON	162813109	1,433,100	85,000	X			0	85,000	0
IBM	COMMON	459200101	1,343,760	16,500	X			16,500	0		
TOTAL			2,776,860								

DISCRETIONARY OWNERSHIP FOR 13F										
AS OF DATE: 12/11/02										
(ITEM 1)	(ITEM 2)	(ITEM 3)	(ITEM 4)	(ITEM 5)	(ITEM 6)					
				INVESTMENT	SHARED					
				DISCRETION	SOLE (A)	SHARED (B)	OTHER (C)			
NAME OF ISSUER	TITLE OF CLASS	CUSIP NUMBER	FAIR MARKET VALUE	SHARES OR PRINCIPAL AMOUNT	SOLE (A)	SHARED (B)	OTHER (C)			
CHEKFREE CORP	NEW CO	COMMON	162813109	1,433,100	85,000		85,000			
IBM	COMMON	459200101	1,343,760	16,500		16,500				
TOTAL			2,776,860							

Assets By Industry Report

This report displays a submodel's holdings, grouped by industry code, for a selected range of accounts.

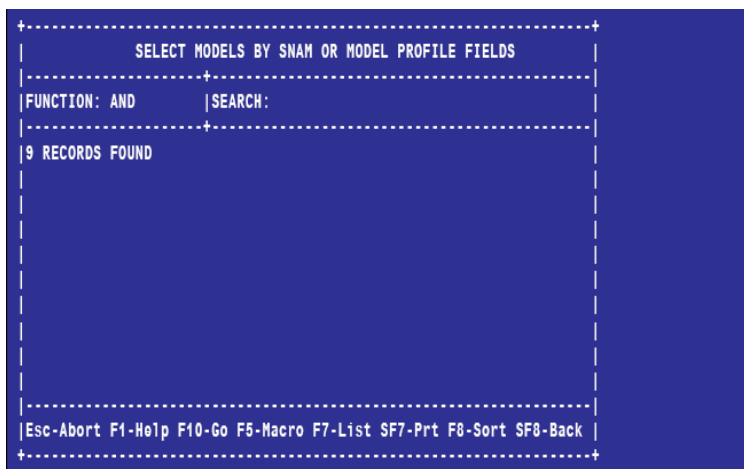
To run the Assets By Industry Report,

- Select ASSET BY INDUSTRY from the Reports menu. The following prompt displays:

```

+-----+
+
AS OF DATE (MM/DD/YY) - HIT ENTER FOR 09/11/17 :
+-----+
+
    
```

- Enter the "as of" date for the report, and press ENTER. The following selection window opens:

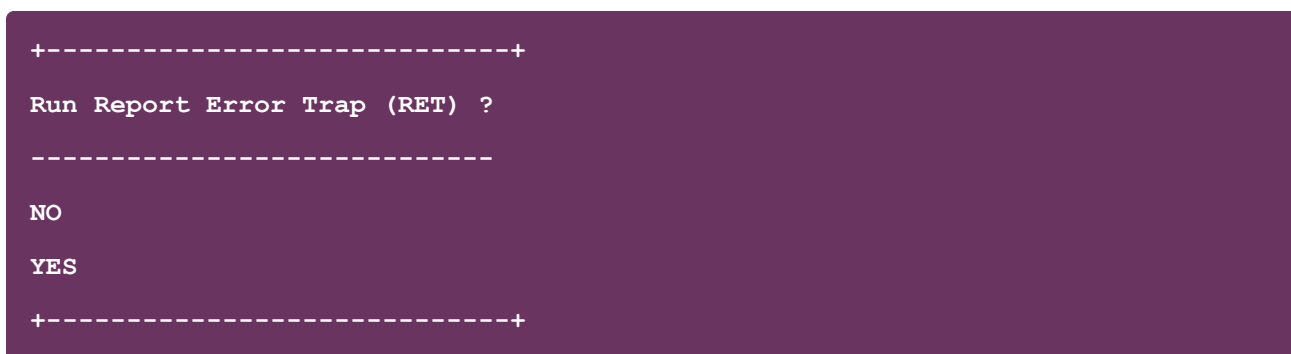


3. Select the submodel for which you wish to generate a report, and press F10

Only one submodel may be selected. The following selection window opens:



4. Select the account range of the reports to generate, and press F10. The following prompt opens:



- 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:

PAGE 1 OF 1

SAMPLE ASSET MANAGEMENT PORTFOLIO VALUATION FOR
 COMBINED INDUSTRY DISTRIBUTION REPORT DOW JONES INDUSTRIAL AVG 8589.14
 PORTVUE - SUMPAR.LSP STANDARD & POORS 500 94.96
 RUN DATE: 12/12/02 3:27 P.M.
 AS OF DATE: December 11, 2002
 SUBMODEL: SUBABC SUBABC
 MSP5

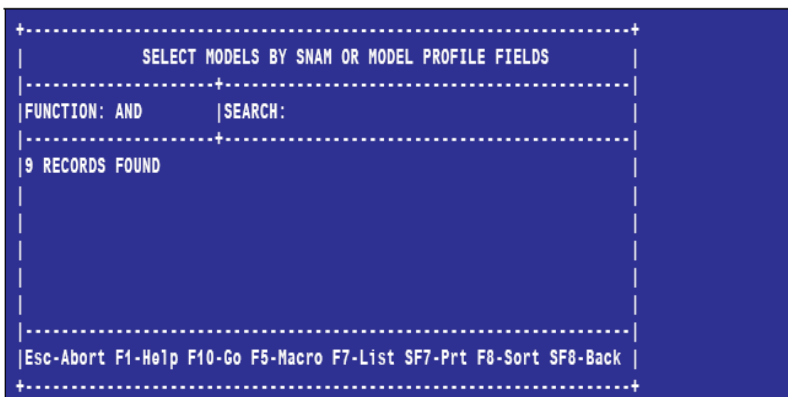
SECURITY DESCRIPTION	TOTAL COST/	MARKET COST	CURRENT SHARE	% PRICE	ANNUAL VALUE	CURR YTM/ INCOME	YLD	PE
CASH AND CASH EQUIVALENTS								
IBM	1,519,458	1,519,458	35.4	47,863	3.15	25.06		
COMMON STOCKS								
CONSUMER STAPLES								
16,500 COCA COLA CO	1,181,010	71.58	81.44	1,343,760	31.3	9,900	0.74	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 Asset Mix By Account Report,

1. Select ASSET MIX BY ACCOUNT from the Reports menu. Only one submodel may be selected. The following selection window opens:



- **FIXED:** Market value of the fixed income securities in the submodel
- **% FIXED:** Percent of fixed income securities in the submodel
- **EQUITY:** Market value of the equities in the submodel
- **% EQUITY:** Percent of the equities in the submodel
- **SNAM:** Account short name
- **A/C NUMBER:** Internal account number
- **DESCRIPTION:** Account long name

Note: These market value and percent fields reflect beginning of day values.

4. Select the column in the report that you want to use as a key for sorting. The following prompt displays:

```
+-----+
ASCENDING OR DESCENDING
-----
ASCENDING
DESCENDING
+-----+
```

