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APL Mutual Fund Advisory (MFA) Trading

User Guide

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About This Manual

The APL MFA Trading User Guide provides users with a detailed roadmap for leveraging the Mutual Fund Advisory (MFA) Trading module within the APL ecosystem. This guide covers key features, including rebalancing, model management, drift reporting, and ad-hoc trading tools.

APL Mutual Fund Advisory (MFA) is a comprehensive solution that streamlines the administration and trading of mutual fund advisory programs. It supports both traditional and managed account platforms, offering flexibility for multiple investment strategies and portfolios. MFA's robust automation—covering systematic contributions, withdrawals, and nightly rebalancing—minimizes manual effort and enhances accuracy.

Integrated with APL's powerful modeling and compliance features, MFA ensures efficient, tax-sensitive trades while maintaining alignment with client objectives and regulatory requirements.

1.1 MFA: Traditional vs. Managed Account Platform

There are two versions of MFA this document addresses:

- Traditional MFA – the APL product that supports the administration and trading of mutual fund advisory programs
- MFA under Unified Managed Accounts (UMA) – the APL product that supports administration and trading of mutual fund advisory programs that is now accessed through Unified Managed Accounts (UMA). This new APL product combination is known as the managed account platform, sometimes referred to as "convergence."

Contact your Client Account Manager for more information on how you can incorporate the managed account platform into your current business processes.

MMS Models

Model Management Solution (MMS) from Tegra118 is used to create and manage products and models used by MFA and UMA, as both traditional products and as part of the single managed account platform.

Contact your Client Account Manager for more information on how you can incorporate MMS into your current business processes.

When MMS is used for modeling the product/model managements screens in MFA are read-only.

1.2 What you need to use Mutual Fund Advisory

APL Expert requires the following:

- Windows® compatible computer
- Modem (or a network connection)
- Communications software (such as KEA)
- User ID
- Password
- Configuration of existing system to accommodate the managed account platform
- Configuration of existing system to accommodate the MMS component for either the single UMS-MFA managed account platform environment or for the traditional MFA product

If you need any of these items, contact your InvestCloud Account Consultant.

Chapter 2: Overview

2.1 What is APL Mutual Fund Advisory?

APL Mutual Fund Advisory (MFA) from Tegra118 is a tool that supports the administration and trading of mutual fund advisory programs. Automated features, flexibility, and ease of maintenance allow Investment Managers to develop multiple products to meet their investors' needs. The MFA product helps minimize costs with asset class level rebalancing (minimizing trades) and automatic trade generation (reducing manual intervention) for: anniversary rebalancing, nightly rebalancing and investment of systematic (regularly schedule contributions and withdrawals).

Traditional MFA

"Traditional" MFA is a distinct product, installed separately and configured for access directly through APL.

Managed Account Platform MFA

When it is part of the managed account platform (i.e. "convergence") MFA is accessed as a single sleeve within the Unified Managed Accounts (UMA) product.

2.2 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 interconnectivity 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.

2.3 What is UMA?

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

Master Manager

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

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

Submanager

- Maintain models for strategies, called submodels
- Trade portions of client portfolios without affecting the portion managed by other submanagers
- Produce reports for a submodel or the submodels they manage without viewing other submanagers' portions of a portfolio

2.4 What is MMS?

Model Management Solution (MMS) allows users to create, edit, maintain and publish models. MMS may be used for both internal and external managers and it includes three levels of user roles and secured privileges: model manager, model manager senior and model administrator.

For more information about MMS, see the MMS user guide:

Uhttp://ewr-knowledge.checkfreeinvsvcs.com/KMS/groups/public/documents/guide/1022857.pdfUH

As of the November 2011 release, MMS models will be available to MFA.

MMS and Traditional MFA

If traditional MFA is configured to use MMS models, the APL models that are the MFA default will no longer be available, and the screens that had been used to create, configure and maintain APL models in the MFA interface will become read-only.

Traditional MFA users who wish to use MMS will need to request Tegra118 to configure the product to use MMS.

MMS and MFA under the Managed Account Platform

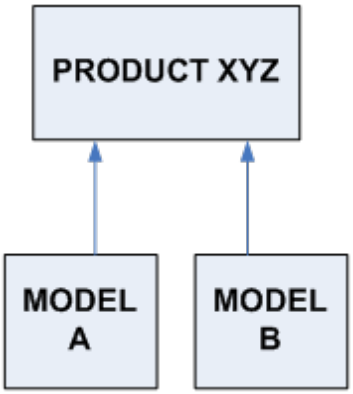
MFA can access only MMS models under the managed account platform. The creation, configuration and maintenance of models must be done in MMS. The models are then displayed in MFA in read-only mode.

Chapter 3: MFA Functionality

3.1 Products and Models

MFA uses the term Product is equivalent to a strategy or style and a set of rules that controls the parameters of a trading strategy.

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



3.2 Model Options

There are two options for MFA users: APL-based models (the default for traditional MFA) and MMS models (the only model format available for managed account platform MFA.

- To learn more about the use of APL-based models in traditional MFA, see XChapter 4: Product and Fund Allocation ViewsX
- To learn more about MMS models, see Chapter 6: Account Option/Maintenance Screen as well as the MMS user guide:

http://ewr-knowledge.checkfreeinvsvcs.com/KMS/groups/public/documents/guide/1022857.pdf

3.3 Rebalancing

In order to ensure that a model reflects the product parameters during a designated period of time (usually an automated nightly process), MFA uses the rebalancing function. This feature performs trading functions with the goal of achieving a match between the model and the product.

3.4 Reports

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

3.5 Ad hoc functions

In addition to automated functions, MFA provides users with the flexibility to perform a variety of manual functions, such as ad hoc rebalancing and fund swap.

3.6 Systematics

MFA provides the ability to create a regular schedule of contributions and withdrawals, called systematics.

3.7 Sleeves

The Strategy Rebalancer function in UMA and MFA enables submanagers to bring their portion of portfolios, also known as “sleeves,” into conformity with the associated models while respecting restrictions on individual portfolios.

3.8 MFA Managed Account Platform: Single Sleeve Accounts

Only single-sleeve MFA accounts are available under the managed account platform.

Sleeve Tags

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.

```
F1-HLP F6-INS SF6-DEL F9-OPTIONS CONTRACTSF8-OPTIONS F10-S
O/C
SS     ACCTTOTAL                DESIRE     CURRENT
SC    NAME        SHARES       TICK   DATEBROKER    SLEEVE    PRICE
---   --------     ---------      -------     -----------  --------- --------
--------
X      ABC1233411000.0000    AAA111   20110622 CCC001             99.926000
X     ABC4455120000.0000    AAA222   20110622 CCC002   XYZ1      99.926000
```

```
X      55554989000.0000      AAA333   20110622 CCC003   XYZ2   99.926000
X      999999834.3040       AAA444   20110622 CCC004          11.140100
X      900000825.6763       AAA555   20110622 CCC005            65.749995
```

Chapter 4: Product and Fund Allocation Views

This chapter is for traditional MFA. For the MFA Managed Account Platform version, see Chapter 6: Account Option/Maintenance.

4.1 About Products

Products serve trading strategies by setting parameters that control automatic trading functions for MFA.

- A product is made up of two levels: Asset Types and Asset Classes
- Each fund belongs to an Asset Class (i.e., Large Cap Equities), and Asset Classes are grouped into Asset Types (i.e., Equities)
- Each model is associated with a product and contains fund allocations. These fund allocations must fall within the Asset Type and Asset Class ranges set at the Product level
- Models can be created as a one-to-one or one-to-many relationship to an account
- Rebalancing and systematic trading rules are set on an account level and are considered during an automated nightly process
- The Restrictions module is called upon during trade generation. Restricted security dollars will remain in cash, unless replacement securities are established

The product table defines allowable lower and upper ranges for the Asset Type and Asset Classes. Upon entering a new Product, the Asset Type's descriptions will always default to what is defined in the table above. It is there where users define the Asset Types and Asset Classes, but here where users define the allowable ranges for each product. There is no limit to the number of products you can enter.

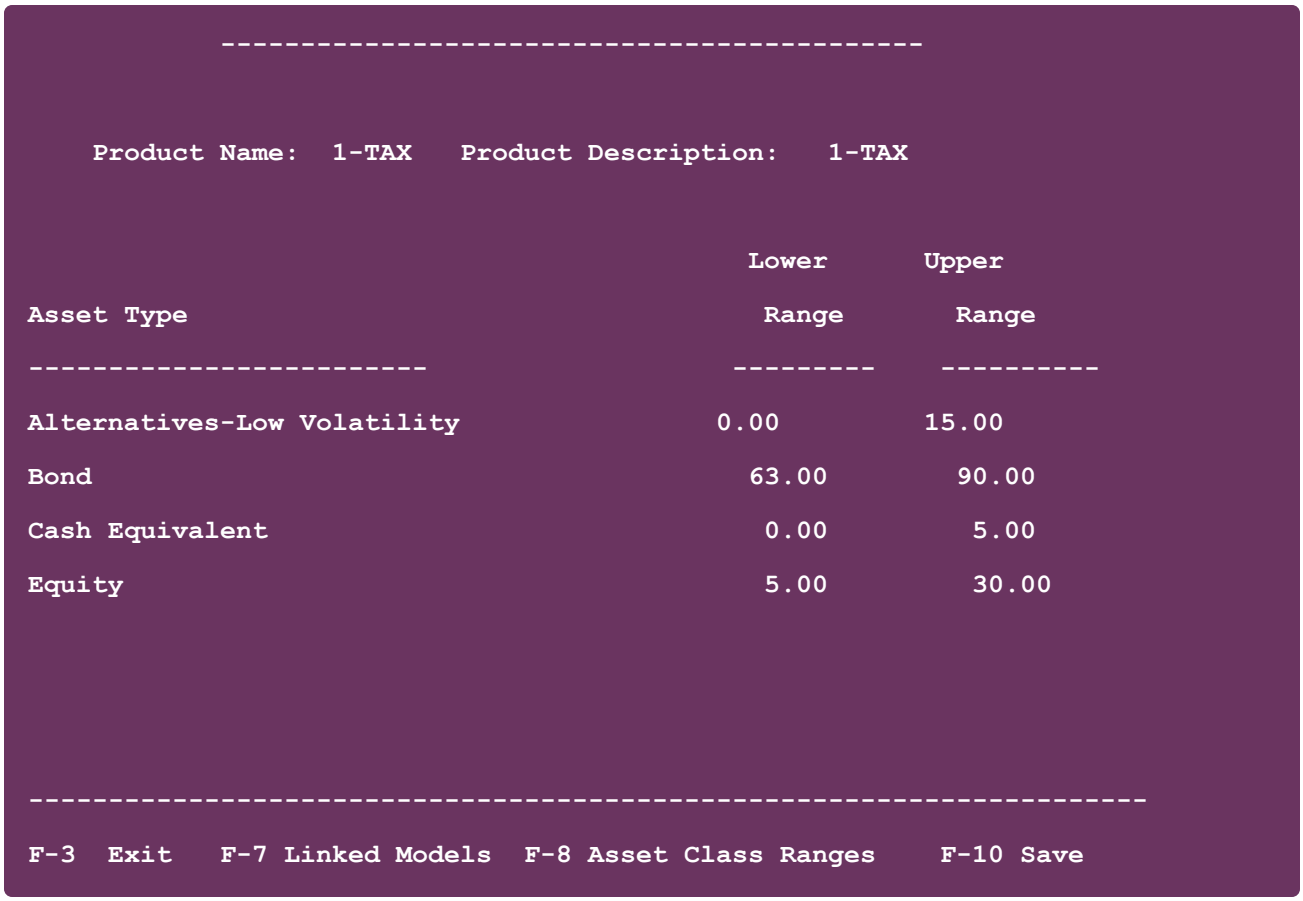
4.2 Define Upper and Lower Ranges for the Asset Type

This is where you will define the allocations for the Upper and Lower Ranges for the Asset Type.

Since this table defaults to every Asset Type defined in the above table, enter 0 for the Upper and Lower Ranges to exclude a particular Asset Type from the product.

Keystroke any number that will signify the upper and lower ranges for the asset type. To completely exclude an Asset Type security from any model, set 0 for both Ranges. As the primary purpose for this table, these ranges are used to verify Model Allocations when Models are created or edited.

Once completing the ranges for the Asset Types, press F8 to further classify the Asset Classes that are defined within each asset type.



```
            ------------------------------------------

    Product Name:  1-TAX   Product Description:   1-TAX


                                                Lower      Upper
Asset Type                                       Range      Range
-------------------------                      ---------   ----------
Alternatives-Low Volatility                   0.00         15.00
Bond                                            63.00        90.00
Cash Equivalent                                  0.00         5.00
Equity                                           5.00        30.00




-------------------------------------------------------------------------
F-3  Exit   F-7 Linked Models  F-8 Asset Class Ranges    F-10 Save
```

4.3 Define Upper and Lower Ranges for the Asset Class

This is where users define the allocations for the Upper and Lower Ranges for the Asset Class.

Since this table defaults to every Asset Class, you can enter 0 for the Upper and Lower Ranges to exclude a particular Asset Class from the Product.

Keystroke any number that signifies the upper and lower ranges for the Asset Class. To completely exclude an Asset Class security from any model, set 0 for both Ranges. As the primary purpose for this table, these ranges are used to verify Model Allocations when models are created or edited.

Once completing the ranges for the Asset Classes, press F10 to save the product.

Users now have the ability to run drift as Relative and Absolute. For example, setting the Target Asset Class at 50% and a Relative drift of 10%, the Asset Class would be considered “drifted” if it went below 45% or above 55%. For Absolute drift, using this same example, the Asset Class would be considered “drifted” if the Asset Class fell below 40% or went above 60%. Toggle between Relative and Absolute drift by pressing F5, and selecting either Relative or Absolute.

```
            Asset Class Maintenance Screen
          ------------------------------


   Product Name: 1-TAX     Product Description: 1-TAX
   Drift Basis:  Absolute
   Position Tolerance:  0


                                    Lower   Upper      Lower    Upper
Code  Asset Type  Asset Class       Range   Range      Drift    Drift
----- --------- -----------     ------  ------     ------   ------
10  Alternatives In Market Neutral  0       15         0.00  0.00
9  Bond         High Yield Bon     0       30         5.00    5.00
8  Bond         Municipal Bond     0       0          0.00    0.00
7  Bond  Taxable Bonds      20      87         5.00  5.00
11  Cash Equiv    0       5 0.00  0.00
5  Equity       Emerging Marke     0       10         0.00   0.00
4  Equity       International      0       10         0.00 0.00
1  Equity        Large Cap Equi     1       25        5.00   5.00
2  Equity        Mid Cap Equity     0       55         5.00 5.00
6  Equity        REITs              0       10        0.00 0.00
3  Equity        Small Cap Equi     0       5          0.00 0.00
-------------------------------------------------------------------------
F-3  Exit  F-5  Set Drift Basis   F-7 Linked Models
F-8 Asset Type Ranges  F-9 Set Position Tolerance    F-10 Save
```

4.4 Defining Drift

Drift is defined at the Asset Class Level. A user can choose an Upper Range or Lower Range Drift.

A user can decide whether their drift is absolute or relative to the Asset Class. It can be initialized for the entire directory.

Drift is calculated from the percent Asset Class Holding in the account. For example, an account has a model that is tied to the product shown on the previous page. The model has three taxable bonds whose targets make up 12% of its allocation. The account will trigger drift when the Taxable Bond Asset Class in the account goes over 17% of the account's portfolio or goes under 7% of its portfolio (if the client is using Absolute drift).

In this product, Cash is considered an Asset Class, and Cash Drift is calculated in the same manner as other Asset Class Drift.

- The user has the ability to override a drift tolerance

- Overrides will be available for both Upper Range and Lower Range Drift
- The entered overrides will take the place of the drift tolerances assigned at the Product level
- When running a Rebalance at the Asset Class Level from the Ad Hoc Trading utility, the system will prompt the user whether a drift tolerance override is required
- If the user enters NO, the system continues with the rebalance, following the drift tolerance associated with the product that the account is linked to
- If the user enters YES, the system will prompt the user for an Upper and Lower drift tolerance override
- The drift tolerance override will go out two (2) decimal places and will apply to all asset classes, over-riding those tolerances set at the Product level, for the accounts specified during account selection
- The value of the Upper and Lower drift override tolerances must be numeric
- The value of the Upper and Lower drift override tolerances cannot be negative
- The range of the Upper and Lower drift tolerance overrides is 0.00 to 100.00
- If the user enters 0.00 for both the Upper and Lower drift override tolerances, the system will follow the drift tolerance assigned at the Product level

Notes:

- If the user enters any value or no value at all, and presses Esc, the user will be returned to the previous prompt
- If the user does not enter a value and presses Enter, the user will be returned to the previous prompt
- If the user enters 0 and then presses Enter, the drift tolerance will be 0, thus forcing a complete account rebalance
- The user also has the ability to define position tolerance in the Position Tolerance field. This drift tolerance set at the position level can then be used in the Nightly Rebalancing and Reporting either on an account's anniversary or nightly basis

- The range of the position tolerance is 0.00 to 100.00
- The position value tolerance cannot be negative
- This value also applies to both upper and lower drifts

4.5 Account Asset Allocation Screen

1. Models are created from the Product Screen (Asset Type Class/Class Maintenance Screen)
2. Models can be stored as a one-to-one or a one-to-many relationship to an account

3. The client will choose a specific product in which they want to invest, as defined in the Product Table above
4. Press F7 from the desired product to create or edit a Client Model
5. When you create a Model from this Product, your Model will automatically be associated to that Product

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

       Select Model

----------------------------------------------

              GENERC - GENERIC MODEL PORTFOLIO

              MODEL1 - LARGE CAP CORE

              MODEL2 - SMALL CAP CORE

              MODEL3 - INTERNATIONAL EQUITIES

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

4.6 Adding, Editing client data

- Funds: The end user can begin key stroking the funds and targets allowable for each product
- After a valid TICK is entered, the system will populate the appropriate Asset Class
- Press F10 to save the model
- Upon saving the model, APL will do a validation against the ranges set in the associated product
- For any security in a model that the account has a restriction against it, users have the ability to substitute the restricted security or securities with alternate securities

```
        Model Maintenance Screen

       ------------------------


   Product Name: PROD99   Product Description: SMALL TAXABLE ALL-EQUITY

Model Name:   PROD99    Model Description:  SMALL TAXABLE ALL EQUITY

   Disparity Type: Absolute

   Position Level Disparity: 5.00
```

```
Fund        Percentage
------      ----------
FUND A      34.00
FUND B      10.00
FUND C      10.00
FUND D      10.00
CASH-1      2.00




-------------------------------------------------------------
F-3 Exit     F-5  Alternate Securities    F-7 Asset Type Ranges
   F-8 Asset Class Ranges    F-10 Save
```

1. From the Model Maintenance Screen, press F5. The following screen will appear:

```
      Alternative Fund Maintenance Screen
      ---------------------------------------------------

   Product Name: AB111  Product Description: AY DEMO 2 EQUITY
   Model Name: EQY001   Model Description: EQUITY ONE


   ABCDE        FGH        IJKLM        NOPQR        STUVW
  ------       ------    ------      -----        ----------




-------------------------------------------------------------
```

```
F-3  Exit              F-9 Next Screen            F-10 Save
```

2. Each column header will be the ticker symbol of the original security that has the restriction. Enter alternate securities to be substituted for each of the original securities

Multiple replacements can be assigned to an original model security to account for multiple restrictions. When rebalancing, restriction checks occur for each suggested substitution security. If the suggested substitution security is also restricted, the next substitution security in the list will be used.

3. After entering the alternate securities, you will need to press F10 to save the alternate securities

When rebalancing a portfolio against the model, a portfolio using the replacement securities instead of the original, but with no other discrepancies from the model, will not undergo a swap of funds.

4.7 Popup Error Checks upon entering data

Any data entered in the Model Maintenance Screen will always reference the Product table, for allowable ranges, as well as the MF Styles tables for allowable securities.

- Fund Allocations must total 100% - logic exists to add up the percentages the user entered to make it easier for the end user to make corrections
- Securities must be categorized – Each security that is in the model has to have an Asset Class coded in the ASTxxx field of EDSEC that corresponds to a Class in EDIT MF STYLES
- Percentages too high/low for specific Asset Classes – The system will cross reference the appropriate product to make sure that all Asset Classes and Types are within their allowable ranges

4.8 Account Option/Maintenance Screen

Use this table to store information on the account level for when the account will rebalance, or is due for a systematic contribution or withdrawal. This information will be referenced during nightly rebalancing. All fields in this table are new INFODEX fields that need to be added.

All Auto-Rebalancing can be turned off on the account level by switching the Auto Rebalance option to NO. Switching the Auto Rebalance option to NO will still allow Systematic processing.

As part of the nightly processing, as long as one type (i.e., AUTO-REBAL) of block is created with trades, then the remaining blocks will be created with zero shares, indicating no further trading was required. If there are no trades required at all for Rebalancing, Systematics, or Liquidate Specific Funds, then there will be no blocks at all in Block Order Status, indicating that overnight trading was not required.

Chapter 5: MFA under Managed Account Program: Product and Fund Allocation Screens

Once you log into UMA and select the Mutual Find Advisory Trading tool, the MF Asset Class Rebalancer menu screen will appear.

