

EManager Reference

Version 4.0 Level U

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Rosebud Management Systems

EManager Overview

Regardless of the environment, whether it is IBM CICS or a replacement product such as Eden Server, all CICS applications are run in what is generally referred to as a "region." In the simplest of terms, a region is simply a set of configurations regarding programs, data and other items that define applications and their requirements to CICS and the operating system.

When using Eden Server, all such definitions and settings are maintained using EManager, a stand-alone application. Because EManager can operate independently of Eden Server, it may be run remotely while Eden Server is up or down, even while applications are running.

EManager is installed in the Eden Server and can be accessed either by the installed shortcut or directly from Eden Server via the System Preferences notebook located on the Regions tab.

Actual region settings are maintained in two files, both of which are stored in a region directory. Region directories are always created as sub-directories of the Eden Server Install directory. As such, it is therefore required that the location of the EManager executable never be changed; EManager.EXE must always reside in and be executed from the Eden Server Install directory.

When making changes on EManager pages for a region, note that they will not be saved unless the Save button is pushed. Note, however, that changes to file information made on individual file notebooks are saved once the Save button is pushed on the file notebook. Therefore, using the Cancel button on the EManager window will not revert already saved file changes.

All region definitions are made on one of the four tabs provided by EManager, which are the Data Files tab, TCP/IP tab, EClient tab or the System Information tab.

Additionally, EManager can be used to create plug-in shell programs that can allow user created programs to be used as full Eden Server plug-ins.

Eden Server Region configuration Data Files tab

EManager starts with the Data Files tab, which is usually the most frequently accessed item in region setup. Each file used by the region is included in the display, one file per line. Indexed files with alternate indexes are not listed separately.