5. Select to sort the results in ascending or descending order. An example of the report is below:

AS OF: 12/16/02					AS OF: 12/16/02								
ACCOUNT SUMMARY REPORT (MGR EQ MSP005PUNEV01) SUBMODEL: SUB TEST MODEL 1					ACCOUNT SUMMARY REPORT (MGR EQ MSP005PUNEV01) SUBMODEL: SUB TEST MODEL 1								
ACCOUNT	CASH	FIXED	EQUITY	TOTAL	BNUM	SNAM	CASH	%PORT	FIXED	%PORT	EQUITY	%PORT	TOTAL
MICHAEL CIFRESE	556,280	0	0	556,280	810	CIFRME	556,280	100.0	0	0.0	0	0.0	556,280
MULTIPLE STRATEGY PORTFOLIO TEST	1,211,217	0	274,820	1,486,037	820	MSP10	1,211,217	81.5	0	0.0	274,820	18.5	1,486,037
MULTIPLE STRATEGY PORTFOLIO TEST	1,211,217	0	274,820	1,486,037	910	MSP10	1,211,217	81.5	0	0.0	274,820	18.5	1,486,037
MULTIPLE STRATEGY PORTFOLIO TEST	1,211,217	0	274,820	1,486,037	920	MSP11	1,211,217	81.5	0	0.0	274,820	18.5	1,486,037
MULTIPLE STRATEGY PORTFOLIO TEST	1,211,217	0	274,820	1,486,037	930	MSP12	1,211,217	81.5	0	0.0	274,820	18.5	1,486,037
MULTIPLE STRATEGY PORTFOLIO TEST	1,211,217	0	274,820	1,486,037	940	MSP13	1,211,217	81.5	0	0.0	274,820	18.5	1,486,037
MULTIPLE STRATEGY PORTFOLIO TEST	1,211,217	0	274,820	1,486,037	950	MSP14	1,211,217	81.5	0	0.0	274,820	18.5	1,486,037
MULTIPLE STRATEGY PORTFOLIO TEST	1,211,217	0	274,820	1,486,037	960	MSP15	1,211,217	81.5	0	0.0	274,820	18.5	1,486,037
MULTIPLE STRATEGY PORTFOLIO TEST	1,211,217	0	274,820	1,486,037	970	MSP16	1,211,217	81.5	0	0.0	274,820	18.5	1,486,037
MULTIPLE STRATEGY PORTFOLIO TEST	1,211,217	0	274,820	1,486,037	980	MSP17	1,211,217	81.5	0	0.0	274,820	18.5	1,486,037
MULTIPLE STRATEGY PORTFOLIO TEST	1,211,217	0	274,820	1,486,037	990	MSP18	1,211,217	81.5	0	0.0	274,820	18.5	1,486,037
MULTIPLE STRATEGY PORTFOLIO TEST	1,211,217	0	274,820	1,486,037	1000	MSP19	1,211,217	81.5	0	0.0	274,820	18.5	1,486,037
MULTIPLE STRATEGY PORTFOLIO TEST	1,211,217	0	274,820	1,486,037	830	MSP20	1,211,217	81.5	0	0.0	274,820	18.5	1,486,037
MULTIPLE STRATEGY PORTFOLIO TEST	1,211,217	0	274,820	1,486,037	1002	MSP20	1,211,217	81.5	0	0.0	274,820	18.5	1,486,037
MULTIPLE STRATEGY PORTFOLIO TEST	1,211,217	0	274,820	1,486,037	840	MSP3	1,211,217	81.5	0	0.0	274,820	18.5	1,486,037
MULTIPLE STRATEGY PORTFOLIO TEST	1,211,217	0	274,820	1,486,037	850	MSP4	1,211,217	81.5	0	0.0	274,820	18.5	1,486,037
MULTIPLE STRATEGY PORTFOLIO TEST	1,211,217	0	274,820	1,486,037	860	MSP5	1,211,217	81.5	0	0.0	274,820	18.5	1,486,037
MULTIPLE STRATEGY PORTFOLIO TEST	1,211,217	0	274,820	1,486,037	870	MSP6	1,211,217	81.5	0	0.0	274,820	18.5	1,486,037
MULTIPLE STRATEGY PORTFOLIO TEST	1,211,217	0	274,820	1,486,037	880	MSP7	1,211,217	81.5	0	0.0	274,820	18.5	1,486,037
MULTIPLE STRATEGY PORTFOLIO TEST	1,211,217	0	274,820	1,486,037	890	MSP8	1,211,217	81.5	0	0.0	274,820	18.5	1,486,037
MULTIPLE STRATEGY PORTFOLIO TEST	1,211,217	0	274,820	1,486,037	900	MSP9	1,211,217	81.5	0	0.0	274,820	18.5	1,486,037
ALL ACCOUNTS	24,780,624	0	5,496,403	30,277,027			24,780,624	81.8	0	0.0	5,496,403	18.2	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 submodel.

To generate the Cash Balances By Account Report,

1. Select **CASH BALANCES BY ACCOUNT** from the Reports menu. Only one submodel may be selected. The following selection window opens:



2. Select the submodel to use, and press F10
3. In the account selection window, select accounts



4. Select the accounts to include in your report, and press F10. Alternatively, press F10 to include all accounts. The following prompt displays:



5. 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 (NGR EQ NSP00SPUNIV01) SUBMODEL: MSP TEST SUB MODEL				AS OF: 12/16/02 ACCOUNT SUMMARY OF CASH AND EQUIVALENTS (NGR EQ NSP00SPUNIV01) 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	319,560.00
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
MSP3	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

Cash Transaction Report

The Cash Transactions Report displays cash transactions within a specific submodel for a selected account.

To run the Cash Transactions Report,

1. Select CASH TRANSACTION REPORT from the Reports menu. The following prompt displays:

```

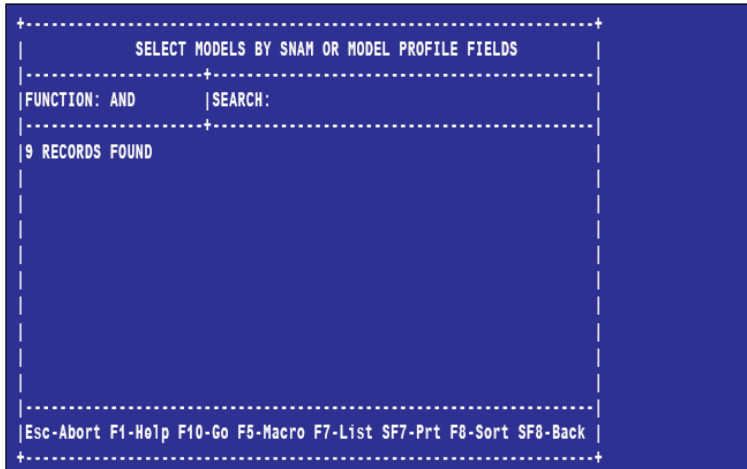
+-----+
+
|BEGINNING DATE (MM/DD/YY) |
+-----+
+
    
```

2. Enter the beginning date of the report, and press ENTER. The following prompt displays:

```

+-----+
+
ENDING DATE (MM/DD/YY)
+-----+
+
    
```

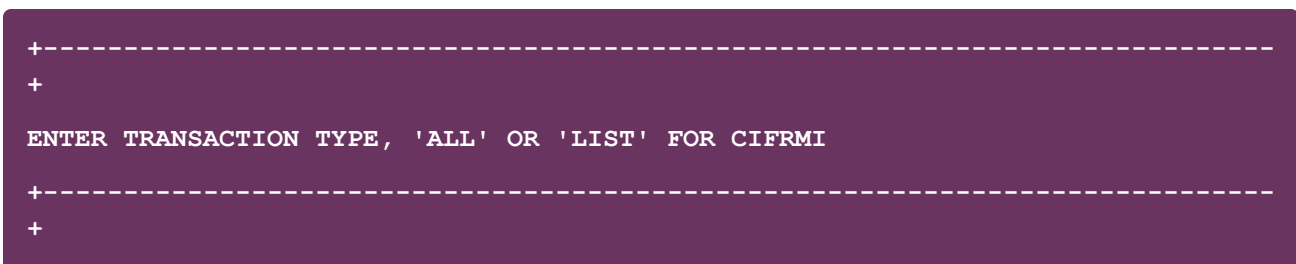
3. Enter the ending date of the report, and press ENTER. Only one submodel may be selected. The following selection window opens:



4. Select the submodel for the report, and press F10. An Account Selection window opens:



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

The report is generated. It can be viewed using the BROWSE function, or printed. An example of this report is shown below:

DATE	TYPE	UNITS	DESCRIPTION	AMOUNT
MICHAEL CIFRESE				
CIFRMI --000810 FROM 01/01/02 TO 11/30/02				
SUBMODEL:SUBABC SUBABC				
02/27	OPE		OPENING BALANCE	440,920.00
02/27	OPE		OPENING BALANCE	500,000.00
		2	MATCHING TRANSACTIONS	940,920.00

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,

1. Select CASH LEDGER REPORT from the Reports menu. A prompt displays, asking for the report's beginning (as-of) date:

```

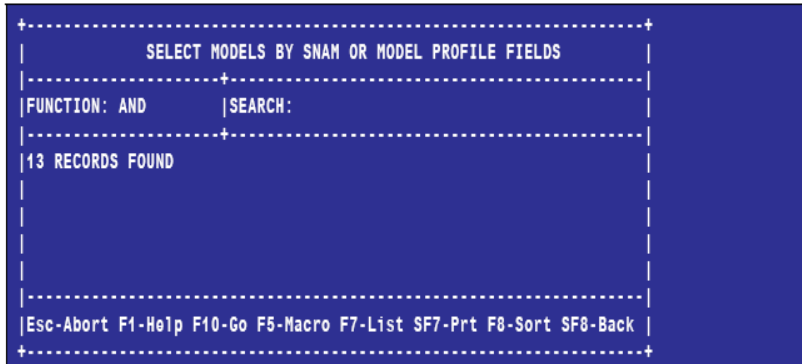
+-----+
+
AS OF DATE (MM/DD/YY) - HIT ENTER FOR 09/11/17 :
+-----+
+
    
```

2. Type the start date of the report and press ENTER. A prompt asks for the ending date

```

+-----+
+
ENDING DATE (MM/DD/YY) - HIT ENTER FOR 09/11/17 :
+-----+
+
    
```

3. Type the ending date of the reporting period and press ENTER. The Select Submodels window opens:



4. Select the submodel portfolio to target for the report and press F10.

A report file with the account short name and an *.LCL extension is generated. The report can be viewed using the BROWSE function, or printed. An example of this report follows:

TRANS	UNITS	DESCRIPTION	DATE
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

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		
MMYZ 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.		