This is an optional feature and only single-sleeve MFA Accounts are considered for MFA Convergence.

```
PORTVUE - P                          PRICES AS OF: 06/22/11
CLIENTABC123 SUB-SELECT: MGR EQ ABC±AND±RR LT 99
MF ASSET CLASS REBALANCER
          ------------------------------------------------
1. PRODUCT AND FUND ALLOCATION SCREENS C. DRIFT REPORT
2. ACCOUNT OPTION MAINTENANCE SCREEN   D. BROWSE LAST REPORT CREATED
3. UPLOAD MODELS                       E. PRINT
4. FUND SWAP                          F. MFAMODELREPORTER
     TRADING                               G. DRIFTSECTMFBYPOSITION
    ----------------------  H. DRIFTSECTMFBYASSET
5. AD HOC TRADING SCREEN               I. DRIFTSUMSECTMF
6. BLOCK ORDER STATUS                      SYSTEM SERVICES
7. REBAL FOR FEES CHASE                ----------------------------------
8. REBAL FOR FEES                      J. DRIFTSECTMFBYFUND
9. SET SUPERVISOR STATUS              K. CLEAN OUT OLD BLOCKS
A. NIGHTLY REBALANCER                  L. INFODEX
TEMPLATE
B. SECURITY ASSET TYPE/CLASS CODING
REPORTING
```

5.1 Product Portfolio Retrieval

The Product Table screen and related screens are read-only mode. To create and edit Products and Models you must use MMS.

View the Product Portfolio:

In the MF Class Rebalancer menu screen select 1. Product and Fund Allocation Screens.

- The PRODUCT PORTFOLIO RETRIEVAL screen will appear

Enter the Product name or Title, or press F7 to list the existing products.

```
PRODUCT PORTFOLIO RETRIEVAL

                  ----------------------------------------

  PRODUCT:                        TITLE:

                  ----------------------------------------

                       SELECT PRODUCT AND HIGHLIGHT YOUR CHOICE

                ------------------------------------------------

               F1-HelpF3-QuitF7-List Products F10/Return-Go

                ------------------------------------------------
```

Once you enter a Product the Asset Type Maintenance Screen will appear.

5.2 Asset Type Maintenance Screen

```
                              Asset Type Maintenance Screen

        ------------------------------------------------------------------

Product Name: GENERC          Product Description: GENERIC MODEL PORTFOLIO

                                                  LowerUpper

Asset Type                                          RangeRange

-----------                                            -------    ------

Balanced                                                          0.000.00

Cash and Equivalents                                             0.000.00

Equity                                                             0.000.00

Fixed                                                            0.000.00
```

```
Other Test                                                          0.000.00

ABC Asset Type                                                        10.00
10.00

-------------------------------------------------------------------------------
----------

F-3Exit       F-7 Linked ModelsF-8 Asset Class Ranges

F-10 Save
```

The Asset Type Maintenance Screen is where users review the allocations for the Upper and Lower Ranges for the Asset Type.

In order to review the Asset Classes associated with the Asset Types in the Product list, users need to press F8 to see the Asset Class Maintenance Screen.

5.3 Asset Class Maintenance Screen

```
             Asset Class Maintenance Screen

        ------------------------------------------

Product Name: GENERC Product Description: GENERIC MODEL PORTFOLIO

Drift Basis : Absolute

Position Tolerance : 0.00%

                                                    LowerUpperLowerUpper

Code    Asset Type   Asset Class         RangeRangeDriftDrift

----    ----------   ------------         ----------------------

15    Balanced   Balanced         0.000.000.000.00

1    Cash and Equiv  Cash                  0.000.000.000.00

19    Cash and Equiv  Cash and Equiv 0.000.000.000.00

6    Equity          Global/Interna 0.000.000.000.00

3    Equity    Large Cap Valu 0.000.000.000.00

4    Equity    Mid Cap Equity 0.000.000.000.00

12    Equity    Other Equity         0.000.000.000.00

11    Equity   REITS          0.000.000.000.00

5    Equity    Small Cap Equi 0.000.000.000.00
```

```
10   Fixed    ISHIKA         0.000.000.000.00

--------------------------------------------------------------------------------

F-3 Exit            F-5 Set Drift Basis       F-7Linked Models

F-8 Asset Type Ranges    F-9 Set Position Tolerance  F-10 Save
```

Chapter 6: Account Option/Maintenance Screen

The Account Option/Maintenance Screen stores account level rebalance and systematic contribution/withdrawal parameters. This information will be referenced during nightly rebalancing.

All fields in this table are INFODEX fields.

All Auto-Rebalancing can be turned off on the account level by switching the Auto Rebalance option to NO. Switching the Auto Rebalance option to NO will still allow Systematic processing.

As part of the nightly processing, as long as one type (i.e., AUTO-REBAL) of block is created with trades, then the remaining blocks will be created with zero shares, indicating no further trading was required. If there are no trades required at all for Rebalancing, Systematics, or Liquidate Specific Funds, then there will be no blocks at all in Block Order Status, indicating that overnight trading was not required.

The events that can occur nightly are as follows:

6.1 Anniversary rebalancing

> **Note:** All Account based frequencies are calculated from a date defined on the account level.

- Frequencies include – (Numeric code corresponds to the RBLFRQ field in INFODEX):
  - Account Annually = -1
  - Account Semi-Annually = -2
  - Account Quarterly = -4
  - Account Monthly = -12
  - Account 13/12 = 13 (1st Anniversary is 13 months after start date and then every 12 months thereafter)
  - Account 13 Months = 14
  - Account 365 + 3 days (rolling) = 15

> **Note:** An "Actual 13/13" rebalancing option will rebalance nightly if you select YES to rebalance on anniversary for the first month that the account is open. This accommodates “back dating” of new accounts.

- Calendar Dates are defined as 3/31, 6/30, 9/30, 12/31 or the first business day thereafter, and the 1st business day of the month for the monthly option.
  - Calendar Annually = 1
  - Calendar Semi-Annually = 2
  - Calendar Quarterly = 4
  - Calendar Monthly = 12

- Please note that when the calendar date selected falls on a Sunday or on a holiday, the system will process those Anniversary trades on the following Business Day
- Nightly sweep occurs in the rebalancer that checks to see which accounts are due to rebalance
- Clients have the ability to choose whether to rebalance on anniversary, or only when drift is present or never rebalance on anniversary
- Clients can specify a consecutive number of days for drift to trigger a rebalance
- Once the account has drifted, a date is logged to the LSTDFT field. On subsequent runs the system compares the current date to this field. If the account is still in drift, and the difference in days is greater than the number of consecutive days specified in the nightly control job, the system will generate rebalance trades
- Once rebalance trades are generated, the date is reset to 0. The system assumes the trades will be done. This assumption contains the lowest risk: if the system does not make this assumption, and the trades do get done, but there is a problem with the EOD or delayed trades, then there is a risk of duplicate trades being executed. The greater risk of duplicating trades is that which should be avoided
- The LSTDFT date will also reset to 0 when the account is no longer in drift
- Clients also have the option to nightly rebalance to the asset class or model level
- The Anniversary Rebalance will rebalance the account back to Model (Fund Level).
    - Clients have the option for Anniversary Rebalancing to be done on the same day for all accounts within a given month. Setup is done via the nightly control job specifying the number of business days back from month-end
    - As part of the setup, Start Date can be dynamically linked to an INFODEX field, for all accounts

Note: If the user enters values in the Min Trade $ and Min Percent Change fields on the Account Option/Maintenance Screen, the system will generate proposed trades, and then will compute, for each proposed trade, the percentage of market value that each proposed trade makes up. The minimum trade size will be determined by taking the greater of the entered Minimum Trade Amount and the calculated Minimum Trade Percentage based on the percentage of the market value. For example, if an account has a market value of $50,000, the entered Minimum Trade Amount is $800, and the Minimum Trade Percentage entered is 2 percent, the system will use the Minimum Trade Percentage as the minimum trade size, as 2 percent of $50,000 (the account's market value) is $1,000 (greater than the entered Minimum Trade Amount of $800).

6.2 Systematic Contributions and Withdrawals

Frequency

- Frequency can be Monthly, Quarterly, Semi-Annual or Annual
- MFA under the managed account platform also includes Weekly and Bi-Weekly options

Features

- Contributions and Withdrawals are defined by the client and can be any day of the month
- All Buying/Selling for Cash Flows will be done proportionately to the client's model
- Investment can either pro-rate the full amount to the model or satisfy the cash target first
- Minimum trade value can be applied. This same Minimum is also used for Ad-hoc Enter Cash Flow trading options
- Posting to the General Ledger
  - Users may post systematic withdrawals to the General Ledger
  - Answering YES to the following prompt, invokes the POSTGL application, and the pending withdrawal posts to the General Ledger

```
Do you wish to post pending withdrawals to the general ledger?
```

- When setting up Systematic Withdrawals for accounts, users can now select to have cash used first by setting the Use Cash First field to YES on the Account Option/Maintenance screen. Please note that the Use Cash First field will be defaulted to NO; preventing interference with original behavior

> **Note:** If you wish have this auto-populate to YES for new accounts, please contact our client services team about modifying your new account interface

The system will identify those accounts that wish to use cash first to satisfy the withdrawal. Accounts that wish to use cash first will use up all Cash/Money Market funds to satisfy the withdrawal.

In the event there are not enough Cash/Money Market funds to satisfy the withdrawal, the system will generate trades to satisfy the difference. If there are enough Cash/Money Market funds, trades will not be generated.

Contact our client services team about making this field eligible for QUICK EDIT: by default it is ineligible, given the sensitivity of the field. In QUICK EDIT, 0 = NO and 1 = YES.

The Use Cash First option is designed to work with the Prorate Trading Method. Cash will not be depleted if this option is used in conjunction with the Satisfy Cash Trading Method.

6.3 Fees

- A Client can load a CSV file into Windows with Account Number and Fee Amount. This process can be run in batch or on-line
- APL creates trades to make cash available for fees if the Fee Option is set to SHARES. The MMKT option assumes fees will come from a cash and equivalent
- APL sells from the most over-weighted fund (in dollars) in the portfolio until enough cash has been raised to cover the fee

6.4 Minimum Trade in $

- A client can set this on the account level
- Trade minimums can be assigned as one of the following:
  - Block level by account – Buys and Sales: (MINTYP = 0) This is the default setting in order to preserve the original behavior. Select Min. Block Trade$ from the list of options. A minimum can be assigned at the block level for the entire block, and not for individual orders. Only one trade in the block for an account needs to meet the minimum block amount in the MINDOL field in INFODEX
  - Trade Order level by account – Buys and Sales: (MINTYP = 1) Select Min. Order - All $ from the list of options. Each buy and each sell in a block per account should meet the minimum amount in the MINDOL field in INFODEX. Trades will not be created when the trade in the block does not meet this minimum criterion. So, all recommended trades that fail to meet the minimum amount will be removed from the block. The system will assume that the remaining funding for valid buys, after applying the minimum sales, will come from the Cash/Money Market asset class. Cash/Money Market cannot go negative to fund buys. Trades violating the minimum will be removed from the block and displayed on an output report
  - Trade Order level by account – Buys only: (MINTYP = 2) Select Min. Order - Buy $from the list of options. Each buy in a block per account should meet the MINDOL field in INFODEX. Trades will not be created when the BUY trade in the block does not meet this minimum criterion. Only recommended buys that fail to meet the minimum amount will be deleted from the account. All sales will be included. Trades violating the minimum will be removed from the block and displayed on an output report
  - Block level including cash – (MINTYP = 3) Select Min. Block Cash $ from the list of options. It will apply the same logic as above, but include CASH-1. If cash (CASH-1) is held in the model, the Block Minimum will be applied to the difference between Actual and Target cash. If that difference is greater than the minimum, then the minimum criteria will be met for the block of orders
  - Does not apply to Systematics or Ad-hoc Enter Cash Flow trading options
  - Minimum Trade amounts shall apply to the following ad-hoc functions:
  - Rebalance
  - Rebalance at Asset Class Level
  - Liquidate Specific Funds

- Frequency and Minimum Type designations are coded with numbers within their respective INFODEX fields (RBLFRQ and MINTYP). Due to technical limitations, default numbers cannot be coded to these INFODEX fields, so, as a result, all new accounts have 0 (which equals Null) populated to these fields. When the user accesses the Account Maintenance Screen, what is displayed is simply the last item from the cycle list. Since this item is NOT set as a default, the user will still need to access the cycle list by pressing F1 and then select the appropriate item
- The only way for a numeric designation to be auto-populated is by adding the appropriate business rule to the relevant new account interface. Such a coding change should be discussed with our client services team

```
+------------------------------------------------------------------------+
         Account Option / Maintenance Screen      Act   1 of    1
--------------------------------------------------------------------------


    Account Number : 12341234     Account Short Name: SNAM12
    Account Name   : JOHN DOE      Model: LEQAGG - LARGE CAP
    Rebalance Option:             Systematics:
                                   Trade Method   : PRO-RATE DOLLAR AMOUNT
                                       Min. Trade     : 0.00
     Frequency       : ACT. 365 + 3   Buy            : 0.00
                         Start Date     :
     Start Date       : 11/16/2006    Day of Month   :
     Auto Rebalance?  : YES            Frequency      : ANNUAL
                                      Stop Date      :


    Other Options:                     Sell           : 0.00
                                      Use Cash First : NO
      Fee Option   : MONEY MARKET    Start Date     :
      Min. Block Trade $ : 1,000.00    Day of Month   :
      Min Percent Change:              Frequency      : ANNUAL
                                      Stop Date      :
--------------------------------------------------------------------------
       F-3 Exit              F-7  Previous Account      F-8 Next Account
       F-9 Cycle             F-10 Save
```

+----------+

New Infodex Fields

Field	Definition
RBLFEE	Auto-Rebalancing Fee Flag
RBLAUT	Auto-Rebalancing Flag. If set to NO, the account will not rebalance in the overnight process unless there is a systematic contribution or withdrawal.
RBLFRQ	Auto-Rebalancing Frequency (see earlier section for code definitions)
RBLDT	Auto-Rebalancing Start Date
RBLID	Last system ID to run a rebalance
BUYDAY	Periodic Contribution Day of Month
BUYFRQ	Periodic Contribution Frequency
LSTDFT	Last Drift Date
BUYAMT	Periodic Contribution Net Amount
BUYDT	Periodic Contribution Start Date
BUYSTP	Periodic Contribution Stop Date
SELDAY	Periodic Withdrawal Day of Month
SYSMIN	Minimum dollar amount for Systematic and Ad-Hoc Enter Cash Flow trading options
SELFRQ	Periodic Withdrawal Frequency
SELAMT	Periodic Withdrawal Net Amount
SELDT	Periodic Withdrawal Start Date
SELSTP	Periodic Withdrawal Stop Date
MODEL	Model Code
NXTRBL	Next Forced Rebal Due to Liquidation

Field	Definition
MINDOL	Minimum dollar amount for the Type selected below
MINTYP	This field will contain a numeric value that represents the Type Minimum to apply. The numeric values are as follows: • 0 = Block Level (default that preserves original behavior) • 1 = Order Level- All • 2 = Order Value – Buys • 3 = Block Level – Include Cash
MINPCT	The minimum percent change will be stored in this field if a trade minimum value is designated when rebalancing.
CSHFST	This field is used to determine the treatment of system Withdrawals. If this field is set to YES, then available cash with be used to satisfy the withdrawal. If this field is set to NO, then trades will be generated to fulfill the withdrawal.

6.5 Nightly Rebalancing

This is an automated process done by CIS. The client must define which accounts this should be run for at set-up.

General rules of rebalancing:

- All Mutual Fund trades are done in dollars, except for full liquidations, which are done in shares. Block Order displays all in dollars. Edit Block displays Buys in Dollars and Sells in Shares. The MFEOD function can be programmed per Custodian requirements, i.e., all in Dollars
- To ensure mandatory liquidation of non-model securities irrespective of drift, a routine to identify and liquidate such securities needs to be run before current nightly rebalancing. This will ensure that even if there is no sector level drift, any non-model funds are liquidated. Once that is done the system will follow current rebalancing logic and the appropriate trades will be generated if there is any sector drift
- To avoid overselling of ETFs (or any similar non-mutual fund security):
  - All non-mutual fund orders, i.e. ETF or Equities, should be in whole shares only. This applies to any system security that trades only on whole shares. Can be defined by Issue Type if necessary in the functional specifications. Option to employ Window equities variable
  - When converting dollar-based trades to shares system should generate order quantities in ‘whole’ shares avoiding overselling. As such order quantity should always be rounded nearest, except in cases of full liquidations where it should then be rounded ‘down’
- When generating Full Liquidations, system should ensure that overselling does not occur
- When generating Full Liquidations, system should ensure that overselling does not occur

- ETFs: Given that ETF prices can fluctuate between time of Commit (CLSEP) and execution, a discount can be applied so that cash is not underweighted from purchases. This for clients who will have ETFs in their Models and who will be holding little or no cash in accounts. The variable determines how much of the account's market value an ETF buy should be calculated against. The variable has to be greater than 0 and less than or equal to 1. The default is .98, unless otherwise determined by the user. Please contact our client services team if your business model requires this variable to be activated
- Clients have the following options for rebalancing:
  - Rebalance all Anniversary accounts on the same day in a given month?
  - Rebalance on Anniversary only if drift is present? (Anniversary rebalancing will always go back to Model)
  - If a user does Anniversary Rebalancing based on position or asset class Drift, the system will rebalance to the model for those accounts violating drift
- On Anniversary, always rebalance, rebalance only if asset class drift is present, rebalance if position drift is present, rebalance if either drift is present, or never rebalance?
  - Select Rebalance if position drift is present, the account will be rebalanced against the model on anniversary when at least one position violates the position tolerance
  - If Rebalance if either drift is present, the account will be rebalanced against the model on anniversary when either a position level or asset class level drift tolerance is violated
- For Nightly Rebalance, always rebalance, rebalance only on asset class drift, or rebalance on position drift?
  - When Rebalance on position drift is selected, the account will be rebalanced against the model when at least one position violates the position tolerance
  - When Rebalance only on asset class drift is selected, the account will be rebalanced to the asset class tolerance only
  - When Rebalance on sector drift is selected, securities not found on an account's corresponding model or in the model's alternative list are liquidated. Accounts holding non-model positions are fully liquidated so that they can be fully invested in the model irrespective of sector drift
- When Drift is found, Rebalance Accounts back to Model (Fund Level) or only rebalance Asset Class(es) that have drifted?
- Specify a consecutive number of days for drift to trigger a rebalance
- Include Cash in the Market Value of the Account?
- For systematic contributions and withdrawals, buy or sell back in proportion to the model percentages
- When the user accesses the Ad Hoc Cash Flow trading tools or there is a systematic withdrawal or contribution, the user will be get the following prompt:

```
Do you want to post entries to the General Ledger?
```

- If the user responds NO to this prompt, entries will not be posted to the General Ledger
- If the user responds YES to this prompt and the entry is a contribution, the entry in the General Ledger will look as follows:

```
RCV CASH-1 13321 20050728 0 100.00 *PENDING CASH FLOW
```

- If the user responds YES to this prompt and the entry is a withdrawal, the entry in the General Ledger will look as follows:

```
DLV CASH-1 13321 20050728 0 100.00 *PENDING CASH FLOW
```

The Nightly Rebalancer does several things at once

Action	Explanation
Rebalance	Sweeps the Account Option Maintenance Screen to see if there is any account that has an Anniversary, or an account that has drift (depending on the client's needs). A trade block gets generated and left uncommitted in Windows for user verification.
Systematic Contribution or Withdrawal (Buys and Sells)	The Rebalancer will do a sweep of the Account Option Maintenance Screen to see if there are any accounts that are due for a systematic contribution or withdrawal. The result would be a separate trade block with either buys or sells.
Rebalance due to a fund liquidation	In some instances, a client would want an account to rebalance due to a liquidation that happened the previous day. Since the rebalance happens in dollars, the proceeds should flow through on the fund they liquidated and we would add that to the market value of the account when they are swapping for a different fund. The "forced rebalance" would include the proceeds and a rebalance of the account back to the model. The net of the trades should total the proceeds.

Each of the above actions will yield a separate BLOCK in WINDOWS. However, the process will net out trades for the same account and the same security within the same block.

Enter a values in the Min Trade $ and Min Percent Change fields on the Account Option/Maintenance Screen, and the system will generate proposed trades, and then will compute, for each proposed trade, the percentage of market value that each proposed trade makes up.

The minimum trade size will be determined by taking the greater of the entered Minimum Trade Amount and the calculated Minimum Trade Amount based on the percentage of the market value.

For example, if an account has a market value of $50,000, the entered Minimum Trade Amount is $800, and the Minimum Trade Percentage entered is 2 percent, the system will use the Minimum Trade Percentage as the minimum trade size, as 2 percent of $50,000 (the account's market value) is $1,000 (greater than the entered Minimum Trade Amount).

Chapter 7: Ad-Hoc functions

7.1 MFA Managed Account Platform Sleeve Tags

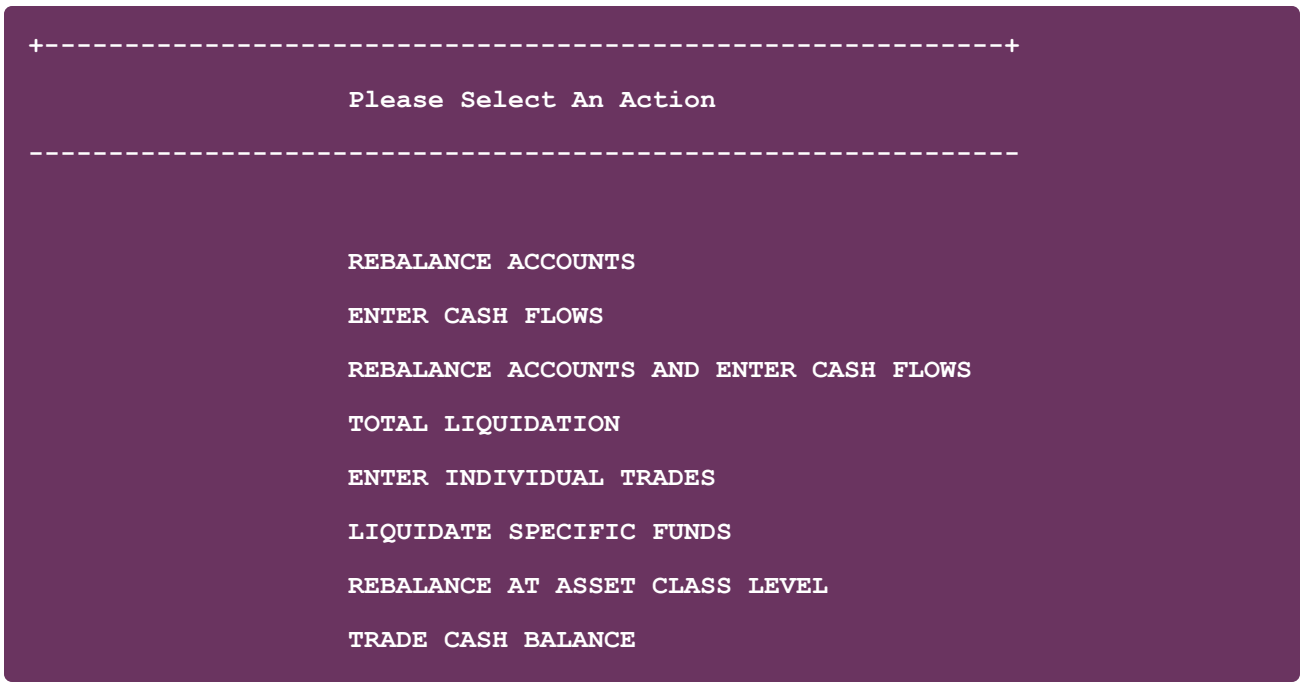
A sleeve tag is added to all trades for accounts designated as Single Sleeve MFA accounts when running Ad Hoc Trading functions (as well as the Nightly function) on the UMA platform.