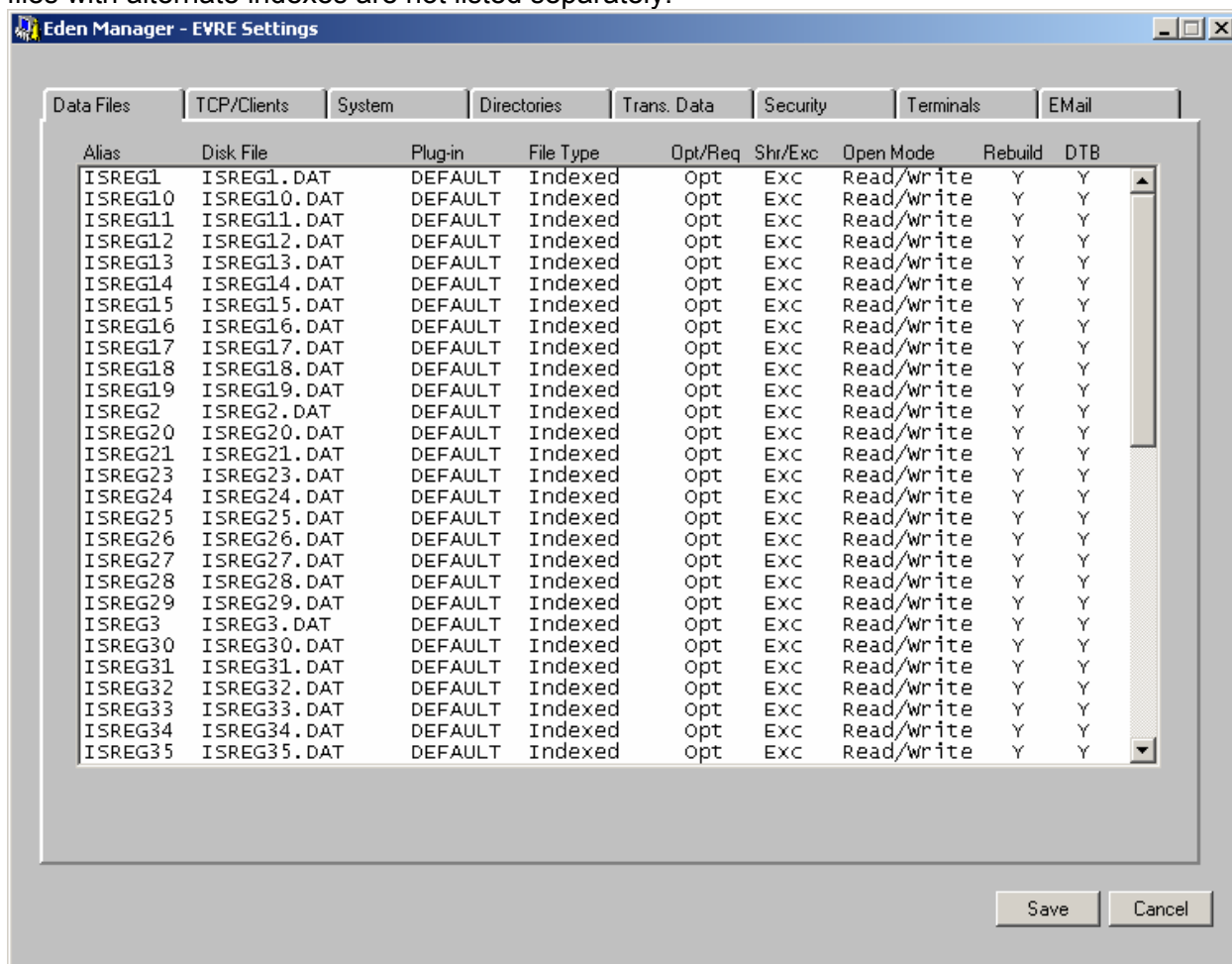


Figure 1 Data Files tab

Files are listed in alphabetical order by “Alias,” which is Eden Servers equivalent of the mainframe term “ddname.” Once defined, the Alias becomes the key to the file information and is the name used in all EXEC CICS statements in application programs.

Creating and Editing File entries

Note: when creating entries for a new region, it is recommended that the [Data Files](#) entry on the System tab be completed prior to creating file entries.

All files entries, regardless of file type, are created and edited by using each individual file’s notebook. To display an existing file, double click its entry or highlight and right click to display the pop-up menu as shown above in figure 1.

Regardless of whether a file entry is being created or edited, the same notebook features and functions are available with minor differences based on requirements and availability of certain

options based on file type. To create a new file, display the pop-up menu by right clicking anywhere on the list, then select the menu choice for the type of file entry to be created: Indexed, Sequential or Relative.

While the specific tabs shown will differ between file types, the first three (Dataset Info, Options and Primary Data) are common among all file types.

Dataset Info tab

The Dataset Info tab, shown below in figure 2, is used to define the physical, file how it is handled at open time and which Eden Server DLL will handle IO requests.

The screenshot shows a dialog box titled "RMSJOB - Edit Indexed File Entry". At the top, there are four buttons labeled "Alt. Key 2", "Alt. Key 3", "Alt. Key 4", and "Alt. Key 5". Below these are four tabs: "Dataset Info", "Options", "Primary Data", and "Alt. Key 1". The "Dataset Info" tab is selected. The dialog contains several sections:

- File Name:** A text field labeled "Name.Ext" containing "RMSJOB.DAT" and a "Browse" button.
- Initialization:** Two radio buttons: "File is Required" (selected) and "File is Optional".
- Allowable time to Open:** A text field labeled "Time (seconds)" containing "00060".
- Location Override:** A text field labeled "Drive:\Path" and a "Browse" button.
- IO Handler:** A text field labeled "DLL name" containing "RMS0050" and a "Default" button.

At the bottom right, there are "Save" and "Cancel" buttons.

Figure 2 Dataset Info tab

Entries on this page should be completed as described in the following notes. Unless otherwise noted, field names and configuration items apply to all three file types, Indexed, Sequential and Relative.

File Name

Enter the disk file name of the file. Do not enter drive or path information. The Browse button may be used to select the file using a standard Windows file open dialog box.

When that the Name.Ext field contains a new file, i.e., when it has been overtyped or a new file has been selected with the Browse button, EManager automatically attempts to verify the file information. When the file in question is found to contain a Micro Focus file header, the file information from the header is used to complete the corresponding notebook tab entries. Note that not all files contain Micro Focus file headers. The files that do are as follows:

Variable and fixed record Indexed files.
Variable length Record Sequential files.
Variable length Relative record files.

Therefore, the files that do not contain headers are fixed length Record Sequential, Fixed length Relative Record and Line Sequential files.

The entries that will be automatically completed when a file header is present are as follows:

Record type, fixed or variable
Record Length(s), minimum and maximum
Primary and alternate key position(s) (Indexed files only)
Primary and alternate key length(s) (Indexed files only).