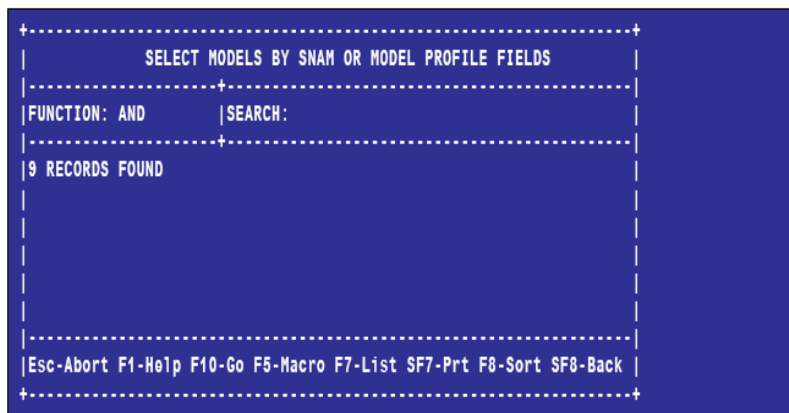
Column	Description
TRANS	Transaction type.
UNITS	The number of units of securities impacted by the transaction. If the transaction does not involve securities, the field is blank
DESCRIPTION	A description of the transaction
DATE	The date the transaction was posted
CHANGE IN PRIN AMOUNT	The increase or decrease of cash attributable to the transaction
PRINCPL 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

Cross Reference By Security Report

This report displays accounts that hold specific securities within specific submodels.

To run the report,

1. Select CROSS REFERENCE BY SECURITY from the Reports menu. The following prompt displays:



2. Select the submodel to use; only one submodel may be selected. Press F10. The account selection window opens for selection of specific accounts

```

+-----+
|          SELECT ACCOUNTS BY SNAME, 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 accounts to include in your report, and press F10. To include all accounts, press F10. From the following screen, submanagers can exclude sleeve cash from report calculations. Choosing this option can improve report generation speed

```

+-----+
| Do you wish to Exclude Sleeve Cash ? |
+-----+
| NO                                     |
| YES                                    |
+-----+
    
```

4. To exclude sleeve cash from the report, choose Yes; to include sleeve cash, select No. Choosing Yes can improve report generation speed

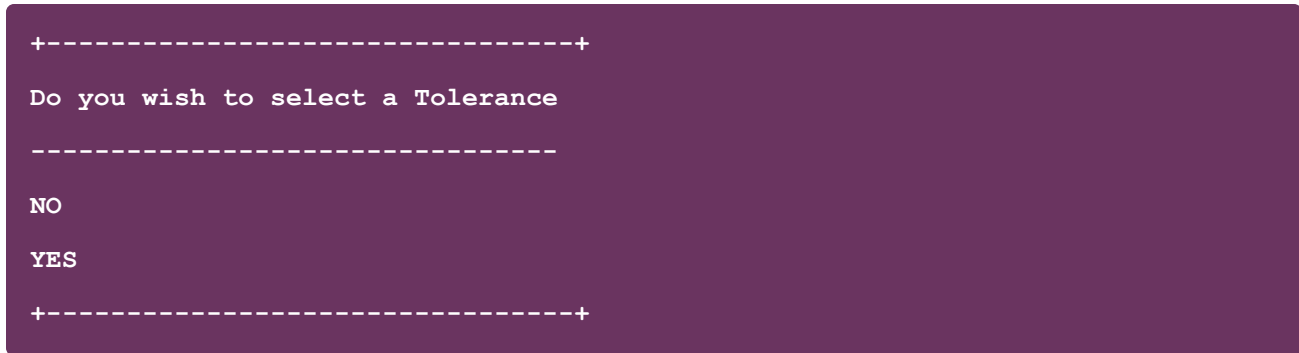
The ticker selection screen will open.

```

+-----+
| TICK SYMBOL :      SACUS:      CUSIP: |
| SECURITY NAME :    |
+-----+
| T---Z 001957109 AT & T CORP. |
| CASH-1 CASHCASH CASH |
| CKFR 162813109 CHECKFREE CORP NEW COM |
| CAKE 163072101 CHEESECAKE FACTORY INC COM |
| C    172967101 CITIGROUP INC. |
| KO   191216100 COCA COLA CO |
| DCX  D1668R123 DAINLERCHRYSLER AG ORD |
| INDU          DOW JONES INDUSTRIAL AVG |
| F    345370860 FORD MTR CO DEL COM PAR $0.01 |
+-----+
|          SELECT SECURITIES AND HIGHLIGHT YOUR CHOICE          |
+-----+
|          F1-Help F3-Quit F7-List Securities F10/Ret-Go          |
+-----+
    
```

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. Press F10 to continue

You are prompted to enter a tolerance range. This allows users to display only those accounts that violate a given tolerance range so they can focus on only those accounts that need additional research.

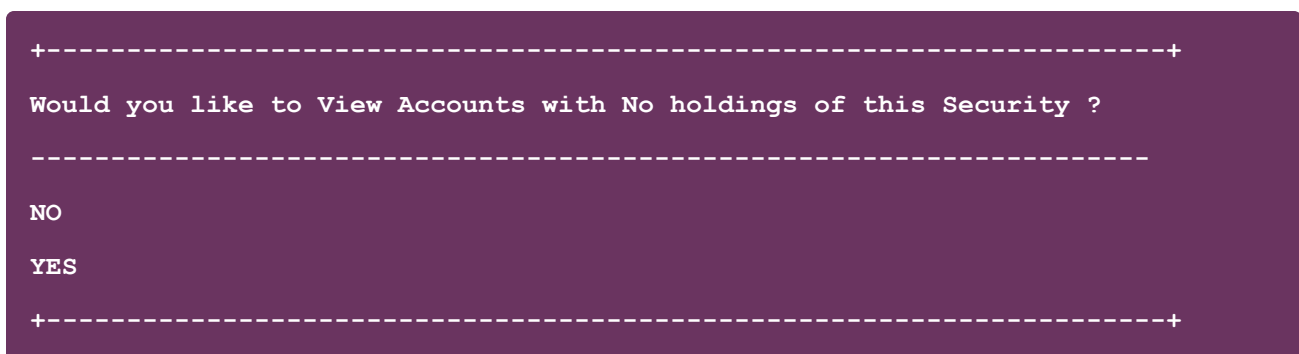


6. Select NO to report on all accounts. Select YES to select a tolerance range and report on only accounts that fall outside the tolerance

If YES is selected, the next prompt asks 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 a selected number of standard deviations based on the average of the selected group of accounts

7. Select the appropriate tolerance range. The following screen prompts users to include accounts with no holdings in the specified security or securities. Use this option to identify accounts that should hold the security in the sleeve, but do not



The following screen will open:



8. Select the field for sorting the list of accounts on the report. The choices are listed below:

- SNAM: Account short name
- ACCT NUMBER: Internal account number
- QUANTITY: Number of shares/Face value of the selected security
- COST: Total cost basis of the selected security
- CPS: Cost per share of the selected security
- 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. To generate the report, press ENTER. Use the BROWSE function to view or print the report

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
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.

```
+-----+
Do you wish to Exclude Sleeve Cash ?
-----
NO
YES
+-----+
```

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."