7.2 Ad – Hoc Rebalancing

The purpose of the Ad-Hoc rebalancing screen is to allow clients to disregard the Account Option Maintenance Screen and do an event online during the day. For example:

- Client/Advisor may request to deposit or withdraw money outside of their normal systematic
- Client/Advisor may request a fund swap
- Client/Advisor may request a rebalance
- Client/Advisor may want to liquidate a fund
- Client/Advisor may want to liquidate an account in its entirety
- Option to Include or Exclude Cash from the Market Value of the Account(s)

These tools are designed as leverage outside of the normal Nightly Rebalancer. The results create buys or sells with the same logic as the Nightly Rebalancer.



```
                    SET CASH OPTION

                    SET DRIFT REPORT OPTION

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

7.3 Rounding of Ad-Hoc Rebalanced Events with Non-Mutual Fund Orders

Mutual Fund Advisory trades are generated based on dollar values and, if required as with ETFs, converted to units or shares. As such, trade quantities may include fractions. To prevent fractional shares Mutual Fund Advisory relies on rounding:

- Non mutual fund purchase orders are rounded to the nearest whole share
- Non mutual fund sales orders are rounded to the nearest whole share, except in case of full liquidations where the order is rounded down to a whole share. Any excess cash from rounding down will remain in CASH-1
- When generating full liquidations, the application ensures that overselling does not occur

7.4 Rebalance Accounts

- Upon entering, the standard APL prompt asks for an account and a rebalanced block will appear. A drift report is also created which will tie out to the trades in the block
- This tool will trade the account back to its appropriate fund percentages in the model
- Please note that when rebalancing ETFs, the variable will be applied
- Users are able to minimize mutual fund trades by both minimum dollar amount and minimum percentage of market value. This must be set up in the Account Option Maintenance Screen. By setting this up, you will be preventing unnecessarily small trades. To accomplish this:

1. Select Account Option Maintenance Screen from the menu. You will be prompted to select accounts
2. Enter the accounts you wish to include and press F10. The Account Option Maintenance Screen will be displayed

```
+-------------------------------------------------------------------------+
        Account Option / Maintenance Screen      Act   1 of    1
       ----------------------------------------------------------


    Account Number : 12341234        Account Short Name: SNAM12
    Account Name   : JOHN DOE        Model: LEQAGG - LARGE CAP
    Rebalance Option:               Systematics:
```

```
                                Trade Method    : PRO-RATE DOLLAR AMOUNT
Min. Trade      : 0.00
     Frequency    : ACT. 365 + 3     Buy             : 0.00
                                     Start Date      :
     Start Date   : 11/16/2006       Day of Month    :
     Auto Rebalance?      : YES      Frequency       : ANNUAL
                                     Stop Date       :

    Other Options:                   Sell            : 0.00
                                     Use Cash First  : NO
      Fee Option   : MONEY MARKET    Start Date      :
      Min. Block Trade $ : 1,000.00  Day of Month    :
      Min Percent Change:            Frequency       : ANNUAL
                                     Stop Date       :
-------------------------------------------------------------------------
       F-3 Exit              F-7  Previous Account      F-8 Next Account
       F-9 Cycle             F-10 Save
   +---------------------------------------------------------------------+
```

3. The information for the account selected displays. Select the Minimum Type
4. Select the Minimum Block Trade $
5. Then, in the Min Percent Change field, enter the minimum percent change as a percentage and press F10

> **Note:** The Min Percent Change field specifies the minimum percent change in market value before a trade is generated. The value entered in this field should be between 0 and 100.00, cannot be a negative number, and cannot be greater than 100.

After pressing F10, the updated value in the Min Percent Change field will be stored in Infodex. This value will be stored in the MINPCT field in Infodex.

Then run the ad hoc rebalancing tool. To accomplish this:

1. Select Ad Hoc Trading Screen from the menu. The following menu of options will be displayed:

```
   +-----------------------------------------------------------+
                    Please Select An Action
```

```
   ------------------------------------------------------------


                    REBALANCE ACCOUNTS

                    ENTER CASH FLOWS

                    REBALANCE ACCOUNTS AND ENTER CASH FLOWS

                    TOTAL LIQUIDATION

                    ENTER INDIVIDUAL TRADES

                    LIQUIDATE SPECIFIC FUNDS

                    REBALANCE AT ASSET CLASS LEVEL

                    TRADE CASH BALANCE

                    SET CASH OPTION

                    SET DRIFT REPORT OPTION

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

2. Select Rebalance Accounts
3. Select accounts to be rebalanced. Select the accounts you wish to include in rebalancing and press F10
4. Select a rebalancer trigger. Select Always Rebalance, Position Drift, or Asset Class Drift

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

           Please Select Rebalance Trigger

---------------------------------------------------

  Always Rebalance

  Position Drift

               Asset Class Drift

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

If Always Rebalance is selected, the account(s) selected will be rebalanced to the model regardless of drift. If Position Drift is selected, the system will evaluate drift violation based on the drift tolerance stored at the product level. The system will then rebalance to the model for those accounts violating the selected drift tolerance. If Asset Class Drift is selected, the system will evaluate drift violation based on lower and upper drifts assigned at the asset class level. The system will then rebalance to the model for those accounts violating the selected drift tolerance.

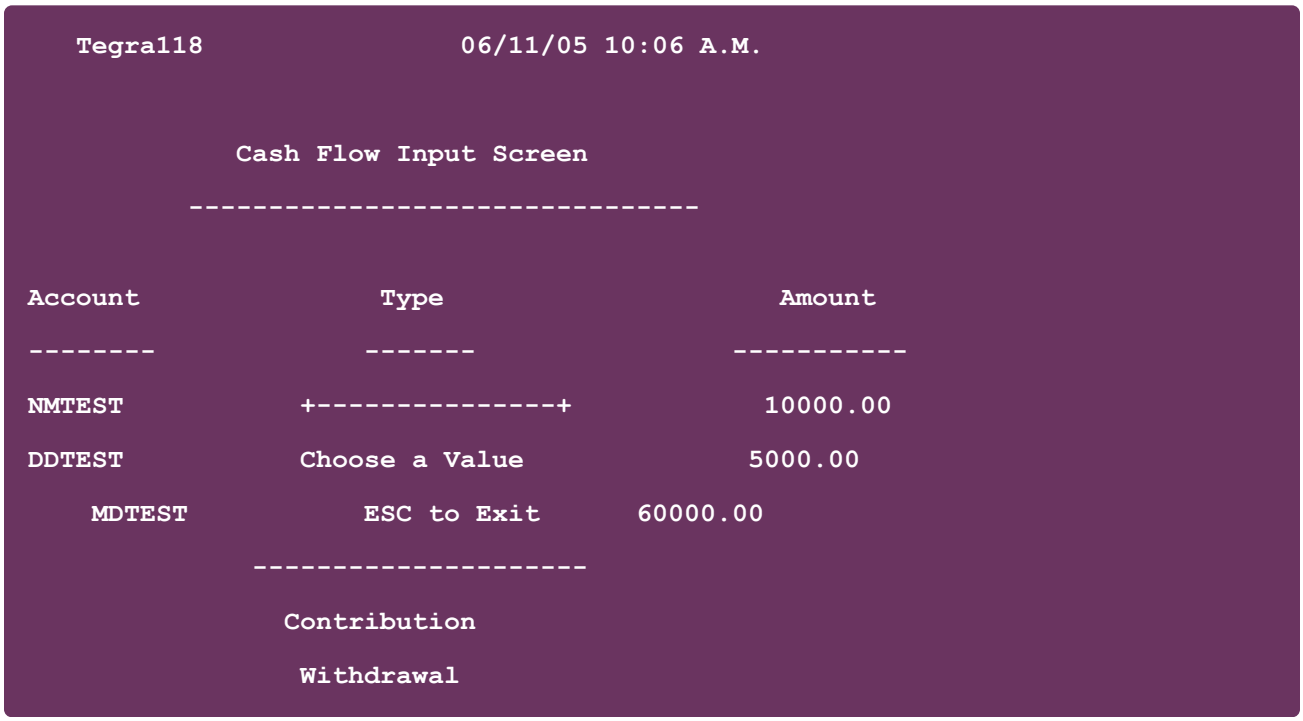
If the user enters values in the Min Trade $ and Min Percent Change fields on the Account Option/Maintenance Screen, the system will generate proposed trades, and then will compute, for each proposed trade, the percentage of market value that each proposed trade makes up. The minimum trade size will be determined by taking the greater of the entered Minimum Trade Amount and the calculated Minimum Trade Percentage based on the percentage of the market value. For example, if an account has a market value of $50,000, the entered Minimum Trade Amount is $800, and the Minimum Trade Percentage entered is 2 percent, the system will use the Minimum Trade Percentage as the minimum trade size, as 2 percent of $50,000 (the account's market value) is $1,000 (greater than the entered Minimum Trade Amount of $800).

5. Enter a title for the block of trades. Type a title and press Enter

> **Note:** Upon rebalancing, trades that violated Minimum Dollar or Minimum Percentage will be extracted from the block and will be reported on the PROBMIN report.

7.5 Enter Cash Flows (Ad-Hoc Contributions/Withdrawals)

- This function will create either buys or sells against the model
- The user can enter cash flows and create trades intra-day
- The buys/sells will be generated proportionately to the model percentages
- Please note that the variable will be applied for ETFs
- Users can enter as many accounts as you like by hitting Enter for the next line. Press Shift +F6 to delete a line
- Users will be prompted for the option of posting a Pending entry to the General Ledger



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




------------------------------------------------------------

F-1 to Select Type    F-3 to Exit              F-10 to Save
```

7.6 Ad-Hoc Rebalance Accounts and Enter Cash Flows

- This function allows user to enter a cash flow and rebalance at the same time. The screen is exactly the same as the cash flows screen; however, the trade results will be different
- Trades are created in three (3) steps:
  - Create rebalance trades (minimums are not applied at this time)
  - Create cash flow trades (applies the Systematic minimum amount)
  - Combine the trades into a single block
- Please note that the variable will be applied for ETFs
- Investment can pro-rate the full amount to the model or satisfy the cash target first. The method is determined by the systematic option chosen on the Account Maintenance screen
- Users will be prompted for the option of posting a Pending entry to the General Ledger

7.7 Ad-Hoc Total Liquidation

- A block will be created that will contain sells if all the funds held in the account are selected
- Please note that the variable will NOT be applied for ETFs

7.8 Enter Individual Trades

To generate a block of trades by entering individual trades follow these steps:

1. From the main MFA window select AD HOC TRADING SCREEN

```


Please Select An Action

----------------------------------------

REBALANCE ACCOUNTS
```

```
ENTER CASH FLOWS

REBALANCE ACCOUNTS AND ENTER CASH FLOWS

TOTAL LIQUIDATION

ENTER INDIVIDUAL TRADES

LIQUIDATE SPECIFIC FUNDS

REBALANCE AT ASSET CLASS LEVEL

INVEST CASH BALANCE

SET CASH OPTION

SET DRIFT REPORT OPTION
```

2. Select Enter Individual Trades
3. The Please Select Restriction Method message is displayed. Select an option

```
Please Select Restriction Method

-------------------------------

USE RESTRICTION METHOD DEFAULTS

CASH

OVERRIDE ANY RESTRICTIONS FOUND
```

> **Note:** These restriction method options are displayed only when the MFARESTRCCFG setting, “Use Manager Universe Default” is set to N for the specified manager. If the setting is Y, the restriction method is taken from the manager universe level.

The CASH method is used if the default setting of the restriction method defined at the model/account level is not OVERIDE ANY RESTRICTIONS FOUND.

4. The Individual Trade Screen is displayed for buys

Toggle between the Buy Side and Sell Side with F-9 to Toggle Buy/Sell.

```
INVESTMENT MANAGEMENT             12/02/15  3:37 P.M.
Individual Trade Screen

aaaaaaaaaaaaaaaaaaaaa

Buy Side

Account                Fund                    Amount
------------           ------             ------------
```

```
                                                              0.00
aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
F-3 to Exit        F-9 to Toggle Buy/Sell        F-10 to Save
```

5. For each buy or sell trade, enter an Account ID, Security ID, and dollar amount of the trade
6. When all trades have been entered press F-10 Save to generate the trades
7. The message “Are You Sure You Want to Exit and Trade with These Cash Flows?” will appear

Select Yes to continue.

8. The system generates the trades or indicates that no buying or selling is required

Restrictions are checked and if violations are found those trades are adjusted using the Restriction Method selected.

9. If trades are generated, the message “Enter Block Title” is displayed

Enter a block title and press Enter.

a. The APL block is loaded and the session ends. The new block will appear in Block Order Status
b. The Multi Account Asset Drift Report with Restriction Auditing, <block name>MFA.LRP is generated

7.9 Ad Hoc Liquidate Specific Funds

Liquidate Specific Funds allows for the exact dollar reinvestment of proceeds as a two-day event. The full liquidation is done T+0 and the exact proceeds reinvested on T+1. Proceeds are taken from EDPORT on T+1. If the liquidation trades are delayed, they will not be included in the T+1 reinvestment. Overnight rebalancing is suppressed for accounts in the middle of a two day event.

- Liquidation Functionality - The number of days to look for a block shall be configurable. This enhancement will give nightly rebalance process the ability to reinvest delayed proceeds from the liquidated fund. Systematic will be created when an account is due for a Monthly, Anniversary or Nightly rebalance and the account is in the middle of a Day 2 Liquidate Specific Fund where the proceeds did not arrive yet

A configuration item exists that will allow clients to reinvest the estimated proceeds on T+0. When selecting the OVERRIDE or PRORATE options below, you will be prompted as to whether you wish to generate corresponding buy trades on the same day. If you enter YES, all corresponding buy trades will be generated on the same day and buys and sells will exist in the same block. It is also important to note that the previous day's NAV price (CLSEP) will be used to calculate the proceeds. If you decide not to generate corresponding buy trades on the same day, the proceeds for reinvestment will be a part of the existing day two process.

After selecting an account or account, a user is given two options:

- Specify Funds To Be Liquidated
- Liquidate Non-model Funds

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

Select Liquidation Option
```

```
------------------------------------------------------

           SPECIFY FUNDS TO BE LIQUIDATED

            LIQUIDATE NON-MODEL FUNDS

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

Specify Funds To Be Liquidated

1. A user will be prompted to enter the fund to be liquidated. Type the ticker and press Enter
2. A user will be given three (3) re-investment options for the proceeds:

- OVERRIDE – to override the auto-allocation of trades and to select the specific Fund(s) to allocate the proceeds
- If a user decides to OVERRIDE, the following screen will appear:

```
Tegra118                          06/30/05  11:13 AM


      Fund Liquidation Allocation Screen
   ---------------------------------------------


  New
  Fund                        Allocation
  --------                  --------------
  MSIGX                           100.00



------------------------------------------------------
   F-3 to Exit                F-10 to Save
```

- When selecting the OVERRIDE option, you have the ability to have the proceeds from the liquidation remain in cash, meaning that the proceeds will not be reinvested in another fund when the selected accounts are rebalanced. You will also be able to either allocate 100% of the proceeds to cash by entering CASH-1 in the New Fund column and 100 in the Allocation column on the screen above, or allocate only a portion of the proceeds to cash and allocate the remaining proceeds to another fund in the model. Please note that when the system validates the model during a rebalance, cash will be excluded from this model validation, and as such, CASH-1 is not required to be in the model
- PRORATE – to Pro-rate the proceeds according to the fund targets in the model

- REBALANCE WITH PROCEEDS – When you select this option, rather than reinvesting the proceeds in either new funds or prorate them across the model, the proceeds will be reinvested on Day 2 as part of a rebalance. When selecting this option, be prompted to Select Rebalance Type at either the Fund or Asset Class Level. At this prompt, enter either MODEL for a fund level rebalance or SECTOR for an asset class level rebalance. After entering either Model or Sector at this prompt, a warning will appear stating that all Rebalance with Proceeds completed in this particular session for the particular accounts selected, will follow the method (MODEL or SECTOR) selected

3. A user will get an account selection screen so they can choose to liquidate a fund in one or multiple accounts
4. Here, a user will determine where to allocate the proceeds. The new Fund or Funds should be entered with the % of proceeds to be spent
5. When an account is traded using this tool, it will be tagged for a second day trade. The NXTRBL field in INFODEX will be populated on the account level. On day two, the nightly rebalancer will re-invest the proceeds from the liquidated fund
6. The user will then be asked if they would like to liquidate another fund for the accounts selected. The user will enter YES or NO at this prompt

```
Do you wish to liquidate another fund for the accounts selected?
```

- The variable will NOT be applied for ETFs
- All valid funds selected for liquidation will automatically be appended into one APL block
- Select YES at the above prompt and enter a previous fund, receive the following warning prompt

```
+-------------------- HIT ESCAPE TO EXIT -------------------------+
¦                                                                 ¦
¦                                                                 ¦
¦         Warning!!! Fund Previously Entered!                     ¦
¦                                                                 ¦
¦                                                                 ¦
¦                                                                 ¦
¦                                                                 ¦
¦                                                                 ¦
+-----------------------------------------------------------------+
```

Users are able to minimize mutual fund trades by both minimum dollar amount and minimum percentage of market value. This must be set up in the Account Option Maintenance Screen. By setting this up, users prevent unnecessarily small trades. Entered a value in the Min Percent Change field on the Account Option Maintenance Screen, the system will generate proposed trades, and then will compute, for each proposed trade, the percentage of market value that each proposed trade makes up. The minimum trade size will be determined by taking the greater of the entered Minimum Trade Amount and the calculated Minimum Trade Amount based on the percentage of the market value. For example, if an account has a market value of $50,000, the entered Minimum Trade Amount is $800, and the Minimum Trade Percentage entered is 2 percent, the system will use the Minimum Trade Percentage as the minimum trade size, as 2 percent of $50,000 (the account's market value) is $1,000 (greater than the entered Minimum Trade Amount).

7. A user will then be prompted to enter a Block Title

Liquidate Non-Model Funds

Sometimes an account may hold securities that are not part of the attached model. Since this is not part of the model, it is required that these holdings be liquidated and that the proceeds are invested in the model securities. Currently this can be done using the Liquidate Specific Fund (LSF) tool where you select a fund for liquidation with multiple options to select for reinvesting the proceeds.

The current LSF feature in the MFA Product requires that the user know the TICK(s) slated for liquidation. In some cases, whether it's a new account or an existing account, the non-model securities are not immediately known and hence it creates a problem as without specifying the TICK(s) clients cannot liquidate it. The enhancement would be to have the LSF identify the non-model securities by comparing held securities with the model. If there is a non-model fund held by the account, it will liquidate first. Reinvest the proceeds from the sale using your available options.

1. A user will be prompted to specify the reinvestment options:

```
+-------------------------------------------------------------------+
Manually Override The Allocation of Sales or Pro-Rate Across the Model
-------------------------------------------------------------------
OVERRIDE
PRORATE
          REBALANCE WITH PROCEEDS
+-------------------------------------------------------------------+
```

Option	Description
Override	The user is prompted to enter funds to purchase with an allocation that totals 100 percent. Press F10 to save.

Option	Description
Prorate	The system will pro-rate the proceeds according to the fund targets in the model. The user must select YES at the prompts to make the trades.
Rebalance with Proceeds	The system will use the proceeds to rebalance back to the model or sector. The user will be prompted to choose to rebalance to the sector or model. Once you specify to rebalance to either the sector or the model, that method will be used for all other rebalancing actions for the session.

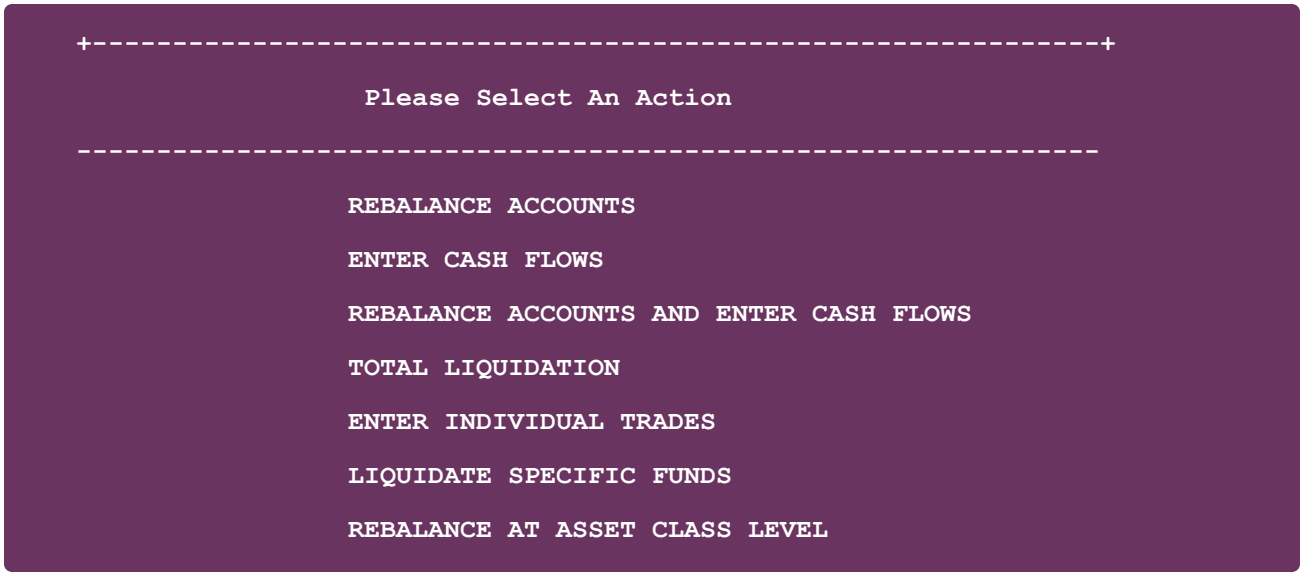
2. Select an option. Press Enter. Users may select another fund for the selected account
3. Type Y to repeat the process. Type N to proceed. Press Enter
4. Select a block title to load it into the system and return to the main menu

Rebalance at Asset Class Level

- This tool checks the account for any asset classes that have violated their drift parameters
- If drift is present, this tool will create trades to bring the drifted sector back into balance
- Please note that the variable will be applied for ETFs
- The user also has the ability to override drift tolerance
- Users are able to minimize mutual fund trades by both minimum dollar amount and minimum percentage of market value. This must be set up in the Account Option Maintenance Screen. By setting this up, users prevent unnecessarily small trades. Please see the “Rebalance Accounts” section of this chapter for further information regarding this

To rebalance accounts at the asset class level:

1. Select Ad Hoc Trading Screen from the menu. The following menu of options will be displayed:



```
                    TRADE CASH BALANCE

                    SET CASH OPTION

                    SET DRIFT REPORT OPTION

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

2. Select Rebalance At Asset Class Level
3. Select accounts to be rebalanced. Select the accounts you wish to include in rebalancing and press F10
4. Decide whether to override the product drift tolerance. Select YES or NO

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

       Would You Like to Override the Product Drift Tolerance ?