These entries, when completed by EManager, are unavailable for user input.

Note also that the location of the file in question is determined based on using either the path entered in the Data Files field on the System tab or the path entered in the Location Override field on this page.

Initialization

The selection of a required or optional setting controls how Eden Server responds to a file that is not present at open time. Generally, if a file is not present at open time, a 9/013 error is returned indicating the file does not exist. If, however, the File Is Required option is selected, the file will be created and then opened in the required mode.

Allowable time to Open

This feature is not yet implemented on Eden Server.

Location Override

The location of files will default to the drive and path entered in the Data Files field of the System tab for the region. If however, an alternate location is required for a particular file, that location may be entered in the Location Override field. Locations may be manually entered or the Browse button can be used to display the standard Windows "Browse for Folder" dialog box.

As with all disk file location entries in Eden Server, standard drive and path or UNC names may be entered.

IO Handler

To facilitate the demands of an online system, Eden Server provides the ability to handle file IO through one of two server plug-ins. Medium and low usage files should generally be handled through the Default plug-in, while files with higher than average use should be handled through a high-performance plug-in.

The button to the right of the IO Handler field toggles between resetting a high-performance plug-in to the Default plug-in based on the current setting of the IO Handler field. A high-performance plug-in may be deleted by clicking the button when it is labeled Default. Conversely, a high-performance plug-in will be created, compiled and linked to a DLL by clicking the button when it says Create.

When creating plug-ins, EManager will generate a configuration file for the plug-in and then cause it to be compiled and linked. A small DOS console window will be displayed showing the progress of the compile and link while EManager is building the DLL. No user intervention or other actions are required, however, access to a Net Express compiler and the system linker are required by EManager in order to build high-performance plug-ins.

Regardless of which type of plug-in is selected, IO processing is consistent between the default and high-performance plug-ins. There are no differences in features or capabilities between the two plug-in types.

The difference between the two types, default vs. high-performance, lies in the methods used by the plug-in to manage internal resources and whether or not the plug-in is handling one file, as do the high-performance plug-ins, versus many files, as do the default plug-ins.

The decision of how to handle individual files should be made not only on file usage, but on the availability of system resources as well.

When designing an overall strategy for Eden Server regions and files, be aware that a combined total of 450 high-performance file IO plug-ins may be used between the five possible regions that can be run per Eden Server.

For installations that will run multiple large CICS applications, this maximum number of plug-ins should be kept in mind so as not to restrict any given region by exhausting the supply of available plug-in numbers. To ensure there are always sufficient plug-in numbers available, do not define more than 90 high-performance plug-ins per region.

Obvious other considerations include the availability of RAM and the use levels of individual files. If the file usage of the application is not known, Eden Server can be used to determine

which files are above average in terms of the number of IO requests.

To determine the file usage, use the shutdown statistics that are provided automatically when the CICS regions are stopped. Note that when a region is stopped, detailed statistics on IO requests for each file are logged to the console. These same statistics may be produced on demand by entering the console USAGE command. See the administrators reference section on [Console Commands](#) for more information.

The final item to consider is the availability of RAM. Prior to creating large numbers of high-performance plug-ins, review your server hardware configuration for available RAM. Note that Eden Server, running only the minimum plug-ins and no CICS regions, requires approximately 256 meg of RAM. Each region that is started requires an additional ten meg of RAM. The differential in RAM usage between adding an additional file to the Default plug-in and creating a high-performance plug-in varies between file types (and for indexed files on the number of alternate keys). Generally, however an additional high-performance plug-in and adding the same file to the Default plug-in will require from one to two extra meg of RAM.

Performance gains by using a high-performance plug-in versus the Default plug-in can be expected to be at least in the 10 percent range. Depending upon the number of processors in the server, the amount of RAM, the overall system load and file IO requests submitted, the increase may be as high as 25 to 30 percent. Be aware, however, that overloading a server that has insufficient RAM will seriously degrade performance.

Use the Windows Task Manager or the displays in the Eden Server [Resource Monitor](#) to determine the RAM requirements for individual servers.

File Options tab

Once a file is defined on the Dataset Info tab, the options and modes Eden Server will apply to the file may be configured on the Options tab. A sample Options tab for an Indexed file is shown below in figure 3.