```
+-----+
+
AS OF DATE (MM/DD/YY) - HIT ENTER FOR 09/11/17 :
+-----+
+
```

2. Enter the date of the last business day 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: |
+-----+
| 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, select the 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 asks which issue type to target for the report

```
+-----+
+
Which Issue Type Do You Want to Report On?
+-----+
+
```

5. Type the Issue Type number(s) for the issue type(s) to include or type ALL to include all issue types in the report. Press ENTER

- 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, users display only those accounts that violate a given tolerance range so they can focus on only those accounts that need additional research

```
+-----+
Do you wish to select a Tolerance
-----
NO
YES
+-----+
```

- Select NO to report on all accounts. Select YES to select a tolerance range and report on only accounts that fall outside the tolerance. If YES is selected, the next prompt asks 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 a selected number of standard deviations based on the average of the selected group of accounts
- Choose the tolerance level and the column to sort

```
+-----+
SORT BY WHICH COLUMN
-----
ACCT NUMBER
COST
MARKET VALUE
% CASH
GAIN/LOSS
% GAIN/LOSS
% PORTFOLIO
% ASSET CLASS
NO SORT
```



The report is generated.

```

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 generates a report that audits general ledger transactions for missing or invalid submodel tags.

The report automatically audits 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. Users may also audit any other general ledger transaction type for missing or invalid submodel tags.

To generate a report that audits general ledger transactions,

1. Type MSPGLAUDIT at a WHICH FUNCTION? prompt (or make the selection from a Window menu)
2. Select the 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
```

At the AUDIT FOR WHICH SUB MODEL CODES prompt, select the 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
3. Select the account range for auditing. (The report ignores 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 always audits dividends, coupon payments, accrued interest payable/receivable, flows into sleeves, and flows out of sleeves.

4. At the Include additional GL codes? prompt, users can select to audit additional general ledger transactions, or not

If the user selects YES to the previous 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. 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 certain period of time.

```
Searching the following codes
DIV INT INTACC MSPRCV MSDLV
Additional GL codes:
DLV      TFR      FEEADV    RCVINC    PRI
RCV      INC      DIRNV     DLVINC    MEMO
Include additional GL codes? ? Y
Include which codes or type ALL? ALL
```

5. At the next prompt, the user can select a sorting option. Answer Yes No as appropriate. If you select Y, choose the column to sort:
 - SNAM: Account short name
 - TRDTY: General ledger transaction code
 - TICK: Ticker symbol
 - SACUS: Sacus symbol
 - DATE: Transaction date
 - MSPTAG: Submodel tag
6. 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 generated. 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 DIRNVN 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. Submanagers can view performance values for an account, either in its entirety or over a certain period of time.

1. At the WHICH FUNCTION? prompt, type FASTPMSECT and press ENTER. The following prompt displays:

DATES? (R)ANGE or (A)LL?

2. To look at a specific period, type R and press ENTER. To look at all data, type A and press ENTER. The following prompt opens if you chose a date range:

BEGINNING DATE (MM/DD/YY) - HIT ENTER FOR \CURPRDATE:

3. 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 selected account and press ENTER. The following prompt displays:

NEXT OPERATION (HIT RETURN WHEN DONE, OR TYPE HELP)

6. To sort, narrow or broaden the account selection, type additional database commands and press ENTER. The following prompt opens:

WHICH FILE (M=MANUAL 01=TOTAL 02=EQUITY 03=FIXED INCOME 04=CASH RET=EXIT)

7. Type the sector identifier for the sector to view and press ENTER. The requested data screen will open

```

SNAM: BOGAHU   BWNUM:   -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, BWNUM:   -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:

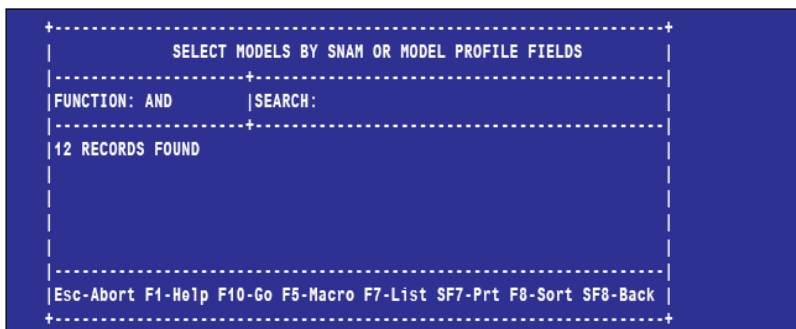
- Every line with information for this report begins “AIMR:”
- Keep the composite name short, 3 characters or fewer. It forms part of the filename of the output file. The files produced for an account would be “SNAM1.LAM” and “SNAM2.LAM”
- Ending date may be left empty until an account leaves a composite