-------------------------------------------------------------

                          NO

                          YES

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

If YES, enter new upper and lower drift tolerances.

If the user enters values in the Min Trade $ and Min Percent Change fields on the Account Option/Maintenance Screen, the system will generate proposed trades, and then will compute, for each proposed trade, the percentage of market value that each proposed trade makes up. The minimum trade size will be determined by taking the greater of the entered Minimum Trade Amount and the calculated Minimum Trade Percentage based on the percentage of the market value. For example, if an account has a market value of $50,000, the entered Minimum Trade Amount is $800, and the Minimum Trade Percentage entered is 2 percent, the system will use the Minimum Trade Percentage as the minimum trade size, as 2 percent of $50,000 (the account's market value) is $1,000 (greater than the entered Minimum Trade Amount of $800).

5. Give the block of trades a title. Type a title for the block and press Enter

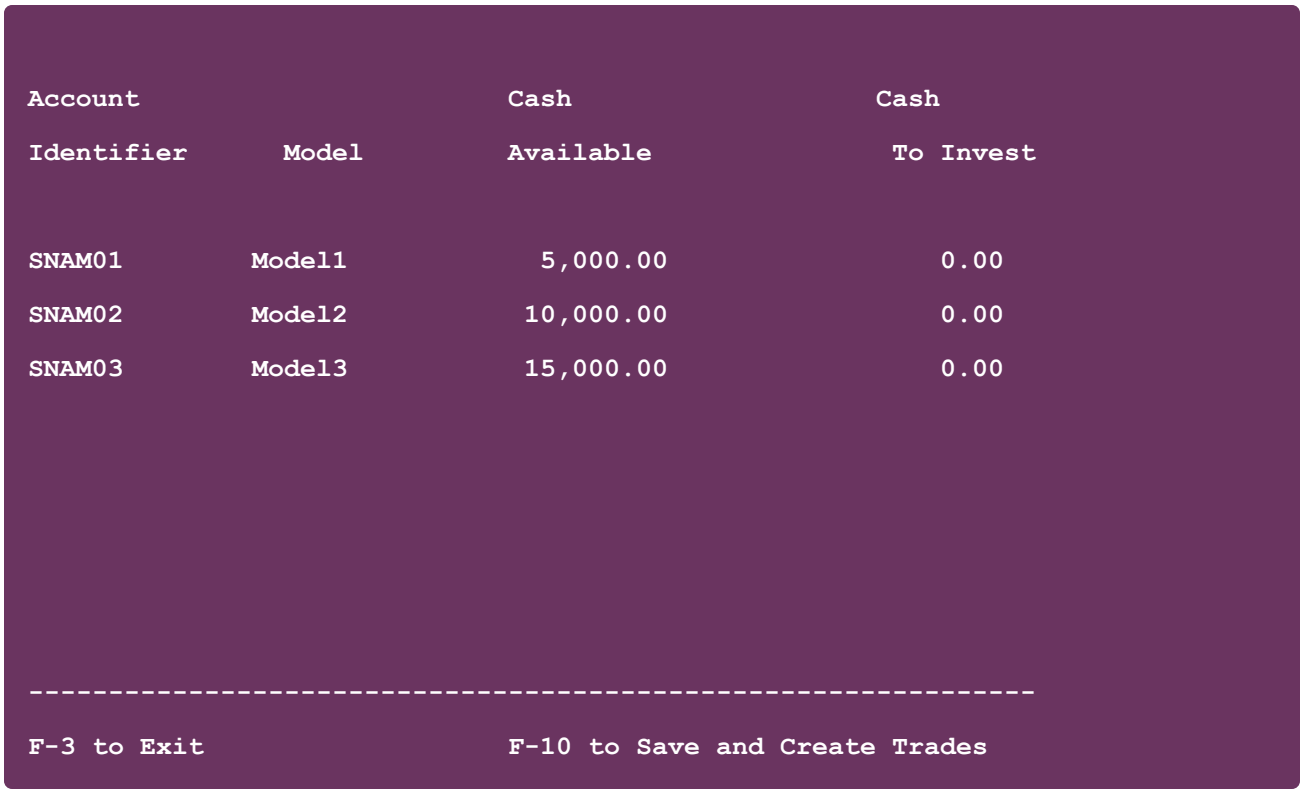
Trade Cash Balance

- By selecting this option, users may trade based on the current cash balance of the selected accounts
- Select multiple accounts for which to trade. After selecting the accounts to trade, the MFA Cash Investment screen will be displayed

```
  Tegra118                          12/11/07 10:06 A.M.


              MFA Cash Investment Screen

       ---------------------------------------
```



- The default value for the Cash to Invest field is 0. If the one of the selected account has negative cash, the Cash Available field will display 0. The user will not be able to invest any cash for accounts with a negative cash balance. Please note that the current cash balance includes committed cash
- Once the above screen is displayed, the user will be able to enter the cash to be invested, per account selected. For accounts with a positive cash balance, the user will enter the amount of cash to be invested in the Cash to Invest field. The value you enter in this field cannot be negative and cannot be greater than the current cash balance
- The cash entered in the Cash to Invest field will be invested using the pro-rate method according to the fund targets in the model. It is also important to note that the cash entered in the Cash to Invest field will NOT increase the account's Market Value
- After pressing F10 to save and create the trades, the user will be prompted to enter a Block Title
- Once the Trade Cash Balance process is completed, the block containing the trades will appear on the Block Order Status as uncommitted

Include or Exclude Cash

1. Enter on Set Cash Option
2. User will be prompted to select Include Cash or Exclude Cash
3. Choose to Include Cash, and the cash in your general ledger will be included when calculating drift as well as creating trades
4. Choose to Exclude Cash, the General Ledger Cash will be completely ignored

Set Drift Report Option

1. By selecting this option, the overnight rebalancing function will suppress all drift report generation during trade creation. For ad-hoc trading functions, drift report generation during trade creation will be a configurable option
2. After selecting this option, the user is prompted to EXCLUDE DRIFT REPORT or INCLUDE DRIFT REPORT
3. If EXCLUDE DRIFT REPORT is selected, the drift report will not be created
4. If INCLUDE DRIFT REPORT is selected, a drift report will be created for only those accounts that have traded, as opposed to accounts that have been selected but not traded. If the number of accounts that have traded exceeds 100, the drift report will not be created, and the following message will be displayed:

```
Total number of accounts traded exceeds 100, drift report suppressed for run
time consideration.
```

Chapter 8: Asset Class Programming

8.1 Mapping of securities to a designated Asset Type and Asset Class

The first step for a client is to choose which Funds will be offered in their program and to classify which Asset Class/Type each fund belongs to.

```
SAMPLE ASSET MANAGEMENT 06/01/05 8:59A.M.

Mutual Fund Style Maintenance Screen

-----------------------------------------------------

Code Asset Type  Asset Class

------ ---------- --------------------

1 Equity  Large Cap Equities

2 Equity  Mid Cap Equities

3 Equity  Small Cap Equities

4 Equity  International Equities

5 Equity  Emerging Markets

6 Equity  REITs

7 Bond  Taxable Bonds

8 Bond  Municipal Bonds

9 Bond  High Yield Bonds

10 Alternatives-Low Volatili Market Neutral

11 Cash Equivalent

-----------------------------------------------------------

F-3 to Exit F-10 to Save
```

What this table does

- Defines Asset Types and Asset Classes as entered by the user
- Categorizes which Asset Classes will be defined in an Asset Type
- Classifies a numeric CODE that will be mapped to the security master field, ASTCLS (or for Sponsors with Multiple Managers, ASTxxx, xxx determining which Manager – MGR)
- The ASTxxx field can be used to establish performance sectors for the asset classes
- Add, delete or edit and existing Asset Type and/or Asset Class
- Any time a user adds or edits this screen, the changes will be seen throughout all Products

Note: If a 0 is used in the CODE, when saved, the line will be deleted. This table is case sensitive. Enter Bond for the Asset Type with a lower case b, a new Asset Type will be created.

How to Input Data

1. To enter an Asset Class and Type, press ENTER at the last line for a new entry
2. To delete an Asset Type and Asset Class, press SHIFT + F6 on the line to be deleted
3. To edit Asset, overwrite any data
4. To classify a Code that will be tagged on the security level, enter any numeric value. The input number does not matter as long as the security is tagged with the same Code
5. Press F10 to save the table
6. If using APL for performance reporting, these Asset Classes can correspond with specific performance sectors. If a new Asset Class is added, the client will have to request that a new performance sector be added as well. These new sectors will be applicable to all accounts in the directory

Chapter 9: Drift Reporting

Drift reporting is designed for trading decisions that are based on current holdings versus the current model targets. “As of” drift reporting is not practical in practical in APL as model history is not maintained. Therefore, the MFA Drift reports will run based on today’s holdings, versus today’s models, and take into account any intra-day activity, including but not limited to committed trades.

9.1 Drift Report

A variation of the current drift report has been created. This report can also be run from Windows. The drift report will be broken down by Asset Type, then by Asset Class. The client can choose whether or not cash should be included as part of the Market Value.

The report will identify the drift type (Absolute or Relative) from the product that the account is linked to. When calculating drift, the report will account for replacement securities held instead of model originals

```
Account Snam    :ABC123              Mutual Fund Drift Report
Account Number : 12345678            ------------------------
Internal Account Num:  12345678             John Doe
                                     As of June 18, 2008


                                          Current        Actual    Ac
Fund   Security Description                Price          Value
------ ----------------------           -------        -------  --------


Mutual Fund
-----------

Alternative Investments
--------------------------------
ABCDE  TEST1                              11.0000       4,699.44
FGHIJ  TEST2                              29.1700       1,914.25
                                                       -----------
   Total Alternative Investments                       6,613.69
   Cash and Cash Equivalents
```

```
--------------------------------------------------------------------------------
More -->

      F-3  Exit
```

9.2 DRIFTSUMSECTMF

- This function will produce two reports for accounts outside of drift tolerance. One is a list of accounts to be read in via /READFILE for ad-hoc rebalancing. The other is a drift report for the accounts in violation
- When running this function, enter an As of Date, whether to include cash in the drift calculations, the number of the asset class to consider, whether to include in the report All Accounts or just those accounts that have drifted, and whether to create a file listing the account SNAMs that have drifted
- Same report layout as produced during the trading functions

9.3 Drift Disparity Report

- This report will show all funds within an Asset Class when the following two criteria are met:
  - The Asset Class is within the specified asset class tolerance defined in the Asset Class Maintenance screen
  - If at least ONE fund's drift is greater than or equal to the user specified fund level tolerance
- This report will be created per account and will display the following information:
  - Asset Class information
  - Security description and Ticker symbol
  - Market Value and Percentage
  - Relevant drift percentages for target and actual holdings

To run this report follow these steps:

1. Select DRIFT REPORT from the ASSET CLASS MUTUAL FUND PROGRAM menu
2. Type an AS OF DATE
   - The date must be in MM/DD/YYYY format
   - You may press Enter for today's date
3. Enter account selection criteria at the SEARCH FOR WHAT? prompt
4. Decide whether to include cash in the drift calculations. Enter YES or NO
5. At the Consider All Asset Classes or Selected Asset Classes0? prompt, enter ALL or SELECTED
6. Enter the fund level drift tolerance
   - The range of the drift tolerance is 0.01 and 100.00
   - The drift tolerance will go out two decimal places

- The value of the drift tolerance cannot be negative and applies to both upper and lower drifts
- Enter a value that does not fall between 0.01 and 100.00, and receive an error message stating the value must be a numeric value that falls in this range
- Enter a negative number at this prompt, and receive an error message stating that an invalid fund level drift tolerance was entered
- Enter 0 or leave this prompt blank, the Fund Level Drift Tolerance will take the value from the Position Level Disparity, and the Drift Type will take the value from the Disparity Type on the Model Maintenance Screen

7. At the Enter Drift Type prompt, enter Absolute or Relative
8. At the Do You Want to Create a File of Accounts that Have Drifted?, enter YES or NO

The report is then generated.

```
Account Snam    : AB1234          Mutual Fund Drift Disparity Report
PAGE 1

Account Number : 12345678       ----------------------------------

Internal Account Num: 12345678            JOHN DOE

                                      As of June 18, 2008


                                 Current   Actual    Actual  Target   Target
Drift     Drift

Fund   Security Description     Price     Value     Pct     Value    Pct
Value     Pct

------ -------------------     ---------  --------  ---   -------  -------  ---
----  ------
Equity

------


Emerging Markets

----------------

TEST1                          39.1800    5,356.89   4.91   5,453.02  5.00    -
96.13  -1.76

                              ---------   -----     ------  ----      ------

   Total Emerging Markets                                          5,356.89
4.91      5,453.02      5.00        -96.13   -1.76
```

```
   International Equities
   ----------------------

TEST2                      27.2900     5,373.46    4.93   5,453.02  5.00    -
79.56   -1.46

TEST3                       69.1200     5,698.81    5.22   5,453.02  5.00
245.79    4.51

                           ---------    ------    -------   ------   -------
-----

Total International Equities           11,072.27   10.15  10,906.04   10.00
166.23   1.52



   Large Cap Equities
   ------------------

TEST4                       35.1100  45,891.40  42.08  46,895.99  43.00  -
1,004.59     -2.14

                           --------  ------    ------ ------    -------  -----
-

Total Large Cap Equities            45,891.40  42.08   46,895.99  43.00   -
1,004.59 -2.14
```

9.4 Multi-Account Position Drift Report

This report will accommodate position drift for a specified security or securities (including alternate securities), based on a tolerance entered at run-time. Additionally, the report will report on a security or securities that have drifted based on the lower and upper ranges stored at the product level.

The report will indicate:

- Which security or securities have drifted based on a position tolerance defined at the product level
- Any non-model security held in the account as drifted
- Any model security not held in the account as drifted (Box-In)
- Accounts with negative Cash as drifted

The report can be run for multiple models, with a section per model where the model selection will be designated via account selection. This report will display only the funds that violate the tolerance entered for the accounts selected; uncommitted trades that violate a restriction will NOT be displayed on the report.

The following will also be indicated on the report:

- committed trades (denoted with an asterisk)
- alternate security trades (denoted with an A)
- committed restricted trades (denoted by an asterisk and an R)

Users can also produce an optional file of account IDs for use in trading tool account selection. It is important to note that committed trades and intra-day cash adjustments will be included in this report, and the calculated percentages displayed on the report will be based on market value. Uncommitted restricted securities will NOT appear on the report; this will apply to alternate securities as well.

To run this report, follow these steps:

> **Note:** The report will reflect the selections you make: Tick or Drift, Yes or No, Securities (e.g., HOT, SEC, ALL), P(Product) or M(Manual).

- If “M” is entered, the report will be based on the existing Manual Overrides
- If “P” is entered, then bypass all tolerance prompts and use the position tolerance defined at the product level

1. Select Multi-Account Position Drift Report from the ASSET CLASS MUTUAL FUND PROGRAM menu
2. At the SEARCH FOR WHAT? prompt, type the identifier of the account(s) for which you wish to include in the report, and press Enter

```
SEARCH FOR WHAT?
```

3. At the Please Select A Secondary Sort; by Tick or Drift? prompt, type T or D; press Enter

```
Please Select A Secondary Sort; by Tick or Drift?
```

4. Run this report for a specific set of securities. At the following prompt, type YES or NO; press Enter

```
Would you like to run for a Specific set of securities?
```

If not running this report (by entering N), go to Step 7 for the next prompt.

If running this report (by entering Y) for a set of securities, enter the securities to be included in the report.

5. At the SEARCH WHICH FILES? prompt, enter HOT, SEC, or ALL; press Enter

```
Search Which Files (Blank for Help, 'ALL' for ALL files):?
```

6. The SEARCH FOR WHAT? prompt will appear. Enter your criteria (e.g. TICKE EQ HAINX) or criteria to exclude securities (e.g. TICK NE IBM); press Enter

```
SEARCH FOR WHAT?
```

7. At the Do you want to use Product Parameters or Manual Overrides? prompt, type P or M; press Enter

```
Do you want to use Product Parameters or Manual Overrides?
```

- Choose P, and go to Step 10
- Choose M, and go to Step 8

8. Define the drift tolerance for the securities being included in the report. At the following prompt, enter a value between 0.00 and 100.00. Or press Enter for 0.00

```
Enter Desired Tolerance Value for Securities (Enter for None):
```

9. Define the drift tolerance for cash. At the following prompt, enter a value between 0.00 and 100.00. Or press Enter for 0.00

```
Enter Desired Tolerance Value for Cash (Enter for None):
```

The cash in the model will be evaluated separately for cash drift using this tolerance.

10. Create a file of accounts that have drifted. Type YES or NO; press Enter

```
Do you want to create a file of accounts that have drifted?
```

11. A list of commands will follow and a report will be generated: DRIFTSECTMFBYPOSITION.CSV, DRIFTSECTMFBYASSET.LRP

Accounts that have a drift can be found in DRIFTASSETACTS.PRN

12. Use the BROWSE command to view the report:

```
                                FISERV INVESTMENT SERVICES                                  PAGE 1
                    Multi Account Position Drift Report with Restriction Auditing
                                 Accounts Chosen : ABC123
                                   As of March 5, 2012

Model Name: EQY001      Product Name: ACREQY      Security Tolerance : 0.00

   Account            WTOTAL   RR MGR    ADM    FDTYPE    OPEDT              FREQ OBJECT    RECPOS    RECASH LAST DRIFT DATE
   ABC123         408,400.00   90 MFA           MFETF  09/30/04         ACT. 13/13        00/00/00 00/00/00  00/00/00


               Target    Actual                   Drift
  Security       Pct       Pct         Units        Pct
  --------  --------  --------  ------------  --------
   CASH -1      0.00     77.47     8000.0000     77.47
   xyz123      30.00      0.00        0.0000    -30.00
   xyz124      30.00      0.00        0.0000    -30.00
    12345       0.00     22.53      920.0000     22.53
   123456      16.00      0.00        0.0000    -16.00
   XYZ123      14.00      0.00        0.0000    -14.00
   XYZ124      10.00      0.00        0.0000    -10.00
```

9.5 Multi-Account Asset Drift Report

This report will accommodate position level drift for a specified security or securities, based on a tolerance entered at run-time. Additionally, the report will report on a security or securities that have drifted, based on the lower and upper ranges stored at the product level. The report will display both position and asset class drift for all funds for all accounts selected when at least one fund violates the tolerance entered.

The report can be run for multiple models, with a section per model. When the position tolerance is violated for a security held in an account, then all securities for the account will be included in the report. The same holds true for class drift; if the user decides to evaluate asset class drift while running the report, then all securities for the account will be included in the report when the asset class tolerance is violated for an asset class of an account.

The following will also be indicated on the report: committed trades (denoted with an asterisk), alternate security trades (denoted with an A), and committed restricted trades (denoted by an asterisk and an R). You will also have the ability to produce an optional file of account IDs for use in trading tool account selection. It is also important to note that committed trades and intra-day cash adjustments will be included in this report, and the calculated percentages displayed on the report will be based on market value.

The report will reflect the selections you make: Tick or Drift, Yes or No, Securities (e.g., HOT, SEC, ALL), P (Product) or M(Manual).

- If “M” is entered, the report will be based on the existing Manual Overrides
- If “P” is entered, then bypass all tolerance prompts and use the position tolerance defined at the product level

To run this report, select Multi-Account Asset Drift Report from the ASSET CLASS MUTUAL FUND PROGRAM menu.