Generating the AIMRMEMO Report

1. Select AIMRMEMO from the Report menu and press ENTER. The following prompt displays:

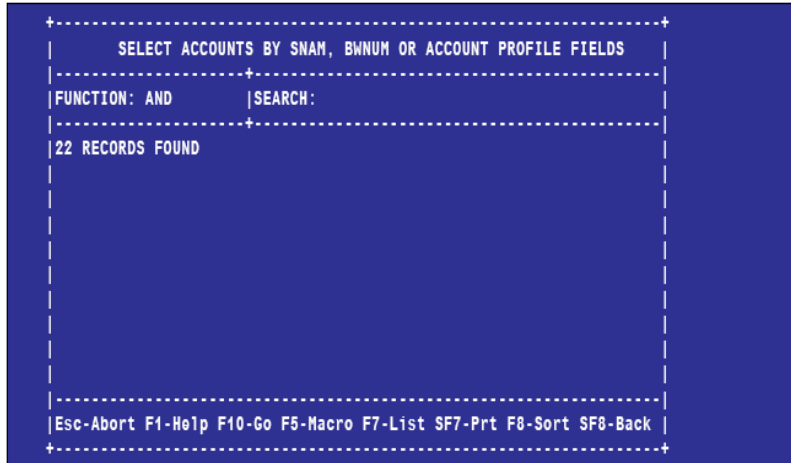
```
AS OF DATE (MM/DD/YY) :
```

2. Type the end date of the month for reporting and press ENTER. The model selection screen will open:

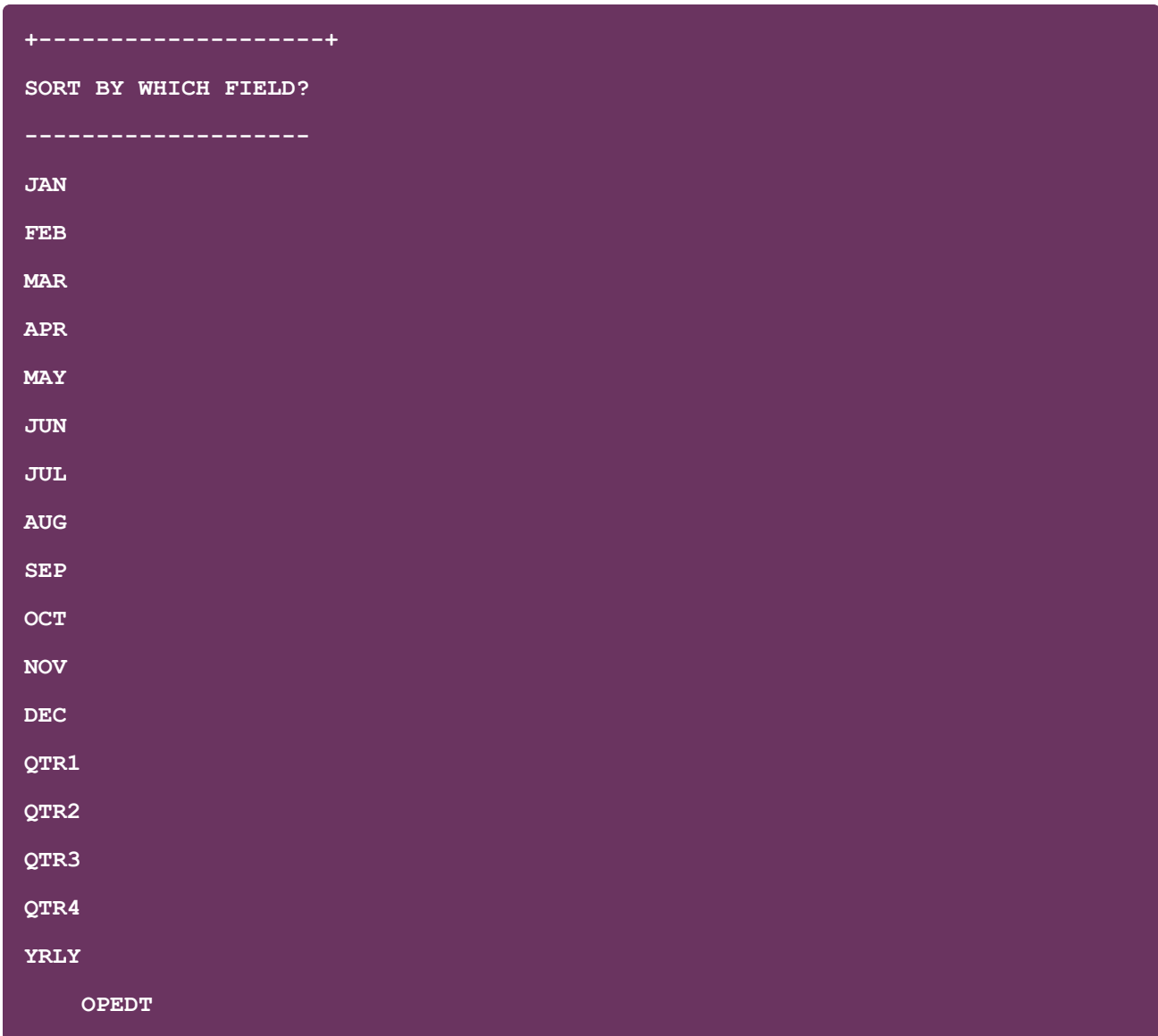


3. Type the submodel selection and press ENTER. Alternatively, press F7 to view a list and choose an item from the list. Press F10 to process the final selection

The account selection screen will open:



4. Select an account and press F10. A menu of sort options opens:



```
ACCT
```

```
MNTHEND
```

```
+-----+
```

5. Select the field to sort by and press ENTER. The following prompt opens, allowing you to sort in descending order:

```
+-----+
```

```
SORT IN DESCENDING ORDER ?
```

```
-----
```

```
NO
```

```
YES
```

```
+-----+
```

6. Select YES or NO. The following prompt displays:

```
WHAT BENCHMARK? (I.E. SP500 DJIA)
```

7. Type the SNAM for the benchmarks to use and press ENTER. The following prompt displays:

```
+-----+
```

```
+
```

```
SUB-UNIVERSE BENCHMARKS :
```

```
+-----+
```

```
+
```

8. Type in the sub-universe benchmarks to use, and press ENTER. The report runs and the following prompt opens, indicating the report file names:

```
COMPOSITE: (TITLE)
```

```
SUMxx . LSM
```

```
SUMxx . LAM
```

```
SELECT MGR SUB-UNIVERSE
```

Note: The AIMRMEMO Report is not created unless EDMEMO is coded with the submodel code.

```

SAMPLE ASSET MANAGEMENT                                PAGE 1
RUN: 03/28/04 2:19 P.M.    2004 DISCRETIONARY ACCOUNTS PERFORMANCE COMPOSITE
LARGE CAP GROWTH COR      COMPOSITE: SUB TEST MODEL

      -1QTR-    -2QTR-    -3QTR-    -4QTR-    2004
JAN--FEB--MAR--CMPND-APR--MAY--JUN--  CMPND-JUL-- AUG--SEP-- CMPND-OCT--NOV--DEC--CMPND-CMPND
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%
-----
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

AIMR  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 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

CJIAT 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

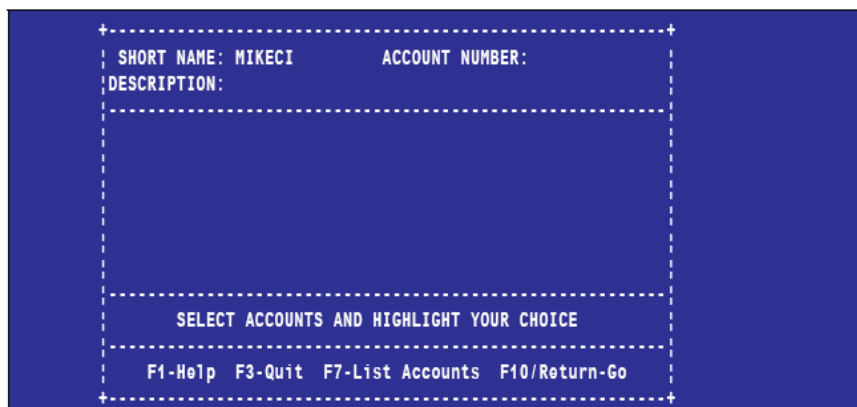
AIMR: MONTHLY COMPOSITE RETURNS ARE CALCULATED USING WEIGHTS EQUAL TO
      BEGINNING VALUES ADJUSTED FOR TIME-WEIGHTED CASH FLOWS.
      QUARTERLY AND YEARLY RETURNS DERIVED FROM LINKING MONTHLY RETURNS.
STD:  THIS SHOWS DISPERSION AROUND WEIGHTED COLUMN AVERAGES.
    
```

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 on the Window menu
2. Type an individual account short name (SNAM) or account number (BWNUM) for the account that is the target of the report



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.

Fixed Income Screen Report (first screen). Data summarized for the entire fixed income portfolio including and excluding cash and cash equivalents.

```

LISAPI - -                LISA PIZZA
ADM:MVC  MGR:FIX          DATE - 09/07/01 (000)

      PAR/      MARKET      MARKET YRS-TO      CURR YLD-TO MOODY      PCT
      COST      MARKET      PRICE  MATY      DUR COUPON  YIELD  MATY RATNG  PORT
-----
LONG TERM BONDS OVER 10 YEARS

100,000 P C BL DTD 02/01/9 7.500% 02/01/33      694032AQ6
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
GGRU 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
-----
PRESS <ESC> TO EXIT <F1> FOR HELP <F3> MAIN MENU      FISERV
    
```

Fixed Income Screen Report (second screen). Market value subtotals displayed by fixed income issue type.

```

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
    
```

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:

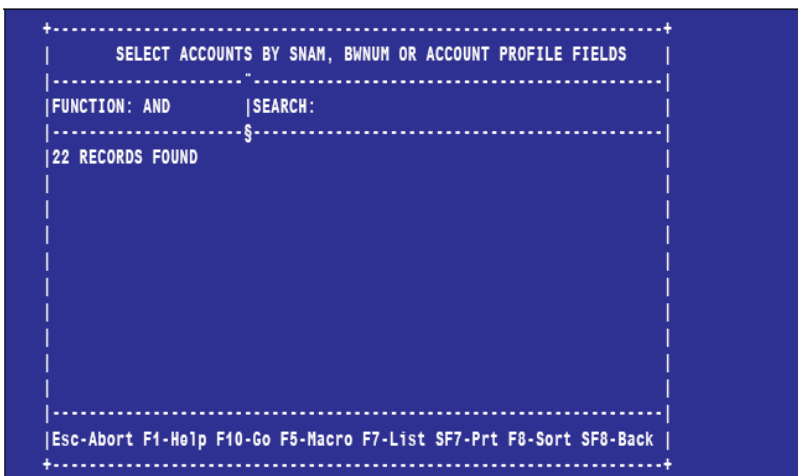
1. Select Security Drift Report from the submanager Reports menu

You are prompted to select a submodel.



2. Select a submodel to target for 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 SNAM of each account for report generation. 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. An example is below.

```

PAGE 1
Drift Report      01/05/04 10:54 A.M.
SAMPLE ASSET MANAGEMENT
ADELOACH        As of January 5, 2004

*** Model ***    *** Actual ***    *** Drift ***
Sub Model Tick  % Value Units % Value Units % Value Units
-----
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.

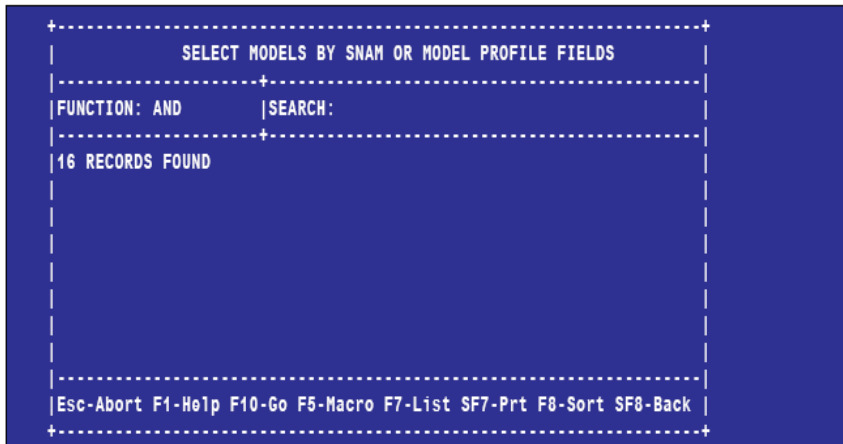
To run this report,

1. Select DURPORT from the Reports menu. You are prompted to enter an “As of” date

```

+-----+
+
AS OF DATE (MM/DD/YY) - HIT ENTER FOR 09/11/17 :
+-----+
+
    
```

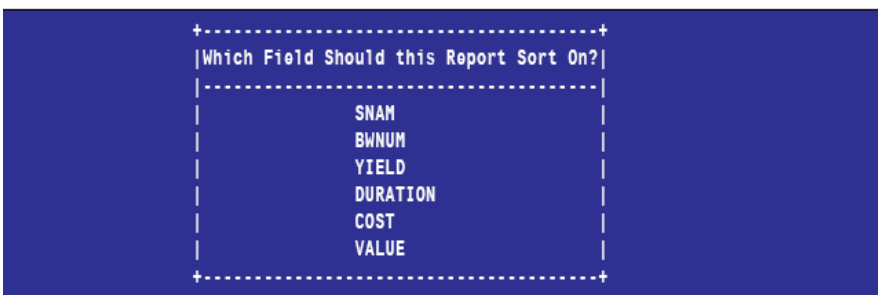
2. Enter the date of the last business day to include in the report and press ENTER. The model selection screen will open:



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 lists the various options for sorting columns on the report



5. Choose a sort option and press ENTER. A prompt asks if you prefer to sort data in ascending or descending order
6. Choose Ascending or Descending 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 want to choose a range.

7. Enter the lower range number, or leave the prompt blank if you do not want to choose a range

```
+-----+
+
Enter Lower Range:
+-----+
+
```

8. Press ENTER. You are prompted to enter an upper range

```
+-----+
+
Enter Upper Range:
+-----+
+
```

9. Enter the upper range, or leave the prompt blank if you do not want 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
+-----+
```

10. Choose YES or NO. You are prompted to enter 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 ||

```

11. Press F10 to generate the report

An example follows.

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	MARKET ACCOUNT NAME	ACCRUED CASH	TOTAL VALUE	# OF INTEREST	AVG MARKET VALUE	AVG MARKET VALUE	AVG ISSUES	AVG LIFE	AVG CPN	AVG YTM	DUR	SNPRAT	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	2,621	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	5.65	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. Consequently, income managers can easily 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, submanagers can select only their own sleeves.


```
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 asks you to sort the data in ascending or descending order
5. Select Ascending or Descending and press ENTER. The report is generated and will appear on the screen

This report is not generated as a print file accessible from the holdings queue list.

```
Note:
04/08/04 8:55 A.M. Yield/Duration Analysis Summary
-----
Account      Account Name      Excluding    Including
                Commits         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.

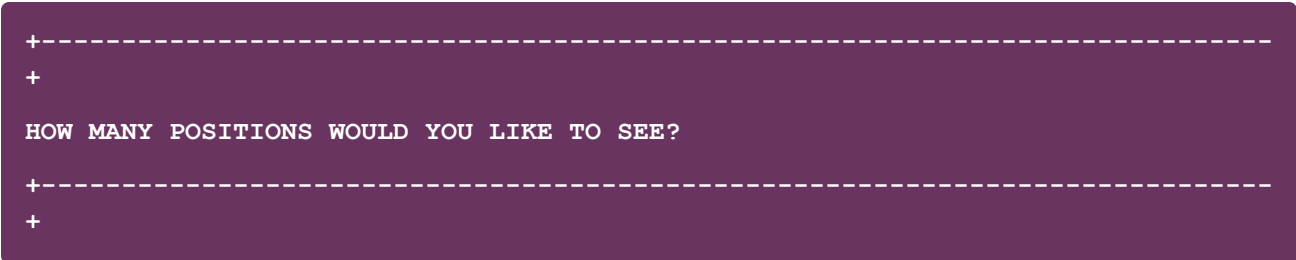
To run the top holdings report,

1. From the Report Menu, choose TOP HOLDINGS REPORT. The following prompt opens:

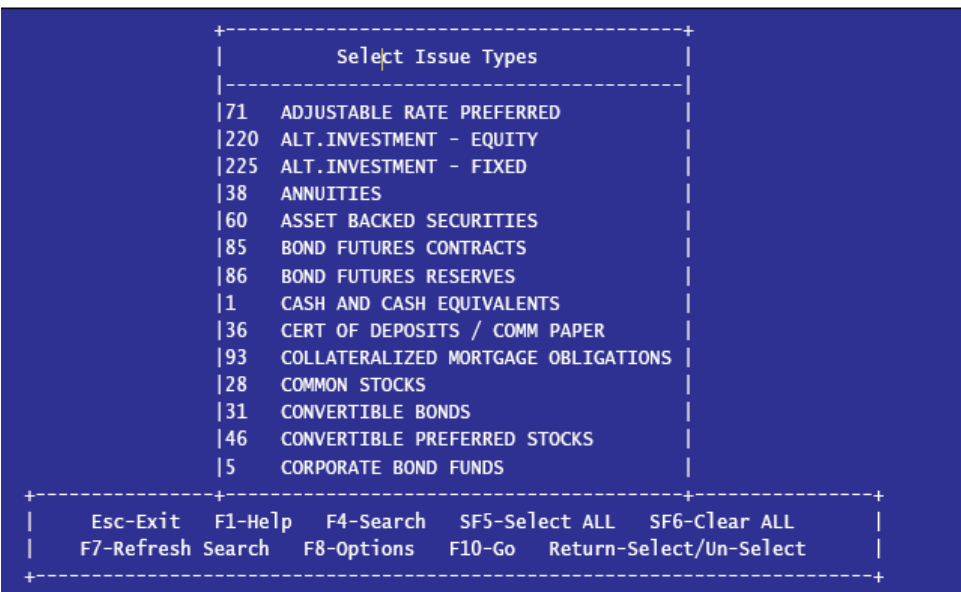
```
+-----+
+
AS OF DATE (MM/DD/YY) - HIT ENTER FOR 09/11/17 :
```



2. Enter the report date in MM/DD/YY format and press ENTER. You are prompted for the number of positions to include:



3. Enter the number of positions to include on the report and press ENTER. You are prompted to specify the issues 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

6. 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

```
+-----+
DO YOU WANT TO SELECT DISPERSION TOLERANCE
-----
NO
YES
+-----+
If you choose Yes, you are prompted to enter the tolerance level.
-----
+
+
PLEASE ENTER DISPERSION TOLERANCE IN BASIS POINTS:
-----
+
```

7. Type the tolerance level in basis points and press ENTER. You are prompted for a grouping preference for the report

```
+-----+
|   SELECT VIEW   |
|-----|
| TOTAL SUBMANAGER |
| GROUP BY SUBMODEL |
+-----+
```

8. 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 system generates the MSPRECWIMSUBnnn.LIN and MSPRECWIMSUBnnn.CSV report files.

9. To view the report, select 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	TICK / CODE	PRICE / CUSIP	TOTAL SHARES	PORT PCT	+3	-3	ORIGINAL COST	CURRENT VALUE	OWNED	PORT	BP	BP
CASH		CASH-1	252812	1.00	252,812	252,812	2	7.12	1	1			
ABC COPRPO	-2005	PTY	31956 14.37	211,549	203,560	1	5.73	1	0				
Ishares LM	3-7 Y	-2010 IEI	1792 107.33	0	174,415	1	4.91	1	0				
SSS MYM	-1910	EMV	6020 52.84	105,771	119,437	1	3.36	1	0				
LFG SM-Cap Val	-1910	VBR	4965 60.47	105,755	116,529	1	3.28	1	0				
XM Corp	-125	XOM	734 91.22	27,765	66,955	2	1.88	1	1				
ENERGY Inc	-125	SU	662 92.13	25,947	60,990	2	1.71	1	1				
M BUSINESS	-870	IBM	1662 34.61	50,148	57,522	2	1.62	1	1				
ELECTCO	-345	GE	1528 102.18	53,017	55,283	2	1.55	1	1				
HCo	-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
PCT Portfolio	Aggregate percentage of the holding across all selected portfolios

Column	Description
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

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 then added to the Restrictions Override (RESTOVERLEG) Report.

To run the Restrictions Override (RESTOVERLEG) Report:

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

The RESTOVERLEG report, either in a .CSV and .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:

Account	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: Users can view both restrictions and minimum trade violations in this report.

5.4 Report functions

When you select REPORTS from the Submanager menu, the Reports menu is displayed.