1. At the SEARCH FOR WHAT? prompt, type the identifier of the account(s) for which you wish to include in the report, and press Enter

```
SEARCH FOR WHAT?
```

2. At the Do you want to use Product Parameters or Manual Overrides? prompt, type P or M; press Enter

```
Do you want to use Product Parameters or Manual Overrides?
```

3. Run this report for a specific set of securities. At the following prompt, type YES or NO; press Enter

```
Would you like to run for a Specific set of securities?
```

- Choose N, and go to Step 7
- Choose Y, and go to Step 5

4. At the SEARCH WHICH FILES? prompt enter HOT, SEC, or ALL; press Enter

```
Search Which Files (Blank for Help, 'ALL' for ALL files):?
```

5. The SEARCH FOR WHAT? prompt will appear. Enter your criteria (e.g. TICKE EQ HAINX) or criteria to exclude securities (e.g. TICK NE IBM); press Enter

```
SEARCH FOR WHAT?
```

6. Define the drift tolerance for the securities being included in the report. At the following prompt, enter a value between 0.00 and 100.00. Or press Enter for 0.00

```
Enter Desired Tolerance Value for Securities (Enter for None):
```

7. Evaluate asset classes. Type YES or NO at the following prompt, and then press Enter

```
Evaluate Asset Class?
```

If YES to the above prompt, define the drift tolerance for the asset class. At the following prompt, enter a value between 0.00 and 100.00. You may also press Enter for 0.00.

```
Enter Desired Asset Class Tolerance (Enter for None):
```

If the asset level tolerance is violated for at least one asset class, then all securities for the account will not be included in the report.

8. Define the drift tolerance for cash. At the following prompt, enter a value between 0.00 and 100.00. Or press Enter for 0.00

```
Enter Desired Tolerance Value for Cash (Enter for None):
```

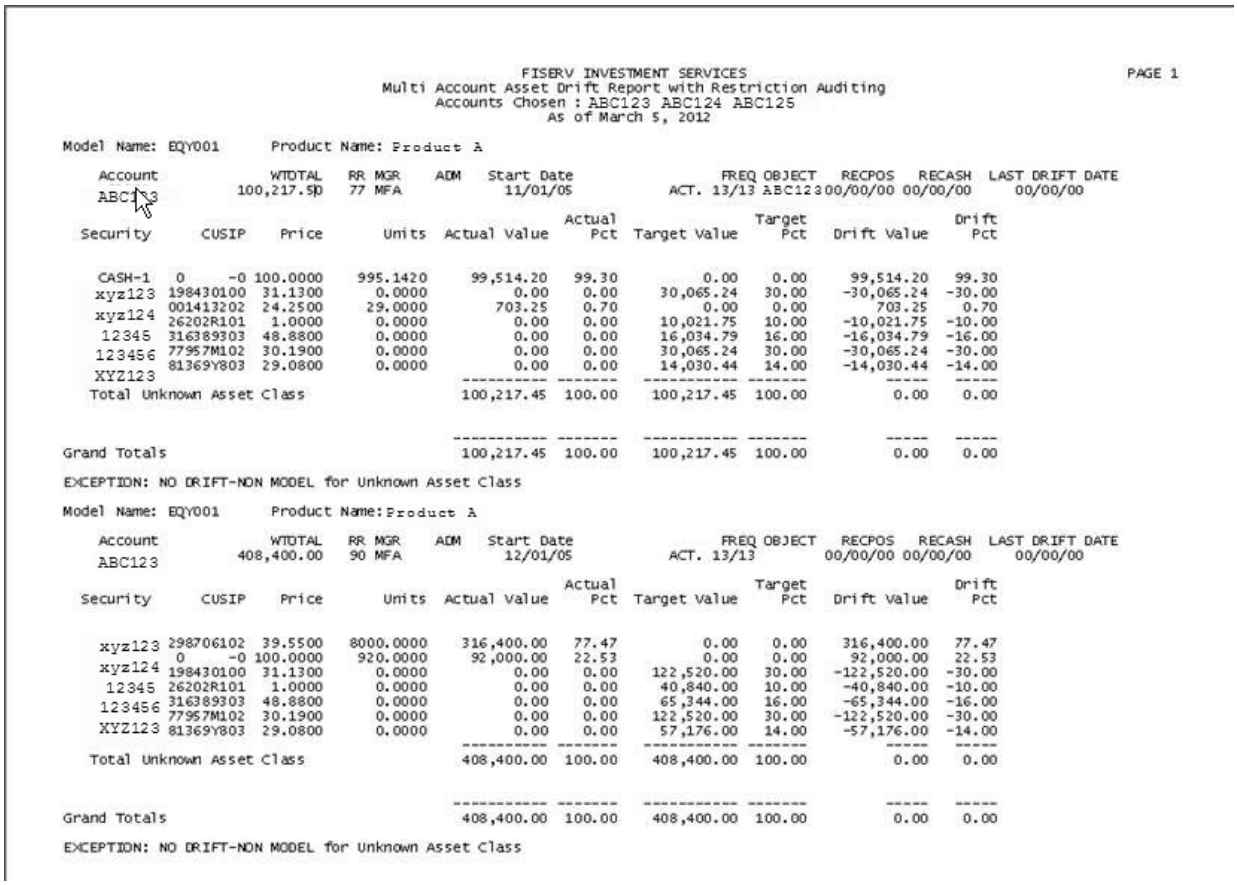
The cash in the model will be evaluated separately for cash drift using this tolerance.

9. Create a file of accounts that have drifted. Type YES or NO; press Enter

```
Do you want to create a file of accounts that have drifted?
```

- A list of commands will follow and a report will be generated: DRIFTSECTMFBYPOSITION.CSV, DRIFTSECTMFBYASSET.LRP
- Accounts that have a drift can be found in DRIFTASSETACTS.PRN

10. Use the BROWSE command to view the report:



FISERV INVESTMENT SERVICES PAGE 1
Multi Account Asset Drift Report with Restriction Auditing
Accounts Chosen : ABC123 ABC124 ABC125
As of March 5, 2012

Model Name: EQY001 Product Name: Product A

Account	WTDTAL	RR MGR	ADM	Start Date	FREQ OBJECT	RECPOS	RECASH	LAST DRIFT DATE
ABC123	100,217.50	77 MFA		11/01/05	ACT. 13/13 ABC123	00/00/00	00/00/00	00/00/00

Security	CUSIP	Price	Units	Actual Value	Actual Pct	Target Value	Target Pct	Drift Value	Drift Pct
CASH-1	0 -0	100.0000	995.1420	99,514.20	99.30	0.00	0.00	99,514.20	99.30
xyz123	198430100	31.1300	0.0000	0.00	0.00	30,065.24	30.00	-30,065.24	-30.00
xyz124	001413202	24.2500	29.0000	703.25	0.70	0.00	0.00	703.25	0.70
12345	26202R101	1.0000	0.0000	0.00	0.00	10,021.75	10.00	-10,021.75	-10.00
123456	316389303	48.8800	0.0000	0.00	0.00	16,034.79	16.00	-16,034.79	-16.00
XYZ123	77957M102	30.1900	0.0000	0.00	0.00	30,065.24	30.00	-30,065.24	-30.00
Total Unknown Asset Class	81369Y803	29.0800	0.0000	0.00	0.00	14,030.44	14.00	-14,030.44	-14.00
				100,217.45	100.00	100,217.45	100.00	0.00	0.00
Grand Totals				100,217.45	100.00	100,217.45	100.00	0.00	0.00

EXCEPTION: NO DRIFT-NON MODEL for Unknown Asset Class

Model Name: EQY001 Product Name: Product A

Account	WTDTAL	RR MGR	ADM	Start Date	FREQ OBJECT	RECPOS	RECASH	LAST DRIFT DATE
ABC123	408,400.00	90 MFA		12/01/05	ACT. 13/13	00/00/00	00/00/00	00/00/00

Security	CUSIP	Price	Units	Actual Value	Actual Pct	Target Value	Target Pct	Drift Value	Drift Pct
xyz123	298706102	39.5500	8000.0000	316,400.00	77.47	0.00	0.00	316,400.00	77.47
xyz124	0 -0	100.0000	920.0000	92,000.00	22.53	0.00	0.00	92,000.00	22.53
12345	198430100	31.1300	0.0000	0.00	0.00	122,520.00	30.00	-122,520.00	-30.00
123456	26202R101	1.0000	0.0000	0.00	0.00	40,840.00	10.00	-40,840.00	-10.00
XYZ123	316389303	48.8800	0.0000	0.00	0.00	65,344.00	16.00	-65,344.00	-16.00
Total Unknown Asset Class	77957M102	30.1900	0.0000	0.00	0.00	122,520.00	30.00	-122,520.00	-30.00
	81369Y803	29.0800	0.0000	0.00	0.00	57,176.00	14.00	-57,176.00	-14.00
				408,400.00	100.00	408,400.00	100.00	0.00	0.00
Grand Totals				408,400.00	100.00	408,400.00	100.00	0.00	0.00

EXCEPTION: NO DRIFT-NON MODEL for Unknown Asset Class

9.6 Processing Fees from Fee File: Raise Cash for Fees

Clients are given the option to pay fees out of pocket or liquidate funds to cover the fee. For those accounts that are coded as SHARES in the fee option of the Account Option Maintenance Screen, selling out of the fund with the highest positive amount (in dollars) will cover fees. The account's cash balance will be checked. If there is enough available cash in the account, no trades will be created, and the fee will be paid from the available cash. If there is not enough cash to pay the fee, cash will need to be raised back to the target model percentage plus raise the dollar amount to cover the fee. Please keep in mind trades will not be created for any amount under $100.

This function can be run from Windows and accepts a two-column CSV file with account number and fee dollar amount only.

The end result is that for all accounts coded correctly, trade block will be created. In addition, as with all trading functions, a drift report is created for each account that ran.

After being prompted for the file name, the system will ask if you wish to debit the General Ledger. If you choose to do so, the system will, after creating the trades, post an entry to the General Ledger.

```
DLV CASH-1  13321  20050728  0  100 *PENDING FEE
```

9.7 Uploading Product and Model information: UPLOADMFADATA

- Upload Product and Model information, either on-line or via batch from an uploaded file, which will follow a standard layout. The function will add new data or update existing data
- This utility can run multiple products and model uploads throughout the day
- Enter the uploaded file name containing product and/or model data
- The processed file will be archived and renamed with the date and time extension once it has been run. This will be done in a control job
- The archived file will be deleted after 3 days
- The file will contain up to six record types:
- Record Type 1 – Product Header Record
- Record Type 2 – Product Asset Type Record

In Record Type 2, each asset type with lower and upper ranges will be on a separate row; use a new row for each asset type.

- Record Type 3 – Product Asset Class Record
- In Record Type 3, each code, with lower and upper ranges and lower and upper drifts, will be on separate rows; use a new row for each code
- Record Type 4 – Model Header Record
- Record Type 5 – Model Fund Detail Record
- In Record Type 5, all model name, TICK and % allocation will be on separate rows; the combination of the rows' % must equal 100
- Record Type 6 – Model Alternate Fund Detail Record
- In Record Type 6, all model name, TICK and alternate TICK will be on separate rows

This file can contain any combination of the following:

- Adding Product Data
- Adding Product and Model Data
- Adding Product and Model Data (SNAM Model Validation)
- Adding Product and Model Data (including Alternate Funds)
- Update Product Data
- Update Product Data and Add Model Data
- Update Product and Model Data
- Update Model Data only

- Update Model Data only (including alternate funds)
- Update Model Data Only – Alternate Funds only

When **adding Product** data:

- Record Type 1 must be included in the file
- The Drift Basis field is a required field. Leaving this field blank will cause an error
- When data is not received for the Position Tolerance field, the position tolerance will default to 0.00
- When data is not received for the Asset Type Lower Range field, the lower range for the asset type will default to 0.00
- When data is not received for the Asset Type Upper Range field, the upper range for the asset type will default to 0.00
- When data is not received for the Asset Class Lower Range field, the lower range for the asset class will default to 0.00
- When data is not received for the Asset Class Upper Range field, the upper range for the asset class will default to 0.00
- When data is not received for the Asset Class Lower Drift field, the lower drift for the asset class will default to 0.00
- When data is not received for the Asset Class Upper Drift field, the upper drift for the asset class will default to 0.00
- After successfully adding a product, all data will appear in the Asset Type and Asset Class Maintenance screens

When **updating Product** data:

- The MGR code and product name are used to locate the product
- The asset type is used as a lookup to asset type data
- When updating Asset Type data (Record Type 2), the asset type data received replaces all previous asset type data for the product. If the asset type does not exist in the product but does exist in the Mutual Fund Style Maintenance screen, then it will be added
- The code is used as a lookup asset class data
- If the asset type entered exists, then use it as a lookup to update the lower and upper ranges
- When updating Asset Class data (Record Type 3), the asset class data received replaces all previous asset class data for the product. If the asset class does not exist, then it will be added

When **adding Model** data:

- Record Type 4 must be included
- Short name indicator default is N when no data is received for this field
- If the short name is longer than 6 characters, only the first 6 characters will be used
- Funds must add up to 100%
- The funds added must have a code assigned. The code must also exist in the Asset Class/Type of the product

- Alternate funds must also have a code assigned. This code must also exist in the Asset Class/Type of the product. The alternate fund must also belong in the same asset class as the original fund. If uploading a model with multiple alternate funds and at least one of the alternate funds is not in the same asset class, then the alternate data will not be updated
- When adding model data, please note that the Product must already exist in the system for a given model to be uploaded
- The funds added must have a code assigned. The code must also exist in the Asset Class/Type of the product

When **updating Model** data:

- When updating fund data (Record Type 5), all previous fund data will be wiped out and replaced with the new funds received. This is a replacement of previous fund data (including alternate funds)
- When updating alternate fund data (Record Type 6), all previous alternate fund data will be wiped out and replaced with the new alternate funds received
- Funds must add up to 100%
- The funds added must have a code assigned. The code must also exist in the Asset Class/Type of the product
- Alternate funds must also have a code assigned. This code must also exist in the Asset Class/Type of the product. The alternate fund must also belong in the same asset class as the original fund. If uploading a model with multiple alternate funds and at least one of the alternate funds is not in the same asset class, then the alternate data will not be updated

Product data and Model data will not be added into APL for the following cases:

- The Manager Code is missing or not found
- The transaction type is not valid
- The product name exists for ADD transactions
- The model name exists for ADD transactions
- The product name does not exist for a Model ADD
- Record Type 1 for a Product and a Record Type 4 for a Model are not included

Product Fund records will not be added into APL for the following cases:

- Product Asset Type Upper Range does not add up to 100
- Product Asset Class Upper Range does not add up to 100
- Code does not exist in Mutual Fund Style Maintenance screen

Model Fund Records will not be added into APL for the following cases:

- Funds do not add up to 100% allocation
- One or more funds do not have a code assigned
- One or more funds do not exist in the Asset Class/Type of the product

Alternate Fund data will not be added into APL for the following cases:

- One or more alternate funds do not have a code assigned
- One or more alternate funds do not exist in the Asset Class/Type of the product

- One or more alternate funds do not belong to the same asset class as the original fund

> **Important:** ONLY the alternate fund in error will not be added into APL.

File Layout

Header information

Field	Field Attribute	Field Description
Header Indicator	Must be H.	This is a required field and contains the Header Identifier.
Run Date	Must be in the YYYYMMDD format.	This is a required field and contains the date the file was received.
Run Time	Must be in the HH:MM:SS format.	This is a required field and contains the time the file was received.

Trailer information

Field	Field Attribute	Field Description
Trailer Indicator	Must be T.	This is a required field and contains the Trailer Identifier.
Number of Records	Must be in the YYYYMMDD format.	This is a required field and contains the date the file was received.

Product Detail Header Record

Field	Field Attribute	Required	Field Description
Record Type	Numeric field with a maximum of 1 character allowed. The value in this field must equal 1.	Yes	Product Identifier Record Type. This must be included when adding a new product.
MGR Code	Alphanumeric field with a maximum of 3 characters allowed.	Yes	The Manager Code
Product Transaction Type	Alphabetic field with a maximum of 1 character allowed. The value in this field must equal A or U.	Yes	The Product Transaction Type. A = Adding New Product Data

Field	Field Attribute	Required	Field Description
			U = Updating Product Data
Product Name	Maximum of 6 characters	Yes	Product Identifier, Product Name
Product Description	Maximum of 30 characters.		Description of the product
Drift Basis	Alphabetic field. The value in this field must equal ABSOLUTE or RELATIVE	Yes	The position drift tolerance for the product.
Position Tolerance	Numeric field. The value must fall between 0.00 and 100.00		The position drift tolerance for the product.

Product Asset Type Detail Record

Field	Field Attribute	Required	Field Description
Record Type	Numeric field with a maximum of 1 character allowed. The value in this field must equal 2.	Yes	Identifier for the Product Asset Types.
MGR Code	Numeric field with a maximum of 1 character allowed. The value in this field must equal 2.	Yes	The Manager Code
Product Name	Maximum of 6 characters.	Yes	Product Identifier, Product Name
Code	This is an alpha-numeric field	Yes	Identifies which Asset Class/Type each fund belongs to. The contents of the Asset Class/Type filed are retrieved from the Mutual Fund Style Table. The System scans the Mutual Fund Style Table to locate the code.
Lower Range	Numeric field. The value must fall between 0.00 and 100.00.		Assign the allocations for the Lower Ranges for the Asset Class.

Field	Field Attribute	Required	Field Description
Upper Range	Numeric field. The value must fall between 0.00 and 100.00		Assign the allocations for the Upper Ranges for the Asset Class.
Lower Drift	Numeric field. The value must fall between 0.00 and 100.00		Assign the Lower Range Drift for the Asset Class.
Upper Drift	Numeric field. The value must fall between 0.00 and 100.00		Assign the Upper Range Drift for the Asset Class

Model Detail Header Record

Field	Field Attribute	Required	Field Description
Record Type	Numeric field with a maximum of 1 character allowed. The value in this field must equal 4.	Yes	Identifier for the Model. Must be included when adding a new model.
MGR Code	Alphanumeric field with a maximum of 3 characters allowed.	Yes	The Manager Code.
Model Transaction Type	Alphabetic filed with a maximum of 1 character allowed. The value in this filed must equal A or U.	Yes	The Model Transaction Type. A = Adding new Model Data U = Updating Model Data
Product Name	Maximum of 6 characters.	Yes	Product identifier, product name
Model Name	This is an alphanumeric filed with a maximum of 6 characters allowed.	Yes	The Model Name
Model Description	This is an alphanumeric field		The Model Description

Field	Field Attribute	Required	Field Description
Short Name Indicator	This is an alphabetic field with a maximum of 1 character allowed.	Yes	Short name indicator defaults to N. When the short name indicator is set to Y, then validate that the Model SNAM also exists as an Account on the system. Short name indicator validation applies Adds only.
Restriction Method	Alpha-numeric	No	Valid Restriction Method Options: CASH Prorate All Prorate By Asset Type Prorate By Asset Class Override any restrictions found

Model Fund Record

Field	Field Attribute	Required	Field Description
Record Type	Numeric field with a maximum of 1 character allowed. The value in this field must equal 5.	Yes	Identifier for adding/updating funds in a model.
MGR Code	Alphanumeric field with a maximum of 3 characters allowed.	Yes	The Manager Code.
Product Name	Maximum of 6 characters	Yes	Product Identifier, Product Name
Model Name	This is an alphanumeric field with a maximum of 6 characters allowed	Yes	The Model Name
Tick	This is an alphanumeric field with a maximum of 6 characters allowed.	Yes	The ticker symbol
Allocation %	This is an alphanumeric field with a maximum of 6 characters allowed.	Yes	The percent of the allocation.

Alternate Fund Record

Field	Field Attribute	Required	Field Description
Record Type	Numeric field with a maximum of 1 character allowed. The value in this field must equal 6.	Yes	Identifier for the Alternate Funds.
MGR Code	Alphanumeric field with a maximum of 3 characters allowed.	Yes	The Manager Code.
Product Name	Maximum of 6 characters.	Yes	Product Identifier, Product Name
Model Name	This is an alphanumeric field with a maximum of 6 characters allowed.	Yes	The Model Name
Tick	This is an alphanumeric field with a maximum of 6 characters allowed.	Yes	The ticker symbol.
Alternate Tick	This is an alphanumeric field with a maximum of 6 characters allowed.	Yes	The alternate ticker symbol to be used.