```
|          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 INDUSTRY          |
| ASSET MIX BY ACCOUNT        |
| 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 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 will prevent them from accessing the Reports menu.

Chapter 6: 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 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.

6.1 Cash allocation to submodels by the master manager

Master managers can 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".)

6.2 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.

The unaffiliated cash is broken up in one of two ways:

- The formula for affiliated cash is as follows:

$(\text{Account opening cash balance} \times \text{Submodel allocation percent}) + \text{Submodel tagged items}$

- The formula for unaffiliated cash is as follows:

$\text{CASH transactions} \times \text{Cash allocation percent for each transaction date}$

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

6.3 Negative cash flows

Due to 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.

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.

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.

6.4 Intraday trading limitations on sub-models

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.

6.5 Intraday Cash Adjuster

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

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

Optionally, if enabled, cash adjustments can be entered and automatically traded with the immediate launching of a drift-based trade generation process. See the, "Trade Cash Adjustments" section below for details.

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

Note: The Intraday Cash Adjuster is available if the Master (Overlay) Manager has authorized InvestCloud to enable it for Submanagers.

The trading of cash flows is available if the Master (Overlay) Manager has authorized InvestCloud to enable it for Submanagers.

General Work Flow

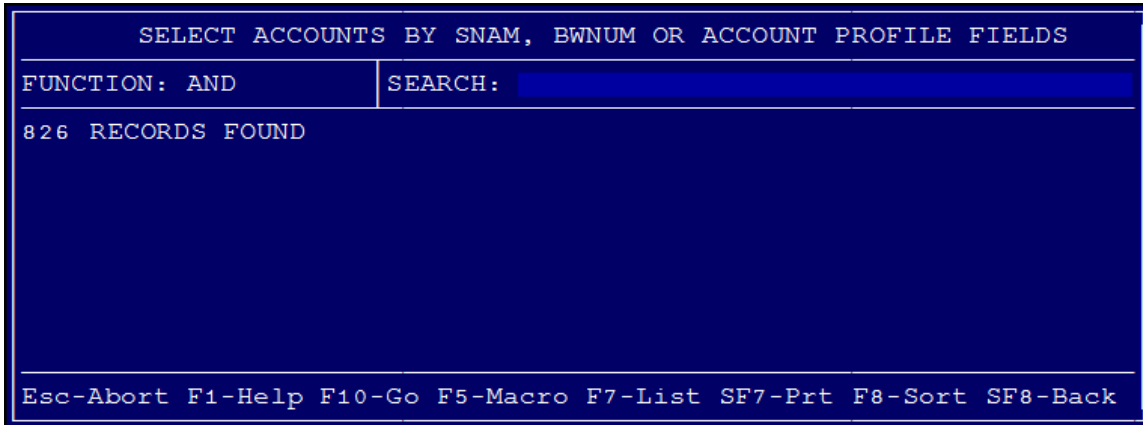
1. Select Intraday Cash Adjuster from the Trading Menu
2. Select one or more Accounts
3. Take one of the following actions:
 - Add an adjustment
 - Modify a transaction
 - Delete one or more transactions
 - Upload adjustments from a .csv file
 - If enabled, add and trade new cash adjustments

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 (1) 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.

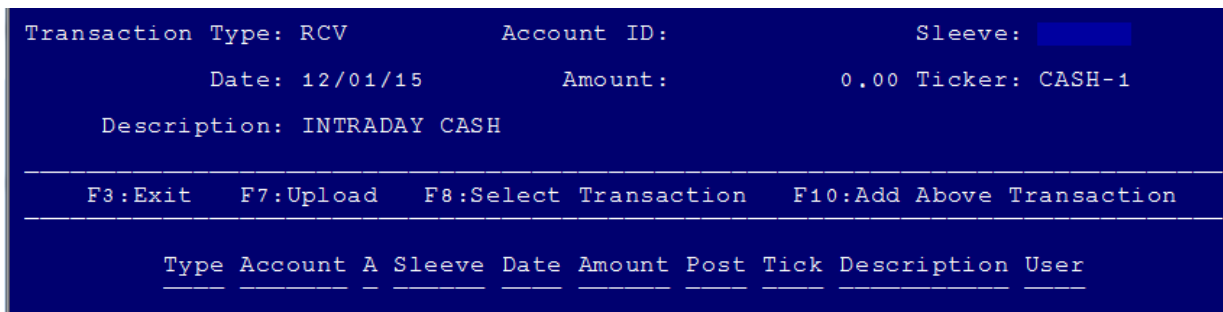
1. From the TRADING menu, select INTRADAY CASH ADJUSTER. The Account Selection screen is displayed



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 FUNCTION options
3. Press F10 - Go to proceed with the selected accounts
4. The Cash Adjuster screen is displayed

Sample Submanager Cash Adjuster Screen

Below is a sample screenshot of the Cash Adjuster screen that displays for a submanager after selecting an account with no previous entries.



Add Cash Adjustment

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:

- Duplicate entries where Type, Sleeve and Amount are identical are not allowed
- Type, Account, Date, Tick and Description may have default screen values

Sample screen with entered transactions

```

Transaction Type: RCV      Account ID:      Sleeve:
      Date: 12/01/15      Amount:      0.00 Ticker: CASH-1
      Description: CASH FLOW
-----
F3:Exit  F7:Upload  F8:Select Transaction  F10:Add Above Transaction
-----
Type Account A Sleeve Date      Amount Post Tick      Description  User
-----
RCV  D34488  s SLVABC 12/01/15 2000.00 NO  CASH-1  CASH FLOW
RCV  D34494  s SLVDEF 12/01/15 3000.00 NO  CASH-1  CASH FLOW
    
```

Column Name

Description

Transaction Type

Enter the Transaction type or press F1 to select the transaction type from the list. Transaction types include:

- | | |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type | <ul style="list-style-type: none"> • DLV - Deliver • DLVINC - Deliver Income • RCV - Receive • RCVINC - Receive Income • FEEADV - Advisory Fee |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

SNAM

Displayed as column in the table section only.

SNAM of account

Account

Account ID

Enter the account number. Acceptable options include:

Column Name	Description
	<ul style="list-style-type: none"> • SNAM • DTCNO • BWNUM
	Displayed as column in the table section only.
A	<p>Actor</p> <ul style="list-style-type: none"> • 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
Sleeve	<p>Enter a sleeve name. You can type it or press F1 to select a submodel from the list.</p> <p>Sleeves that are not currently in the master model will be listed if they hold a non-zero cash value for the account.</p>
Date	Editable with default of today's date. Can be either today's date or prior business day.
Amount	Enter the adjustment dollar amount.
Post	<p>Displayed as column in table section only.</p> <p>If the value is YES the transaction is posted to EDGL during the end-of-day posting process. Cash adjustments are posted with the current date.</p> <p>If NO, adjustments are deleted as part of the end-of-day process.</p>
Tick	<p>Ticker</p> <p>Enter the Ticker. Valid options are:</p> <ul style="list-style-type: none"> • CASH-1 • PNDDLV <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;"> <p>Note: For pending withdrawals, the transaction type must be DLV or DLVINC.</p> </div>
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	Upload .csv file. See the Upload Cash Adjustments section below for details.
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 entries 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	SLVTWO	10000.00	CASH-1	NO	Withdrawal
RCV	A22222	SUBONE	20000.00	CASH-1	NO	Deposit

Post

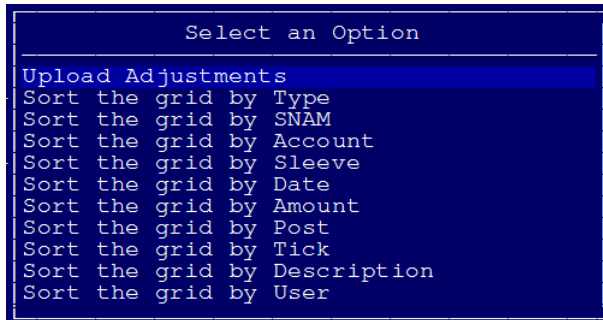
- Post is not an option at the Sleeve Manager level. Only Overlay Managers can enter transactions with the option of “Post = YES”

Sleeve

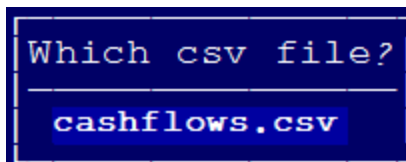
- For Overlay Managers, the file can have both general and sleeve specific transactions
- For Sleeve Managers, only sleeve specific transactions are accepted

Upload files

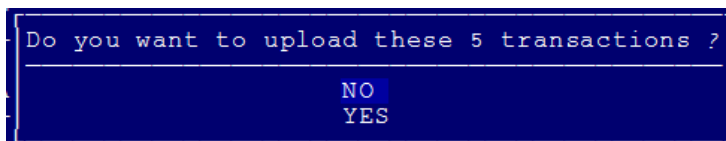
1. From the Add Cash Adjustment screen, Press F7. From the Edit Transaction screen press F8
 - a. If coming from the Add Cash Adjustments screen, continue with step 2
 - b. If coming from the Edit Transactions screen, the following screen displays. Choose Upload Adjustments



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



3. After the .csv file has been uploaded, 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  SLVABC    1,454.57    4,500.00    25,954.57
                                SUCCESS
Message
    
```

Edit or Delete Cash Adjustments

To sort, edit or delete 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: RCV      Account ID:      Sleeve:
Date: 12/01/15           Amount:      0.00 Ticker: CASH-1
Description: CASH FLOW
-----
F3:Exit   F7:Upload   F8:Select Transaction   F10:Add Above Transaction
-----
Type Account A Sleeve Date      Amount Post Tick      Description User
RVC ACCT01 s SLVABC 12/01/15 5000.00 NO  CASH-1 CASH FLOW
DLV ACCT02 s SLVABC 12/01/15 1500.00 NO  CASH-1 CASH FLOW
    
```

3. 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 entering any letter into the left-most column
- b. Select F7: Edit
- c. The selected transaction parameters are displayed in the upper portion of the edit screen

- d. Edit any editable parameter values then select F10: Add Above Transaction
- e. 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
- f. 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
4. Once all modifications are complete select F3: Exit to return to the Intraday Cash Adjuster screen

Trade Cash Adjustments

Trading entered cash adjustments is available if it has been authorized by the Master (Overlay) Manager for submanagers.

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

One transaction per account/sleeve can be entered.

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: RCV      Account ID:      Sleeve:
      Date: 12/02/15      Amount:      0.00 Ticker: CASH-1
      Description: CASH FLOW

F3:Exit F7:Upload F8>Select Transaction F10:Add Above Transaction F11:Trade

Type Account A 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	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.
Description	Displays an editable default description.

Note: As an alternative, upload a .csv file containing flows, one per account/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  SLVABC  1,454.57  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

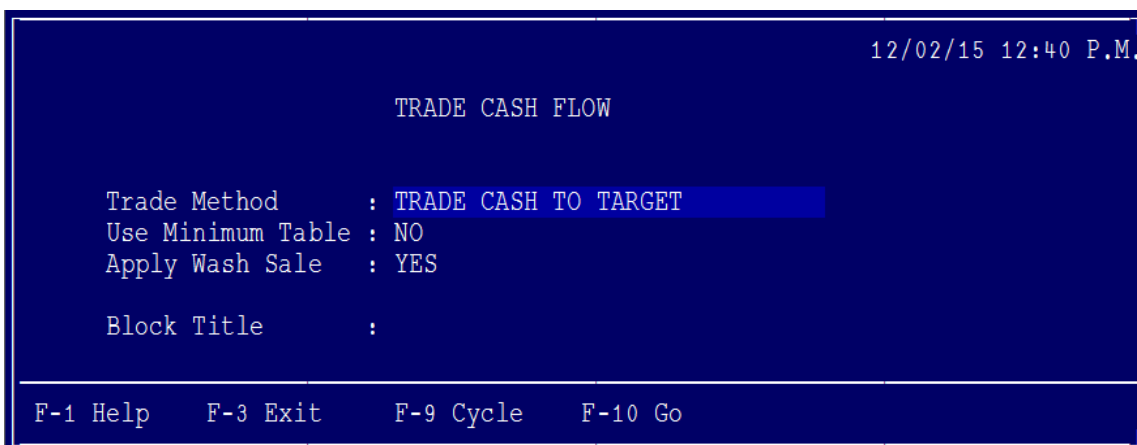
Are you sure you want to exit? Transactions have been saved but will not be traded, No/Yes

Select YES to exit. 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



The screenshot shows a terminal window titled "TRADE CASH FLOW" with a timestamp "12/02/15 12:40 P.M." in the top right corner. The screen displays the following options:

- Trade Method : TRADE CASH TO TARGET
- Use Minimum Table : NO
- Apply Wash Sale : YES
- Block Title :

At the bottom of the screen, there is a navigation bar with the following options: F-1 Help, F-3 Exit, F-9 Cycle, and F-10 Go.

9. Edit the trade options if needed:

- Trade Method
 - TRADE TOTAL DOLLAR to trade the total amount of the cash flow regardless of current cash available
 - 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. The entered flows are processed
- 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

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

Output Report

This report, CASHFLOWTRADING.LXXX, shows changes in the 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										
111111111 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	-5,000	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%				

Exception 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: 12/02/15 11:57 A.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	Submodel	Transaction Type	Cash Flow Amount	Adjusted Cash Flow Amount	Trade Amount	Difference	
ACCT01	Name	SLVABC	Contribution	3,500.00	3,500.00	1,681.77	1,818.23	
ACCT02	Name	SLVDEF	Withdrawal	4,000.00	4,000.00	1,797.03	2,202.97	

6.6 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:

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.

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).

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
Submodel B	50	-25	25
Submodel C	20	-10	10
Submodel D	-50	50	0

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. The next morning when we calculate the cash to build SubModel Available trading cash into WINDOW, SM2 and SM3 might expect to retain \$5K each since they sold yesterday, right? If we gave it to them, the cash buckets would look like this:

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:

```

(0) INCOME CASH LEDGER FOR: SNAM= TEST BNUM: - 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:

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, WINDBUILDACTS needs to be run for all affected accounts.

6.7 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 restriction methods at the account level or at the sleeve level.

The restriction method defined at the sleeve or account level replaces the “Cash From Restricted Securities” run-time prompt in the Strategy Rebalancer, UMA Rebalancer, and Nightly Rebalancer.

Sleeve level restriction methods are entered 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 SIC, SIC2 or RA69 code 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 by the master manager at the account level by assigning a valid restriction method value to the RSMETH field in Infodex. Restriction method options at the account level are CASH, ALL, and SIC. RA69 and SIC2 are also valid values for clients who have those fields.

A value of BLANK in RSMETH indicates that the restriction method stored at the sleeve level should be used. If the RSMETH field is not populated with a valid entry then the sleeve level method is used.

Sleeve Level

A restriction method can be defined by the master manager for individual submodels through the MMS application. See the MMS User Guide 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, the Trade Drift Report and the Trade Exception report have the following changes.

Trade Drift Report

The following enhancements are included in the Trade Drift Reports for both Master Manager and Submanager.

- When Sleeve 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 the restricted security to be the same as the actual security holding. The difference between the restricted security's target and the actual holding are added to cash target for the same sleeve.

- When Sleeve Restriction Method is Replacement Security:

When restriction method is SECURITY and a restricted security is underweighted, Trade Drift report will show the target for restricted security to be the same as the actual security holding. The difference between the restricted security target percent and actual holding percent are added to replacement security target percent for the same sleeve as the restricted security.

Trade Exception Report

If configured for this feature 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", same as existing sections.

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, or PRORATE SIC2
- Type - SUBMODEL, ACCOUNT, or DEFAULT

Appendix A: How tax rules are applied

The following parameter combinations apply to tax sensitive trading situations as defined in the Edit Tax Table screen.

Tax Table Setting	Trading Tool Prompt	Trading Tool Setting	Consideration
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.

Tax Table Setting	Trading Tool Prompt	Trading Tool Setting	Consideration
	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.1 Application of tax rules based on selection

Wash sale violation?	Tax table violation?	Apply tax table only to trades violating wash sale rule?	Value of Apply Wash Sale field in the trading tool?	Action
No	No	No	Yes	Keep Trade
No	No	Yes	Yes	Keep Trade

Wash sale violation?	Tax table violation?	Apply tax table only to trades violating wash sale rule?	Value of Apply Wash Sale field in the trading tool?	Action
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