9.8 Generated Report

The system will generate an output report, which displays:

- Product Data has not been loaded into APL
- Model Data has not been loaded into APL
- Products that were added without any data
- Models that were added without any data
- Total number of adds, updates, and errors for Products and for Models

```
XYZVESTME                          04/24/08 3:33 P.M

                                Product/Model Upload Summary Report

                                --------------------------------

                                   Input File: xyzico.csv


The following product data has not been loaded in to APL

=========================================================

Product

Name         Reason
```

```
------      ----------------------------
PROD3       Invalid Drift Basis on Product Record
PROD3       Product Name or Manager Not Found on Asset Type Record
PROD7       Product Name or Manager Not Found on Asset Class Record

The following model data has not been loaded in to APL
=======================================================
Product    Model
Name       Name       Reason
------    ------     ----------------------------
PROD1      MODEL5  Model Name is Not a Valid APL Account SNAM
PROD2      MODEL3  Invalid Asset Classes on Model Record
PROD1      MODEL2  Asset Class Mismatch on Alternative Security Record

The Following Products Were Added Without Any Data
==================================================
PROD4

The Following Models Were Added Without Any Data
================================================
MODEL3    MODEL4

Total Unknown Record Type Adds/Updates:             0
Total Unknown Record Type Errors:                    0
Total Product Record Adds/Updates:                      3
Total Product Record Errors:                          1
Total Asset Type Record Adds/Updates:                6
Total Asset Type Record Errors:                        3
Total Asset Class Record Adds/Updates:               6
Total Asset Class Record Errors:                       9
Total Model Record Adds/Updates:                     4
```

Total Model Record Errors: 1

Total Allocation Record Adds/Updates: 4

Total Allocation Record Errors: 2

Total Alternative Security Record Adds/Updates: 1

Total Alternative Security Record Errors: 2

Error Reports and Pop-ups for Fees and Systematic Withdrawals

For accounts that do not have enough money to cover a fee or a systematic withdrawal, a report exists to run every time the Nightly Rebalancer and the fee functions run. In addition, we have created an online popup if the end user tries to enter a systematic withdrawal that is larger than the total market value of the account. Below is the Online Popup for accounts that do not have enough market value for an Ad-Hoc Systematic Withdrawal:

Warning!!! Reducing Sales To Avoid Overselling

Account Number : 123456555555

Tick	Calculated Sale	Actual Sale	Difference
OGNIX	50,000.00	34,897.73	15,102.27
OHYFX	80,000.00	49,677.87	30,322.13
PBMCX	90,000.00	58,485.22	31,514.78
FLMVX	80,000.00	61,612.25	18,387.75
HLIPX	80,000.00	50,286.50	29,713.50
SEIFX	180,000.00	22,000.74	57,999.26
HLPXX	10,000.00	6,583.45	3,416.55
SEIFX	180,000.00	122,000.74	57,999.26
HLPXX	10,000.00	6,583.45	3,416.55
HAINX	30,000.00	22,461.79	7,538.21
MSUSX	100,000.00	62,812.51	37,187.49
TORYX	150,000.00	103,747.50	46,252.50
RYPNX	30,000.00	21,156.59	8,843.41

```
MFOCX        120,000.00       7,804.45       42,195.55
             --------------     ----------------    --------------
Total           1,000,000.00          671,526.60        328,473.40
```

9.9 Fee error report for accounts with not enough money to cover a fee

This report will be produced every time the fee function runs. It will either be blank or contain accounts that had problems.

```
   Accounts With Not Enough to Sell to Cover Fees                  PAGE 1
   ----------------------------------------------

           Report Created : 06/15/05 10:46 A.M.


Account              Calculated                Actual
Number     Tick           Sale                   Sale      Difference
-------     ------   --------------            --------    -----------
DDTEST     OHYNX        50000.00                40000.00     10000.00
MDTEST     HLIPX        80,000.00               50,286.50    29,713.50
```

9.10 Error report for accounts with not enough money for systematic withdrawal during nightly processing

This report will be produced every time the nightly rebalance function runs. Remember that the nightly rebalance function also processes systematic withdrawals. If an account is due for a systematic withdrawal and there is not enough money in the account to cover the withdrawal, then an error report is produced. This report is produced nightly, whether it is blank or not.

```
      Accounts With Not Enough to Sell                    PAGE 1
```

```
      ---------------------------------

     Report Created : 06/15/05 10:46 A.M.


Account                Calculated          Actual
Number      Tick             Sale             Sale       Difference
-------            ----      ----------           ---------       -------------
-


  OGNIX                50,000.00     9,016.40        40,983.60
  SEHYX                25,000.00       5,199.74        19,800.26
  PBMCX                60,000.00      13,211.09   46,788.91
  WATFX                65,000.00      14,348.76  50,651.24
  HGOXX                10,000.00         20.00       9,980.00
  HAINX                50,000.00       9,932.55   40,067.45
  PRMSX                25,000.00       5,347.30        9,652.70
  TORYX               115,000.00  21,927.17     93,072.83
  SUIEX          25,000.00          5,668.07      19,331.93
  RYTRX                75,000.00   14,335.53        60,664.47
                      -----------      -----------     ------------
  Total                  500,000.00       99,006.61       400,993.39
```

9.11 Accounts in the midst of a 2-day event

When an overnight rebalance is run, accounts in the midst of a 2-day event, via the Liquidate Specific Funds function, will be ignored (no trades will be generated) and the account information will be logged to a report.

```
------------------------------------------------------------------------------

   Accounts Excluded from the Nightly Processing                    PAGE 1


          Report Created : 01/18/07 10:46 A.M.
```

```
Account        Account
Identifier       Name
---------    ---------------
SNAM1           Account A
SNAM2           Account B
SNAM3           Account C



--------------------------------------------------------------------------------
        ESC Exit              F1  Help      F3 Main Menu
--------------------------------------------------------------------------------
```

9.12 Missing Sales Executions report

This report will list the Liquidate Specific Fund sales which have proceeds missing from EDPORT. If there are more than 100 orders, the report will only list the first 100; the report will indicate how many orders are logged and the total amount of orders.

```
--------------------------------------------------------------------------
  Liquidate Specific Funds - Missing Sale Executions          PAGE 1


               Report Created : 01/18/07 10:46 A.M.



The following LSF sale orders are displayed: the sales proceeds have not been
posted to EDPORT.  Therefore the Day 2 Purchases were not generated.


Account        Liquidated
Identifier        Shares           Fund
---------      ----------         --------


SNAM01              1,000         Fund01
SNAM01              1,000         Fund02
```

```
SNAM01              1,000         Fund03
SNAM01              1,000         Fund04
SNAM02              1,000         Fund02
SNAM03              1,000         Fund02
SNAM03              1,000         Fund02

Total number orders is 200 - Only the first 100 orders are logged


--------------------------------------------------------------------------
        ESC Exit              F1  Help      F3 Main Menu
--------------------------------------------------------------------------
```

9.13 Fund Swap within Models

(Option #3 on the Sample Menu)

The fund swap tool can change a Fund in multiple models according to an account selection:

1. This can be run from the WHICH FUNCTION? prompt
2. A user will enter the original fund and the new fund
3. A user will be prompted for an account selection
4. The tool will search through all of the Models for those accounts and will change the original fund to the new fund
5. The new fund will have the same percentage allocation as the original
6. If assigned alternate securities to the fund that is being removed, these alternate securities will also be removed. The following prompt will appear:

```
One or more models contain the replace security already. Would you like to
continue with the swap?
```

7. A YES response will continue with the replacement for all accounts listed. The target percentage of the removed fund will be added to that of the existing model fund. A NO response will exclude the listed accounts from the fund swap. The output report will include only those models that held the new fund already. The report will display the models, linked products and linked accounts, with the account ID and name

9.14 Trade Order Minimum report

- This report is a list of accounts that had Trade Order Minimum violations
- This report will be produced every time a nightly rebalance runs. Also, a pop up window will be displayed when the user runs an Ad-Hoc trading tool
- The report and/or pop up window will display accounts that had violations. If there weren't any violations, then a report will not be created after a nightly rebalance is run nor will a pop up window be displayed after running an Ad-hoc trading tool
- The report will be sorted by Account ID
- The report will display the following information:

```
         Tegra118                              06/11/05 10:06 A.M.

          Warning!!! Following Orders Invalid as per Minimum Trade Amount


Account      Amount                             Transaction    Trade
Minimum
  ID         Minimum           Tick                Type    Amount
Type
      1         500.00          FUND-A             BUY       $250       ORDER_
MIN_AMT
      1         500.00          FUND-C             BUY       $350       ORDER_
MIN_AMT
      2       1,000.00          FUND-A             BUY       $400 BLOCK_MIN_
AMT
      2       1,000.00          FUND-B             BUY       $250  BLOCK_MIN_
AMT
      2       1,000.00          FUND-C             BUY       $300    BLOCK_
MIN_AMT
      2       1,000.00          FUND-D            SELL      $400       BLOCK_
MIN_AMT
      2       1,000.00          FUND-E            SELL      $250       BLOCK_
MIN_AMT
      3         500.00          FUND-A             BUY        $250  ORDER_BUY_
MIN_AMT
      3         500.00          FUND-C             BUY       $350    ORDER_
BUY_MIN_AMT
      3         500.00          FUND-A             BUY       $400    ORDER_
BUY_MIN_AMT
```

- Account ID
- Amount Minimum
- TICK
- Transaction Type
- Trade Amount
- Minimum Type

Chapter 10: Managing Settlement Differences

10.1 Specifying the settlement period

Models can contain load and no load mutual funds or ETFs and mutual funds. Since these different types of mutual funds and ETFs follow different settlement cycles, either structure can lead to settlement date differences for generated orders.

The facility to store the settlement period information, is the TDATE. This field stores the numeric value of the settlement cycle (i.e. 1 or 2). The TDATE field must contain an integer, thus it cannot have a leading 0. The APL System uses this field to determine the settlement date based on the trade date. Employing TDATE is consistent with a solution that was already in place for a single client.

Since vendors such as FTID do not provide settlement date information, you must populate and maintain the TDATE field. Tegra118 will provide a file upload utility for one-time population of this field. However you must maintain the field in respect to updates or when adding new funds. Use existing bulk update facilities to update this field.If information is available for mutual funds, leverage the SEPARATE BLOCKS BY SECURITY utility to segregate the orders based on settlement date.

Example: from BLOCK ORDER STATUS

- Select SEPARATE BLOCK BY SECURITY

- At security selection enter TDATE EQ 1

In case you commit part of a block (based on sell vs. buy or settlement date) and hold onto another part for future, there is a possibility that temporarily the account may be out of balance (as cash proceeds due to sell trades will be realized but not utilized for the buy trades). If using nightly rebalancing based on drift, there may be unnecessary trades generated. As such, intended use for this functionality is that the ‘consecutive days drift’ functionality (in the nightly control job) will be employed with a meaningful no. of days, i.e. 3 or 4.

10.2 Specifying the settlement period

1. At the WHATNEXT? prompt, type TOOLS. Press Enter

- The Customer Service Tools screen will appear

```
ACS_ACCESS         (GRANT/REVOKE ACCESS TO APL COMPONENT SERVICES FOR CURRENT
AC2ACOPEN          (MOVE OPEN POSITIONS FROM ONE A/C DIRECTORY TO ANOTHER)
ADDACCT            (ADD A NEW CLIENT AND NEW ACCOUNTS TO THE SYSTEM - SUPERUSE
ADDACCTASP         (ADD A NEW ASP CLIENT AND NEW ACCOUNTS TO THE SYSTEM - SUPE
ADDACFIELDS        (ADD MISSING GLOBAL FIELDS TO AC FILE--USE FOR DTCBIG CONVE
ADDFUIDS           (ADD FUID AUTHORIZATION TO A FILE OR A DIRECTORY)
ADDGLOBALSEC      (ADD A NEW GLOBAL SECURITY MASTER FIELD: (E.G.) RESTRC)
ADDGROUP           (ADD A NEW CLIENT TO THE SYSTEM - SUPERUSER ONLY)
ADDINTLFIELDS      (ADD FIELDS NECESSARY FOR MULTI-CURRENCY ... SECURITY MASTE
ADDMULTIACCT      (ADD MULTIPLE NEW ACCOUNTS TO THE SYSTEM)
ADDPR19NN          (ADD A NEW YEAREND PRICE FIELD: PR19NN)
ADDRUSDLY          (ADD RUSDLY FIELD TO INFODEX)
ADDSECFIELDS       (ADD USER DEPENDENT SECURITY FIELDS FOR SEC AND HOT FILES)
ADDSECTOR          (USE THIS FUNCTION TO ADD NEW PERFORMANCE SECTORS FOR A CLI
ADDYEARENDPR      (ADD A NEW YEAREND PRICE FIELD: ADDYEARENDPR)
ALOCAT_ADDFLD     (ADD A NUMERIC OR åð FIELD TO THE ALOCAT FILE)
AUDITAC            (AUDIT AC FIELDS FOR OLD FIELDS AND FILL IN EMPTY ONES)
AUDITBATCH         QUICK COMPARISON BETWEEN A TRADES BATCH AND EDPORT)
AUDITBLOTTER       (QUICK COMPARISON BETWEEN A TRADES BATCH AND BLOTTER)
AUDITMSP           (INITIALIZE THE MSP CONVERSION AUDIT TRAIL)
```

2. Select ADDSECFIELDS from the list. Press Enter. Enter a security field to add

```
+-----------------------------------------------------+
|ENTER SECURITY FIELD NAME TO BE ADDED:               |
+-----------------------------------------------------+
```

3. Type TDATE. Press Enter

```
      ------------------------------------------------------------
     |Please Select the Appropriate Field Type
      ------------------------------------------------------------
```

```
                1 - CHARACTER
                2 - INTEGER
                3 - DECIMAL WITH 3 PLACES
                4 - DECIMAL WITH 2 PLACES
                5 - PRICE FIELD
                6 - DECIMAL WITH 4 PLACES
                7 - DATE FIELD
        8 - RESERVED FOR CUSIP
                9 - RESERVED FOR SACUS
               10 - DECIMAL WITH 5 PLACES
               11 - DECIMAL WITH 8 PLACES
               12 - RESERVED
                T - TABLE
     ------------------------------------------------------
```

4. Select 2 - INTEGER. Press Enter. Enter a name assigned to the integer

```
-------------------------------------------------------------¥
ENTER DESCRIPTION:
------------- ----------------------------------------------┐
```

5. Type SETTLEMENT DATE. Press Enter
6. To return to the Customer Service Tools screen, press Esc

10.3 Reports that help prevent overdrafts

We created two new reports to aid in preventing settlement date cash short falls. The two new reports, called

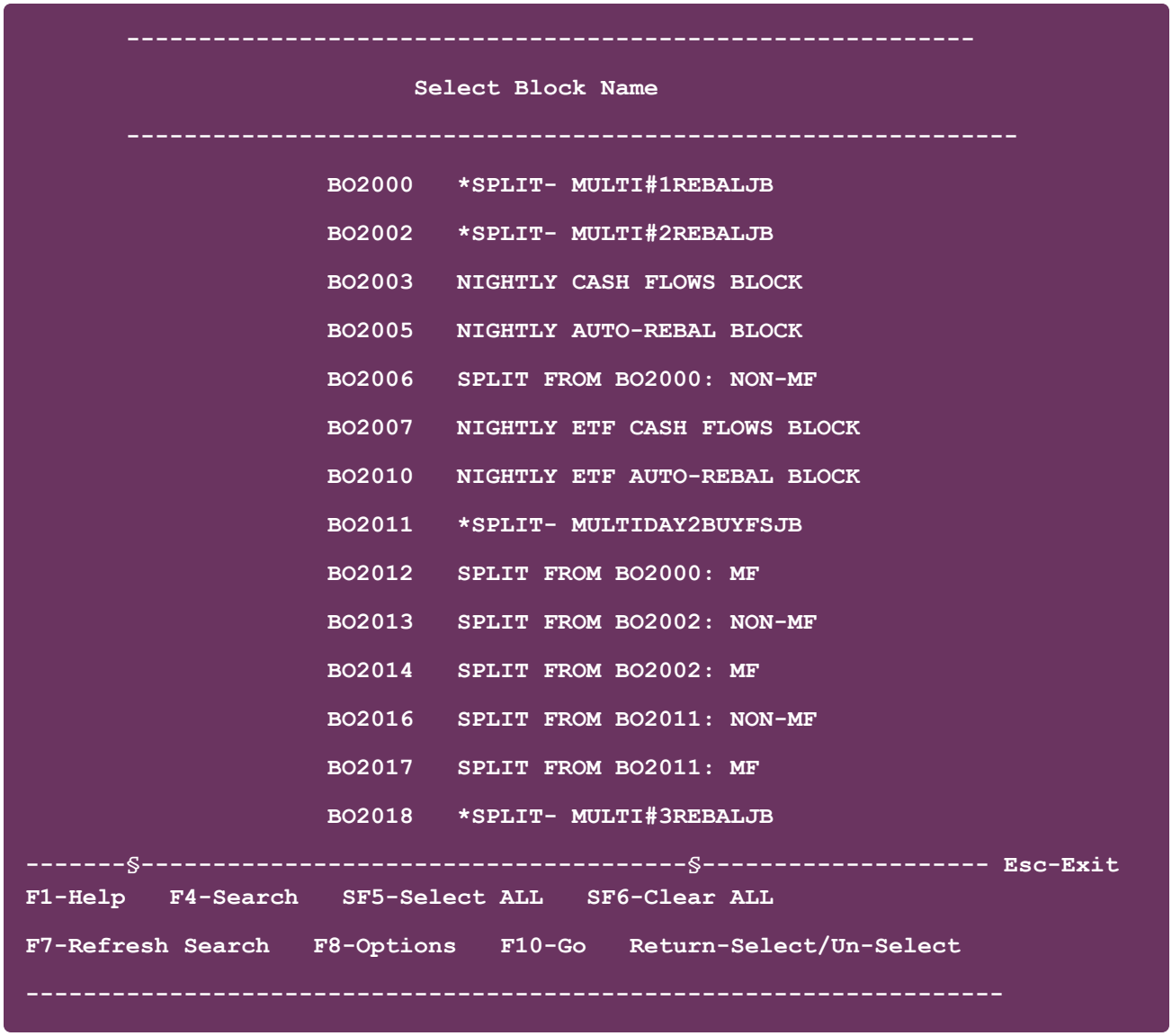
- BLOCKSETTLEMENTAMTRPT allows users to identify any trade that may result in an overdraft position based on the trades generated
- MODELSETTLEMENTDAYSRPT allows users to identify any model that may lead to a potential over-draft situation

Please note that the BLOCKSETTLEMENTAMTRPT report will produce a separate output report for each block selected, though all output reports can be easily merged in to a single output report separated by block, if desired.

10.4 Running the Net Settlement Amount by Block Report (BLOCKSETTLEMENTAMTRPT)

The Net Settlement Amount by Block Report allows users to identify any trade that may result in an overdraft position based on the trades generated. The report shows net settlement date differences due to trades within a selected block. The report is based on the model composition of a product in terms of mutual fund securities. Users may run the report using the BLOCKSETTLEMENTAMTRPT function.

1. At the prompt, type BLOCKSETTLEMENTAMTRPT. Press Enter



2. To select a block, move the cursor to a line and press Enter. Once you finalize your selection, press F10. The system calculates the settlement date for all trades in the block for each selected block. Then, the system calculates the net settlement difference for each day beginning from the Trade Date to the maximum settlement date by netting the buys and sells according to their settlement date. The SNAM.LRP report file generates. To view the report, type BROWSE the prompt

```
                          ABC RESEARCH PARTNERS
PAGE 1

                          NET SETTLEMENT AMOUNT BY BLOCK REPORT

                          Report Created : 12/15/08  1:27 P.M.

Settlement                                      Trade  Net Settlement
      Date Fund        Side          Amount      Difference

-------------------------------------------------------------------------

Block Name: BO2006

Account: ABC123   Beginning Day's Cash: 928              Intra-day Cash: 1,159

12/18/2008 EFA    Buy         5,624.52

12/18/2008 IWF    Buy         2,217.74        7,842.26

Account: ABC456  Beginning Day's Cash: 4,139            Intra-day Cash: 1,980

12/18/2008 IWS    Buy           133.10          133.10

Account: ABC789   Beginning Day's Cash: 1,663            Intra-day Cash: 1,867

12/18/2008 IWR    Buy           508.86

12/18/2008 SHY    Buy           509.22        1,018.08

Account: DEF123   Beginning Day's Cash: 3,854            Intra-day Cash: 5,267

12/18/2008 EEM    Buy         2,564.10

12/18/2008 EFA    Buy        11,547.31

12/18/2008 IWM    Buy         2,538.48

12/18/2008 IWR    Buy         2,544.30       19,194.19

Account: DEF456   Beginning Day's Cash: 16,310           Intra-day Cash:
16,347

12/18/2008 EEM    Buy         8,107.44

12/18/2008 EFA    Buy        24,330.31

12/18/2008 IWD    Buy        24,285.45

12/18/2008 IWF    Buy        36,485.40

12/18/2008 IWM    Buy         8,068.74
```

```
12/18/2008 IWR    Buy         8,085.22      109,362.56
Account: DEF789   Beginning Day's Cash: 16,362          Intra-day Cash: 8,082
12/18/2008 IWP    Buy        14,077.80
12/18/2008 IWS    Buy        14,081.98       28,159.78
Account: HIJ123   Beginning Day's Cash: 2,214           Intra-day Cash: 2,640
12/18/2008 EFA    Buy         4,047.95
12/18/2008 IWM    Buy         1,994.52
12/18/2008 IWR    Buy         3,505.48        9,547.95
Account: HIJ456   Beginning Day's Cash: 11,230          Intra-day Cash: 8,868
12/18/2008 IWB    Buy         1,089.05        1,089.05
Account: HIJ789   Beginning Day's Cash: 2,170           Intra-day Cash: 1,611
12/18/2008 IWF    Buy         6,510.14
12/18/2008 IWP    Buy         3,088.80
```

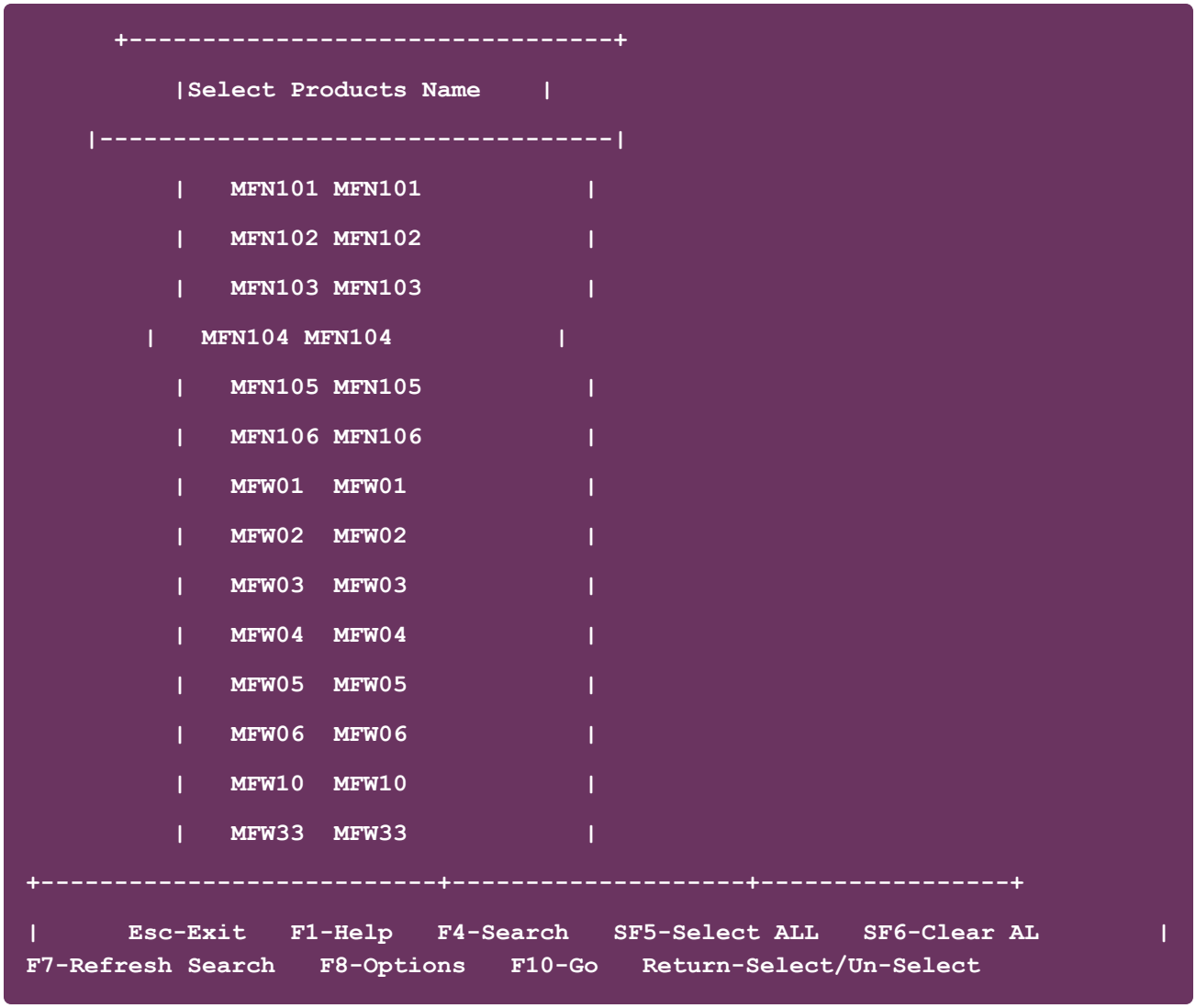
Column or Label	Description
Block Name	Name of the requested trade block
Account	Account identifier. This can include one of the following SNAM, DTCNO, DTCNOBIG, BWNUM. It will default to the TRDACD defined in EDSETUP.
Beginning Day's Cash	The beginning cash value of an account.
Intra-day Cash	Intra-day cash value adjusted for committed trades.
Settlement Date	The settlement date in MM/DD/YYYY format. The settlement date will be used with the Trade Date field and is not populated in EDSEC.
Fund	Ticker symbol for the mutual fund.
Side	Specifies whether the trade is a buy or sell.
Trade Amount	Trade Amount = Units * Price.
Net Settlement Difference	Sum of the trade amount by the settlement date. This is inclusive of net cash flows, per settlement period, based on orders within the block.

Running the Fund Settlement by Days Report (MODELSETTLEMENTDAYSRPT)

The Fund Settlement by Days Report allows users to identify any model that may lead to a potential overdraft situation. The report displays the number of days until a specific fund settles and is based on the model composition of a product in terms of mutual fund securities. Users may run the report using the MODELSETTLEMENTDAYSRPT function.

1. Type MODELSETTLEMENTDAYSRPT at the prompt

A list of products in the Windows Universe displays.



2. To select a product, move the cursor to a line and press Enter. Once finalized, press F10

- Select models

```
           +--------------------------+
           |  Select Models       |
           |------- ------------------|
           | MFW001 5XF098191  |
| MFW002 5XF104593  |
           | MFW003 5XF105939         |
           | MFW004 5XF116647         |
           | MFW006 5XF245735         |
           | MFW007 5XF269651         |
           | MFW008 5XF837374         |
           | MFW011 5XF855491         |
           | MFW012 5XF865631         |
           | MFW013 5XF990017         |
           | MFW016 5XM363332   |
           | MFW018 5XM801596    |
           | MFW045 5XF806817        |
+----------------------------+-----------------+----------+
|    Esc-Exit   F1-Help   F4-Search   SF5-Select ALL  SF6-Clear ALL
|   F7-Refresh Search   F8-Options   F10-Go   Return-Select/Un- Select
|
+-----------------------------------------------------------+
```

3. To select a model, move the cursor to a line and press Enter. Once finalized, press F10. A message displays advising the user of the report name

```
+------------- HIT ESCAPE TO EXIT ----------------------+
|
|
| Fund Settlement by Model Saved to MODELSETTLE.LRP    |
|
+-----------------------------------------------------------+
```

- To view the report press Esc. At the prompt, type BROWSE and press Enter

The report is sorted by settlement days/fund.

```
ABC RESEARCH PARTNERS                                          PAGE 1
FUND SETTLEMENT DAYS BY MODEL
Report Created : 12/15/08  1:56 P.M.
               Settlement
   Fund              Days
   ------      ----------
Model: AAA001   Product: AAA01
   TAVFX                3
   MQIFX                1
   NYVTX               3
   RYVPX               1
   TEGAX               3
   GFAFX               3
   JETAX                1
   LZOEX               1
   CASH-1              0
Model: AAA002   Product: AAA01
   TAVFX                3
   PNEAX               3
   DODGX              1
   RYVPX                1
   RPMGX              1
   MCGFX              1
   JETAX                1
   LZOEX               1
   CASH-1              0
Model: AAA003   Product: AA01
   TAVFX                3
   PNEAX               3
   DODGX              1
   RYVPX                1
```

```
RPMGX              1
MCGFX              1
JETAX                1
LZOEX               1
CASH-1              0
```

Column or Label	Description
Model	Name of the selected model(s).
Product	Name of the selected products(s.)
Fund	Ticker symbol of the mutual fund.
Settlement Days	Number of days assigned to the Trade Date field.

Mapping models to accounts using MFAACTMODELMAP

MFA can dynamically update an underlying portfolio which may or may not be an actively managed account models. To map accounts to models, use the MFAACTMODELMAP function. Models are based on the actual cash and positions listed in the model account as viewed through EDPORT.

> **Note:** This function is available to one user at a time.

Use the following steps to map a master model to a live account:

1. Type MFAACTMODELMAP at the prompt. Press Enter

- The following screen will appear:

```
02/09/09  8:09 A.M.  Account-Model Mapping         F-3 To Quit
               ------------------------------    F-10 to Save
             SNAM            Model
            ----            ---------
AAA123          AABBBB
             BBB123           AACCCC
            CCC123           AADDDD
             DDD123           AAFFFF
```

```
   EEE123          AAGGGG
  FFF123           AAHHHH
F-6 To Insert; Shift F-6 To Delete
```

Column or Label	Description
SNAM	The live account that the model tracks. This must be a MFA account.
Model	The model tracking the live account. If more than one model is tracking the account, each model code is separated by a single space. (Do not separate with commas.)

2. Add, change, or delete mappings. To edit an existing mapping, move the cursor to the line and type in the change. Press F6 to add a line and insert a new mapping. Press Shift+F6 to delete a mapping
3. Press F10 to save and exit. To exit without saving, press F3

Updating models based on a model account

Users can dynamically update MFA accounts based on the models they are linked to.

To update models:

Chapter 11: Dynamic Modeling

With dynamic trade modeling, a model account is updated on day one and changes flow through to all the related accounts on day two.

In the event that an updated account model's weights violate an asset class or an asset type allocation defined at the product level, the model will not update. In such scenarios, the system will log this error with an appropriate error message, relevant details, and make this information available to you via an output report. The model update process, based on a model account, ignores any model account that is in the middle of liquidating a specific fund. This bypass is noted in the output report.

If you do not manage model accounts properly by making directly to the model instead of through the model account, unnecessary trades may occur with possible tax liabilities on the model account. Thus, do not change models directly. Instead, always make changes through the model account that will subsequently automatically the model.

11.1 Mapping models to accounts using MFAACTMODELMAP

MFA can dynamically create and update an underlying portfolio which may or may not be an actively managed account models. To map accounts to models, use the MFAACTMODELMAP function. This function allows you to add, change, or delete SNAM/MODEL mappings. Models are based on the actual cash and positions listed in the model account as viewed through EDPORT.

> **Note:** This function is available to one user at a time.

To map an account, the model and account must already exist. In addition:

- An account may be linked to multiple models
- A model may not be linked to multiple accounts
- The account/model pair must be unique

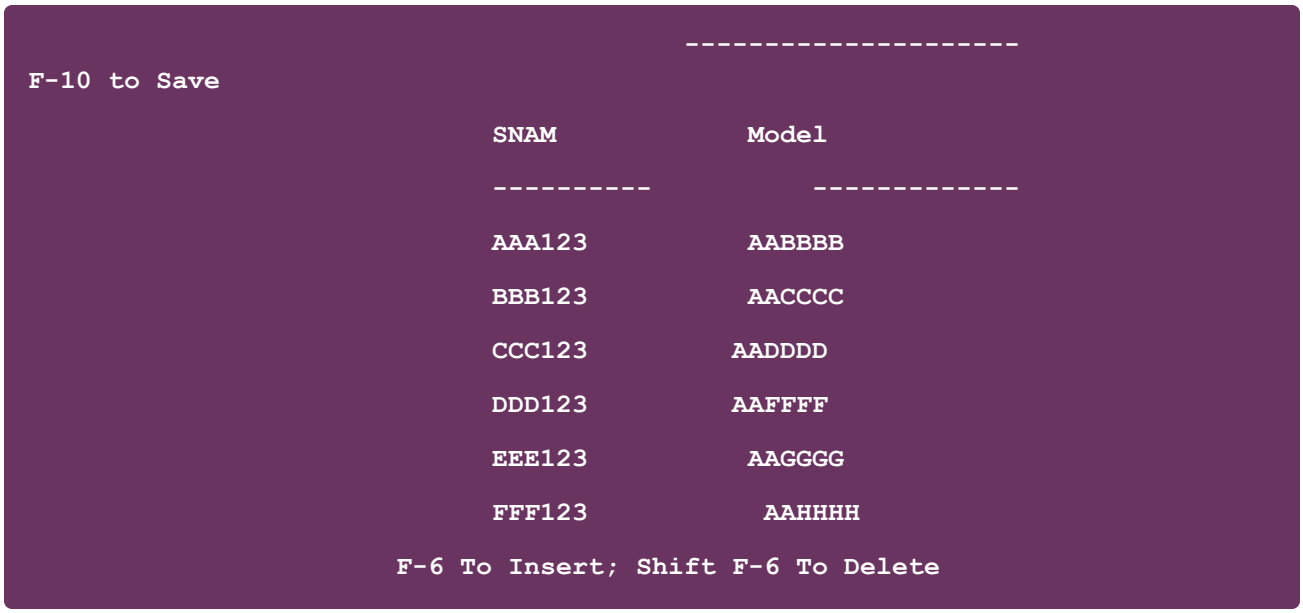
> **Note:** The account does not need to be in the trading universe.

Use the following steps to map a master model to a live account:

1. Type MFAACTMODELMAP at the prompt. Press Enter

The following screen will appear:

```
02/09/09  8:09 A.M.          Account-Model Mapping                    F-3 To
Quit
```



Column or Label	Description
SNAM	The live account that the model tracks. This must be a MFA account.
Model	The model tracking the live account.

2. Add, change, or delete mappings. To edit an existing mapping, move the cursor to the line and type in the change. Press F6 to add a line and insert a new mapping. Press Shift+F6 to delete a mapping

- You must enter a SNAM for each model and vice versa. In addition, each SNAM and model listed must already exist in the system
- A model cannot be linked to multiple accounts

3. Press F10 to save and exit. If you prefer to exit without saving, press F3

Note: If the SNAM and model information is not fully provided in step 2, or if you attempt to link a model to multiple accounts, the following message will appear: WARNING - INVALID SNAM/MODEL.

11.2 Updating models based on a model account (MFAAUTOUPDATEMODELS)

You can dynamically update MFA accounts based on the models they are linked to using the MFAAUTOUPDATEMODELS function. Run this function manually or in batch. The function, however, requires a loaded Windows universe given that model validation is performed.

- When the function runs, dynamic models update based on the actual positions and cash balance in the model account. Any trades done on the model account do not impact the model unless these positions are changed in EDPORT based on executions
- Edit checks relating to account drift are ignored. This implies that the model update process still occurs even when the asset class drift is violated for an account
- Unsupervised securities are not considered or included
- The model will not update if the changed account weights violate asset type ranges defined at the product level
- The model will not update if the changed account weights violate asset class allocations defined at the product level
- The model will not update if there is Liquidate Specific Fund Activity of an account that is utilizing the auto update model process. This implies an account directly linked to a model and accounts assigned to the Model where the model exists in MFAACTMODELMAP will not be updated by this process

Chapter 12: MFA Model Report

This report can be run on-line from the WHATNEXT Prompt, WINDOWS menu, or in Batch.

The output report will display:

- All headers with data for valid models with fund allocations
- All headers with no data below the model headers for valid models with zero fund allocations
- The main header of the report when there are zero products and models. The product and model headers will not be shown. The number of MFA models found would be zero

12.1 Viewing Reports

MFA users have the ability to view one or many models based on the following selection criteria:

- Select by Account
- Select by Manager Universe
- Select by Product

This report will be produced when the MFAMODELREPORTER runs. Any field that cannot be completely displayed will be truncated. Users can use the left and right arrow keys to view data.

Users can use the BROWSE function to view the output report.

The report sample (below) shows products and models with fund allocations.

```
RUN DATE: 10/15/09
                                MKI MODEL REPORT
NUMBER OF MFA MODELS FOUND:  2

MODEL: MOD001    TITLE: EQUITY 1                PRODUCT: PROD123

PERCENTAGE     FUND     CUSIP      SECURITY DESCRIPTION ASSET TYPE ASSET CLASS ALTERNATIVES
25.000         CASH-1   000000BLA CASH                 CASH         CASH
25.000         FUND1    123456789 FUND1 DESCRIPTION    EQUITY       LARGE CAP     FUND6 FUND88
25.000         FUND2    00507V109 FUND2 DESCRIPTION    EQUITY       SMALL CAP     FUND7
25.000         FUND3    055639108 FUND3 DESCRIPTION    FIX INCOME GOVT BOND       FUND4

MODEL: MOD002    TITLE: EQUITY 1                PRODUCT: PROD123

PERCENTAGE     FUND     CUSIP      SECURITY DESCRIPTION ASSET TYPE ASSET CLASS ALTERNATIVES
25.000         CASH-1   000000BLA CASH                 CASH         CASH
75.000         FUND1    123456789 FUND1 DESCRIPTION    EQUITY       LARGE CAP     FUND6 FUND88
```

Exporting Reports

CSV files can be generated from any report currently displayed on the screen. These files can be loaded into a spreadsheet program or database.

The model report file generated is named MFAMODRPT.CSV

Each CSV file has a header line showing field names. Sort criteria will be the same as the current report output. Field data already containing commas will have the commas replaced with spaces.

The CSV file will display the following information:

Details

- MODEL NAME
- TITLE
- PRODUCT NAME
- PERCENTAGE
- TICK
- CUSIP
- SECURITY DESCRIPTION
- ASSET TYPE
- ASSET CLASS
- ASSET CLASS CODE – only included in the CSV file
- ALTERNATIVES – Replacement Tickers

Chapter 13: MFA Functions

13.1 MFARESTRCCFG Function

Users can assign a restriction method at the Manager Universe level with this function.

1. Type EDMFARESTRCCFG at the system prompt

- The Restriction Method Assignment at Manager Universe Level Screen will appear

```
--------------------------------------------------------------------------------
-
ABC PRIVATE INVESTMENT MANAGEMENT DIVISION
08/18/11  2:42 P.M.
        ------------------------------------------------------------------------
----------------
        Restriction Method Assignment at Manager Universe Level Screen
        ------------------------------------------------------------------------
-----------------
            Use Manager
             Universe     Restriction
  AST Code    Default       Method
  -------------        -----------   -----------
  ASTABC          N             0
  ASTDEF          N              0

_____________________________________________________________________________
Valid Restriction Method Values:
0 = Use Restriction Method Defaults   1 = CASH   2 = Prorate All
3 = Prorate by Asset Type   4 = Prorate by Asset Class
5 = Override any restrictions found

_____________________________________________________________________________
    F1-Help     F3-Exit     F9-Refresh     F10-Save
--------------------------------------------------------------------------------
-
```

```
Block USA007 Has Been Loaded to the Trading System

  ------------------------------------------------------------------------
-
```

When the Use Manager Universe Default field is set to “Y”, then the investment options for restricted securities at the universe MFA program level will be used. User can enter the restriction method.

When the Use Manager Universe Default field is set to “N” the investment options for restricted securities at the universe MFA program level will NOT be used. The corresponding restriction method will be ignored.

Restriction method options – numeric values

Method	Value
Default	0
CASH	1
Prorate All	2
Prorate by asset type	3
Prorate by asset class	4
Override any restrictions found	5

1. Make changes to existing universe programs as desired
2. Press F-10 key to save the changes

- If any invalid characters have been entered, the screen will display the message: “ERROR – VALID VALUES ARE Y OR N”

1. Press Enter

- The Use Manager Universe Default screen is displayed with a cursor next to the incorrect character

2. Correct the character and press F10

- The WHAT NEXT prompt is displayed

13.2 Restriction Method via the UPLOADMFADATA function

Users can assign a restriction method via the UPLOADMFADATA function by adding it to the UPLOADMFADATA file in the Model Detail Header Record.

The Restriction Method options are:

- CASH
- Prorate All
- Prorate By Asset Type
- Prorate By Asset Class
- Override any restrictions found

> **Note:** The Restriction Method field must have the exact text of one of the options above. If not exact then the model will not be updated. An error message will be shown on the Product/Model Summary Report: “Invalid Restriction Method on Model Record”.

13.3 Nightly Batch (REBAL^SECTMF^NIGHTLY)

This function will cause six blocks to appear in APL BOS.

Confirm that the blocks are computed correctly based on the following restriction methods:

- CASH
- Prorate All
- Prorate By Asset Type
- Prorate By Asset Class
- Override any restrictions found

1. Run REBAL®SECTMF®NIGHTLY

- You will be asked for the beginning and end date. You can press enter without entering a date in order to use today’s date

2. Enter the beginning and end dates

- The account criteria screen will appear

```
SEARCH FOR WHAT?

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

3. The message will appear: Do you want to rebalance once a month ?
4. Select N
5. The Available Anniversary Rebalancing Options window will appear:

- Select N as the an Anniversary Rebalancing Option
- Select Y for nightly rebalancing

6. Select M for nightly rebalancing, rebalance back to model or only sectors that have drifted?
7. Select Y for Include cash in drift calculations?
8. Select N for do you wish to post pending withdrawals to the general ledger?

Chapter 14: Pending Mutual Fund Orders

The Pending Mutual Fund Order (PMFO) feature addresses the business challenges which arise due to late communication and posting of mutual fund order executions to Tegra118 portfolio accounting.

This feature maintains pending mutual fund orders (orders with late execution confirmations) in the trading system so that the affected accounts appear whole for continued trading. The goal of this feature is to avoid positions/actions being unwound based on false drift violations.

14.1 Set Up Considerations

This is a configurable feature that must be set by Tegra118 staff.

This feature is available in APL Legacy, OneView, and IMS. This feature can be utilized by firms that trade mutual funds through the Tegra118 SMA, MFA, and UMA platforms.

It is assumed firms utilizing this feature trade mutual funds, send trades systematically to participating custodians for execution and receive execution confirmation back from custodian which are systematically matched and posted to Portfolio Accounting system.

- Clients and client users must be configured for access to the feature tools
- Participating custodians must be enabled and parameters for tolerances and pending days defined
- Changes to existing control jobs and additional nightly batch processes are required

14.2 Mutual Fund Order Characteristics

The Pending Mutual Fund Order feature takes under consideration mutual fund orders with the following characteristics.

- Mutual Fund securities with designated mutual fund issue types (ISSTY)
- Mutual Fund orders that have been committed in a subscribed universe and routed to a participating custodian for execution
- Client is set-up to use the proper mutual fund trading process file (MFBLSEOD)

Orders that are excluded are ones where the Mutual Fund Auto Post process is turned on for the related account/DESBRK.

14.3 Nightly Processing

This section describes the sequence of events or steps that comprise the Pending Mutual Fund Order process. These steps are integrated in sequence within each client's nightly batch process.

- Identify eligible Pending Orders by evaluating mutual fund orders sent for execution to custodians to ensure that they meet required criteria such as originating from a subscribed universe and sent to a participating custodian
- Match New Pending Orders and Match Existing Pending Orders. After mutual fund orders have been evaluated, eligible candidates are compared with the APL trade batch created as a result of processing the incoming custodian execution file
  - Eligible orders where a match is found in the trade batch are stored and updated to a matched status. Eligible orders where a match is not found in the trade batch are assumed to be late confirming (pending) and stored and updated to a pending status
  - Orders previously marked as pending are also compared to the applicable trade batch. If a match is found the order's status is changed to matched. If the order is not matched then no changes are made
- Age Pending Orders. Pending orders are evaluated to determine how long they have been pending and if they should be expired
  - The age of a pending order is the determined by a specified number of business days past the order's commit date, expiration date. The number of business days (pending days) is configurable
  - If an order is not matched or scrubbed by its expiration date it is considered aged and its status automatically changed to "expired"
- For UMA and MFA clients using the Tegra118 Liquidate Specific Funds feature, the days defined in the PENDING DAYS setting should be the same as the value specified in Liquidate Specific Funds Pending/Delay days setting
- The Liquidate Specific Funds delay days logic provides the option to configure the number of days to look for a block when the nightly rebalance is in the process of performing Day 2 liquidation check to purchase securities from the proceeds that were received
- Scrub Pending Orders. An optional process can run removing pending orders that are deemed true rejects based on a client provided file. See Scrub Pending Orders for details
- Activate Pending Orders. If configured, a limited-state committed pending order block is created in each subscribed universe with pending orders. Orders contained in the block are not processed further for regular mutual fund trading. They are not included in the mutual fund end of day process or sent out to the mutual fund end of day allocation process again. See Activate Pending Orders for details
- Report EDPORT Matches. A validation report that compares activated pending mutual fund orders in limited-state committed blocks to posted executions is generated. The report, sectioned by universe, indicates any pending orders where matching posted executions are found. The pending orders reported as matching can be reviewed as candidates for scrubbing. See Report EDPORT Matches for details
- MFPEND Field is updated. The Infodex field MFPEND is added for clients subscribed to this feature. MFPEND is systematically updated to reflect if an account has currently has pending orders. The field can be used as a filter in account selections

14.4 Universe Subscription Table

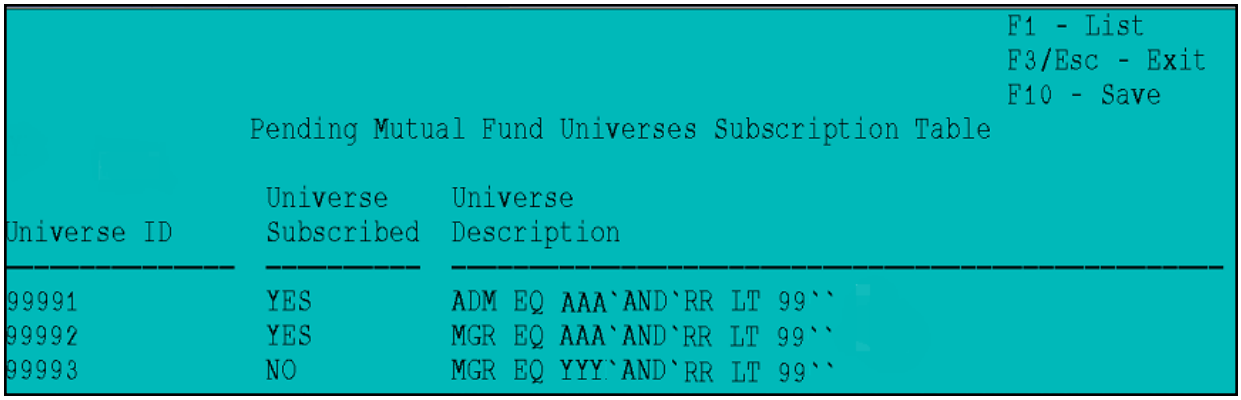
This feature searches for and identifies pending mutual fund orders only in subscribed universes.

Providing that a client is configured for editing universe subscriptions, this option gives authorized users the ability to define which trading universes are included by editing the universe subscription table.

To edit the universe subscription table:

1. From the Which Function? prompt enter MFPENDING, select Configuration option
2. A table listing all trading universes is displayed. The table contains three columns:

- Universe ID (view only)
- Universe Subscribed (editable, YES/NO)
- Universe Description (view only)



3. Edit the Universe Subscribed column for specific universes by tabbing to and toggling field value to change the subscription status

All universes are initially unsubscribed (NO). This includes any new universes added.

4. Once editing is complete hit F10 to save the changes and return to the MFPENDING menu

14.5 Processing Tools

The following tools are available to authorized users in order to manage pending mutual fund orders. The pending orders can be activated using Activate Pending Orders in the trading environment or scrubbed using Scrub Pending Orders.

Activate Pending Orders

Activate Pending Orders is the process whereby a limited-state committed block for each subscribed universe with pending mutual fund orders is generated. The block contains trade orders that correspond to the eligible pending mutual fund orders.

Eligible orders include unexpired pending mutual fund orders. Expired, matched and scrubbed mutual fund orders are excluded.

Limited-state Committed Block

Each pending order block generated is committed in a “limited-state” defined as follows:

- Trading system account cash and positions are impacted
- The block is not evaluated for restriction violations (although they can be identified via reporting)
- No error checks are performed
- Orders in the block are not processed further for regular mutual fund trading. They are not included in the mutual fund end of day process or sent out to the mutual fund end of day allocation process again
- Orders in other committed blocks are ignored
- Block Title is PENDING MUTUAL FUND ORDERS
- Block Name is systematically derived based on the standard block naming conventions
- In Block Order Status, an indicator of “P” is displayed to the right of the block name and “P = ACTIVATED COMMITTED PENDING ORDERS” is displayed in the description area
- The following options are available in Block Order Status for pending order blocks containing activated orders:
  - Show Detail
  - Effects of this Block
  - Sort Blocks
  - Delete (available for users with supervisory access)
- All pending order blocks are uncommitted and deleted at the end of each trading day as part of the end-of-day batch process
- Orders can be removed from the pending order block by using the MFPENDING / Scrub Pending Order option. See Using Scrub Pending Orders for details

Results Report

The output report, MFPENDINGACTIVATE is generated each time the function runs. It contains the following sections.

- Block information for activated orders
- Pending orders that have been excluded for accounts that are no longer in the universe

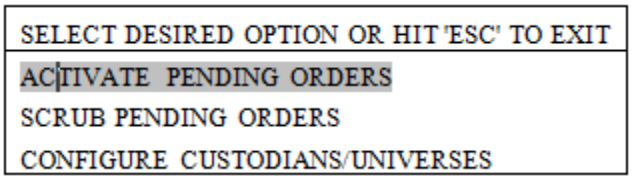
Activate Pending Orders can be invoked automatically through a system (batch) process or manually by authorized users.

The Activate Pending Orders option within the MFPENDING menu enables authorized users to manually activate pending orders. This allows for review and approval of the pending orders before they are loaded to the trading system in a pending order block.

Using Activate Pending Orders

To manually activate eligible pending mutual fund orders:

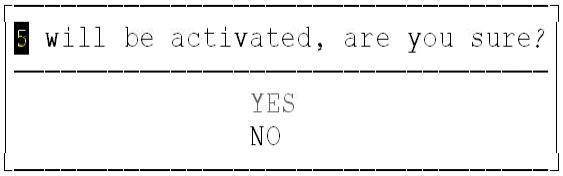
1. From the Which Function? prompt enter MFPENDING. The MFPENDING option menu is displayed



2. Select Activate Pending Orders from the menu
3. The system searches for eligible pending order in the stored file (i.e. orders that are not expired, scrubbed, or matched)

a. If there are no eligible pending orders a message is displayed stating, “There are no pending orders to activate”. The process returns to the MFPENDING option menu

b. If there are eligible orders a confirmation prompt is displayed, “<#> will be activated, are you sure?”. <#> is the number of eligible orders



1) Select YES to proceed to the next step.

2) Select NO to end the process and return to the MFPENDING option menu.

4. A block is created for each subscribed universe if eligible orders are found and there is no existing Pending Mutual Fund Order block currently in the universe
5. A report, MFPENDINGACTIVATE.Lnn, is generated containing a list of blocks with block names and the universe each was created in
6. The user ID, time and date are stored for auditing purposes

Report EDPORT Matches

This validation and reporting process compares activated pending mutual fund orders in limited-state committed blocks to posted executions. A report, sectioned by universe, is generated indicating pending orders where matching posted executions are found. The report also indicates if no matches are found.

The pending orders reported as matching can be reviewed as candidates for scrubbing.

- Matching criteria is account ID, TICK, SIDE, DOLLARS, MSPTAG (if present), and the committed date
- Dividend reinvestments are considered. Receives for buys and delivers for sells are not considered

Match Tolerance

A Match Tolerance percent, based on dollars or shares depending on what is reported to the custodian through the End of Day process, can be defined per custodian. Orders within the match tolerance percent are reported along with exact matches. Optionally, matches that fall outside the tolerance can be reported as potential matches.

A Match Tolerance percent of “0” means that only exact matches are reported.

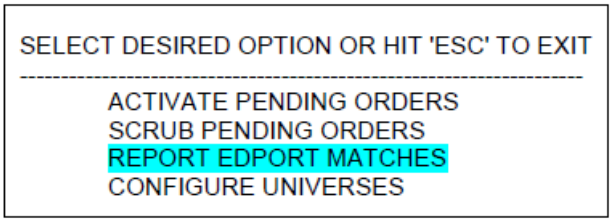
Contact your Tegra118 representative in order to configure a Match Tolerance % value and have tolerance violations reported.

Using Report EDPORT Matches

This process automatically runs as part of the start of day (SOD) activities for PMFO clients. It can also be run interactively from the MFPENDING menu.

To Run Report EDPORT Matches follow these steps:

1. From the Which Function? prompt enter MFPENDING
2. The MFPENDING option menu is displayed. Select the REPORT EDPORT MATCHES option



3. The report, MFPENDINGMATCH.Lnn, is generated

Scrub Pending Orders

Scrub Pending Orders enables authorized users to remove eligible, unexpired pending mutual fund orders (change their status to “scrubbed”) and, if present, delete from them from pending order blocks containing activated mutual fund orders.

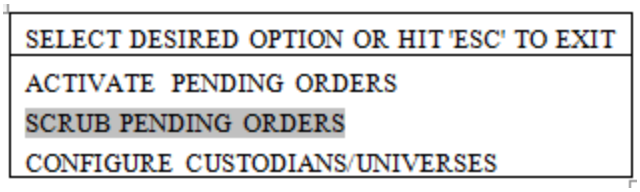
Orders can be scrubbed manually or scrubbed based on an input file through the MFPENDING / SCRUB PENDING ORDERS option. Orders can also be scrubbed automatically though nightly batch processes using an input file.

Scrubbing gives users a way to manipulate the current pending orders so that legitimate order rejects can be marked as “scrubbed” before or after the pending mutual fund trades are activated in pending order blocks.

> **Note:** Ad-hoc trade generation should NOT be performed when pending mutual fund orders are scrubbed for rejects is in progress because if trades are proposed while the pending orders blocks are deactivated, the trades will not be accurate.

Using Scrub Pending Orders

1. From the Which Function? prompt enter MFPENDING. The MFPENDING option menu is displayed. Select the Scrub Pending Orders option



2. A prompt is displayed, PROCESS FROM SCRUB PENDING ORDER FILE? Y/N
3. Select Y or N (N is the default)

a. Choose N (no) to manually select pending orders to scrub (i.e. change their status to scrubbed)

Follow these steps to manually scrub pending mutual fund orders.

1) The Account Selection Screen is displayed. Accounts with orders that are pending are available for selection.

Select accounts that contain the orders to be scrubbed. Hit F10.

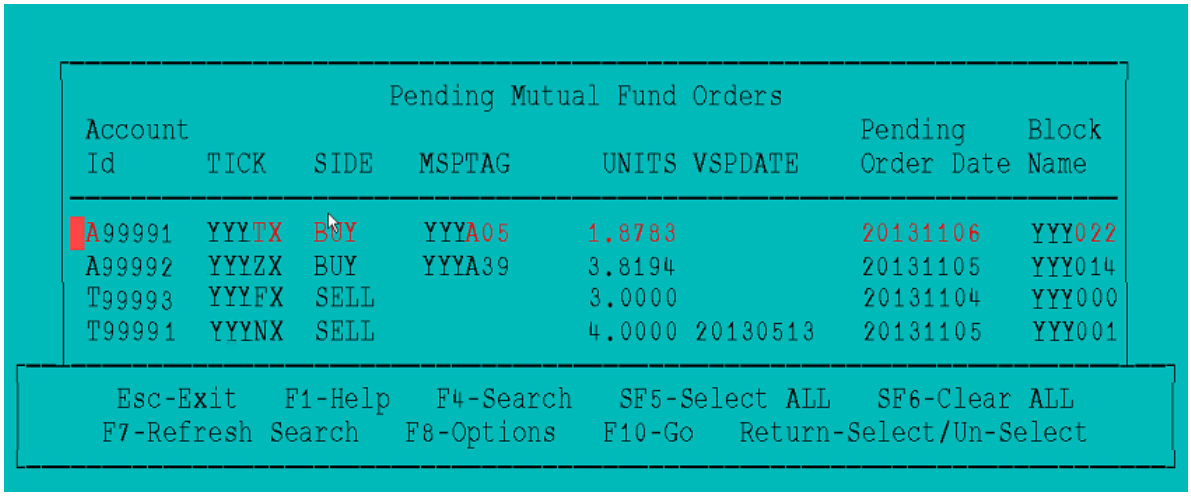
2) The Security Selection Screen is displayed, Which Securities.

Enter security IDs of securities contained in orders to be scrubbed.

3) A table listing all unexpired pending orders that meet the account and security selections is displayed.

The table is sorted by Account ID, TICK, SIDE, MSPTAG, VSPDATE (.vs purchase), Committed Date, and then by Block Name.

4) Mark the orders to scrub by highlighting them and hitting <enter>. An asterisk is displayed next to each entry to scrub or Shift +F5 to select all. When selection is done hit F10 to save and proceed.



b. Select Y (yes) to scrub orders based on an input file. See Scrub File Format Requirements

Follow these steps to scrub pending mutual fund orders.

1) A prompt is displayed, ENTER SCRUB PENDING ORDER FILE.

Enter a file name and hit enter. for example: mutualfundscrub.asc

2) The scrub file is checked for errors which include the following:

Scrub Error Message	Description
“File Doesn't exist”	Displayed if a file of the entered name doesn’t exist.
“mutualfundscrub.asc has no header or trailer”	Displayed if either the header record OR the trailer record is missing or incorrect in the file.
“mutualfundscrub.asc has wrong date”	Displayed when the date in the header record is not the previous business day.
“mutualfundscrub.asc has wrong number of records”	If the number of records indicated in the trailer line doesn’t match the number of records in the file, this error message is displayed.
“No Records to scrub”	If the file entered is empty, this error message is displayed. Occurs in all scrubbing activities (by file or manually);

3) If no errors exist, the orders in the scrub file are matched on Committed Date, Account Identifier, TICK, SIDE and MSPTAG to unexpired pending orders.

4. The marked orders are given the status of “scrubbed”
5. When a pending mutual fund order is scrubbed for an account and the account’s universe contain activated pending orders (IE. pending orders block), then the following is automatically performed:

a. The selected pending mutual fund orders are marked as “scrubbed”

b. The pending orders block is deleted

c. A new pending orders block is created containing all activated (eligible) pending orders. A new block name is assigned while the block title remains the same

6. A results report is generated, MFPENDINGSCRUB.Lnn
7. The user ID, date and time are stored for auditing purposes
8. If all pending orders for an account are no longer eligible (status of matched, expired, or scrubbed) that account’s Infodex MFPEND field value is set to “blank”

> **Note:** Scrubbed pending mutual fund orders are permanently deleted ten business days from the time they are marked as “scrubbed” (committed date +days in PENDING status + 10 business days).

Scrub Results Report MFPENIDNGSCRUB.Lnn

The scrubbed orders are reported per Universe.

Pending Mutual Fund Orders Scrub Report
Report Created: 06/11/13
User: <user id>

Universe: MGR EQ XYZ

The following orders have been scrubbed:

Account Identifier	Security ID	Side	Sleeve	UNITS	VSP DATE	Committed Date	BLOCK NAME
SNAM04	MF004	SELL	SLVA	100.0000	20110303	20120303	BLKA
SNAM05	MF005	SELL	SLVA	100.0000	20110303	20120303	BLKB
SNAM07	MF004	SELL		100.0000		20120303	BLKA

If orders are scrubbed based on a file the report contains:

- A list of scrubbed orders per universe that have VSP Date mismatches

Pending Mutual Fund Orders Scrub/Activate Report
Report Created: 06/11/13
User: <user id>

Universe: MGR EQ XYZ

The following orders were scrubbed with VSP DATE mismatches:

Account Identifier	Security ID	Side	Sleeve	VSP DATE	Committed Date
SNAM04	MF004	SELL	SLVA	20110303	20120303
SNAM05	MF005	SELL	SLVA	20110303	20120303
SNAM07	MF004	SELL		0	20120303

- A list of orders that are contained in the input file of scrubbed orders but do not exist as eligible pending orders

Pending Mutual Fund Orders Scrub/Activate Report
Report Created: 06/11/13
User: <user id>

Universe: MGR EQ XYZ

The following orders in the scrubbed file were not found:

Account Identifier	Security ID	Side	Sleeve	VSP DATE	Committed Date
SNAM04	MF004	SELL	SLVA	20110303	20120303
SNAM05	MF005	SELL	SLVA	20110303	20120303
SNAM07	MF004	SELL			20120303

Scrub File Format Requirements

- Comma delimited file format
- Header Record (H) contains:
  - Date and timestamp – Date must be for the previous business day
- Detail Record contains:
  - Committed Date
  - Account Identifier
  - TICK
  - SIDE (BUY or SELL)
  - MSPTAG (sleeve/ submodel short name for UMA orders)
  - VSPDATE
- Trailer record (T) contains:
  - Number of records in the file (record count) including header and trailer records

For example:

```
H,20120724,12:25:16
20110303,SNAM01,MF001,SELL,SLVA,20120303
20110303,SNAM02,MF001,SELL,SLVA,20120303
T,4
```

- Detail Record Field Definition

Field	Format	Description
COMMITTEDDATE	YYYYMMDD	Date the original order was sent.
ACCOUNT IDENTIFIER	N	Account ID. Searched in the following order: SNAM, DTCNO and BWNUM
TICK	N	Security ID
SIDE	C	Transaction type indicator, either BUY or SELL
MSPTAG	N	UMA submodel short name for UMA orders
VSPDATE	YYYYMMDD	Tax lot (.vs) purchase date for sales of specific tax lots

14.6 MFPEND Field

The Infodex field MFPEND is added for clients subscribed to the Pending Mutual Fund Order feature.

The MFPEND field is updated to reflect if an account currently has pending orders.

MFPEND is reset to blank when there are no pending orders for an account. This happens when all existing pending orders are matched, scrubbed or expired.

The field value is either BLANK/0, which is the default, or YES.

- The value BLANK/0 indicates that the account does not currently have pending mutual fund orders
- The value YES indicates that there are pending mutual fund orders in the account

In the nightly batch process, MFPEND is updated after the matching process has completed.

Unsubscribed Universe or Custodian

- When a universe and/or custodian is unsubscribed any unexpired pending mutual fund orders for that custodian or universe are changed to a status of Unsubscribed. The MFPEND field value is reset to 0 for the affected accounts

Using the MFPEND Field

The MFPEND field can be used to identify accounts that currently have pending orders.

The MFPEND field is primarily used by clients who do not activate pending orders automatically in batch and instead, manually activate pending orders during the business day after review and approval.

The following scenario illustrates this use:

Accounts with pending orders can be rebalanced during the nightly process. If pending orders have not been activated (in a pending order block) the data used for the rebalance does not reflect those pending orders.

1. Client chooses to activate pending orders manually
2. An account contains a pending mutual fund order but it has not been activated to a pending order block via the Activate function
3. The nightly rebalancing process is run for account
4. Account is rebalanced with incorrect trades because the trades proposed from the nightly rebalance do not reflect pending orders

To avoid this scenario, accounts with pending orders can be excluded from the nightly rebalancing process using the MFPEND field as part of the account selection.

An authorized user can manually activate pending orders then create AD HOC rebalancing trades for accounts with pending trades using the MFPEND field as part of the account selection.

14.7 Exception Reports

All activity generated by this feature is captured in reports as follows:

MFPENDING.Lnn

- Generated when the main identification and matching nightly process is run
- It can contain multiple sections, sub-sectioned per universe for each universe with data to report.
- The same order can be reported in multiple sections if it meets the reporting criteria for more than one section type
- The report is not generated when there are no exceptions. Report sections that have no data are not included
- Report Sections include the following:
- VSP Date Mismatches
- Aged orders that were dropped once the aging variable is violated
- Matched orders that exceed the share or dollar tolerance variable

Matched orders that exceed the tolerance variable section reports matched orders that exceed the tolerance level configured for the custodian. It notes tolerance violations when the difference between the proposed orders and the executed order exceeds the tolerance level.

Depending on mutual fund client configuration, buy and/or sell units can be represented in dollars, in which case Dollar Tolerance is used. When units are represented in shares the Share Tolerance is used.

Dollar/Share tolerance exception reporting is at the order level (allocations are summed).The sum of the outgoing mutual fund allocations is compared with the incoming mutual fund executions.

The sum of the allocations matching criteria is Account Identifier, TICK, SIDE, MSPTAG (if present), and the committed date.

This section is sorted by Account Identifier/Committed Date/DESBRK/MSP TAG/TICK/SIDE.

Full Liquidations – If a given mutual fund End of Day interface employs a Full Liquidation Indicator, the Amount/Units sent is arbitrary. Given that, plus the nature of NAV pricing, it will be rare when there is an exact match of these executions. Therefore, if the change in NAV causes a tolerance violation, these orders will be matched, but will be appear on the report.

Multi-Sleeve Funds – when a fund is traded across multiple sleeves, most custodians cannot track Tegra118 sleeve tags. When theses executions come back from the custodian, they will be matched, but quite often they may appear on the output report as tolerance violations.

MFPENDINGACTIVATE.Lnn

- Generated each time pending order blocks are activated

MFPENDINGSCRUB.Lnn

- Generated each time the scrubbing process is invoked. Orders that were scrubbed are reported per universe

14.8 UMA Master Manager Trading Impact

Multi Sleeve Cash Flows

Systematic sleeve cash flow processing has been enhanced to account for Pending Mutual Fund orders so that sub-manager (sleeve) cash amounts are properly reflected.

The redistribution of cash by MSPPOSTGLFLOWS when run as part of the nightly batch process is adjusted to reflect the Pending Amount for master manager mutual fund trades which have been identified as pending orders.

UMA Multi Sleeve Netted Trades

Special handling of pending mutual fund orders is incorporated for UMA clients configured for UMA Trade Netting to ensure the seamless flow of the Trade Netting process and the Pending Mutual Fund Order process and the accurate reflection of netted pending mutual fund trades within the trading environment.