The screenshot shows the 'RMSJOB - Edit Indexed File Entry' dialog box with the 'Options' tab selected. The 'Auto Index Rebuild' section has 'Enabled' selected. The 'Max File Size' section has an empty text box. The 'Sharing' section has 'Exclusive' selected. The 'Access Mode' section has 'Read / Write' selected. The 'Concurrent Operations' section has 'Browses' set to 00010 and 'Updates' set to 00001. The 'Resource Protection' section has 'Enabled' unchecked and 'Max. Records' set to 01000. The 'External Processing' section has 'Journaling' and 'Log RealTime changes' unchecked. 'Save' and 'Cancel' buttons are at the bottom right.

Figure 3 File Options tab

Auto Index Rebuild

Indexed files, by their nature, always have both a data and index component. In some circumstances such as a power or other system failure, these components of the file can become out of sync or corrupted. The Micro Focus file handler, EXTFH, which is used as the underlying access method for all Eden Server files, automatically checks this condition at open time. Depending upon the exact nature of the problem, either a 9/041 or 9/043 return code will be set if there are index problems with the file. By selecting Enabled in the Auto Index Rebuild area, Eden Server will intercept these errors and attempt to automatically rebuild the index

component.

Enabling the Auto Index Rebuild feature is highly recommended, providing there is sufficient disk space in the directory containing the corrupt file. The space requirement for a successful rebuild is equal to the space occupied by the largest file that would be rebuilt. This is due to the nature of the rebuild process itself that creates a temporary copy of the file as a work area for the rebuild.

Max File Size

In systems where free disk space is limited, the Max File Size feature can help prevent out of disk situations before they occur. By the nature of most CICS applications, VSAM files are generally opened and closed once per day before and after a nightly batch run. Entering a value, in bytes, for a maximum file size allows Eden Server to allow conditional processing of the file based on size. If specified, and a file is found at open time to exceed its allowed size, it will not be opened.

Sharing

Many if not most applications have requirements that some VSAM files be shared while others are controlled exclusively. Eden Server provides very flexible access to the VSAM files that it controls. Choosing the Exclusive setting will prevent any process other than an Eden Client controlled CICS transaction from accessing the file in question. Selecting the Shared setting allows any other process to access the file concurrently with Eden Server.

Choose the Shared setting with caution, however, as it is possible corruption can occur if an external process ends abnormally while it and Eden Server are performing simultaneous updates to the same file.

Note: Eden Server sharing is not related to Micro Focus FileShare.

Access Mode

Access mode may be selected as Read/Write (i.e., OPEN IO) or as Read Only (i.e., OPEN INPUT). As with IBM CICS, files may not be opened in create mode (i.e., OPEN OUTPUT). Files may effectively be created, however, by use of the File is Required option on the Dataset Info tab.

Concurrent Operations

During browse and read-for-update operations on files, physical resources must be used so that place holders and record locks may be maintained. This is especially true where CICS applications are used to access VSAM files. As a multi user system where CICS itself manages files as well as clean-up of held resources after a transaction terminates, the requirement of state maintenance for browses and updates becomes even more important.

To provide installations the ability to balance internal resource usage against varying levels of IO demands for a file, the number of concurrent browses per region and the number of record-locks per file-per terminal may be set.

For browses, the total number of concurrent browses allowed for the file, for all transactions, may be set. As browses are started, processed and ended, Eden Server will monitor the count and, if exceeded, will warn the system operator via the System Log. In such a case, the request will be retried; however, system performance, especially to the user whose transaction caused the overflow, will be affected.

Generally, due to IBM restrictions, CICS transactions do not read more than one record from a file in update mode at a time. While such a restriction does minimize system resource usage, it can cause applications to do extra work in maintaining their own internal states. Eden Server alleviates this restriction by allowing the maximum number of record locks per file, per transaction to be set using the Updates field in the Concurrent Operations area.

Note that for both the Browses and Updates entries, the maximum values may cause memory shortages if set too high. Generally, the default values supplied in the notebook of one update and ten browses should be sufficient. Each plug-in, as part of its initialization, will display the bytes acquired for Browses and Locks on the System Log.

Resource Protection

To enable automatic back-out of changed but uncommitted records for a Dataset, select the 'Enabled' check box in the Resource Protection box. Once enabled, the Eden Server IO plug-in for the file will automatically process the file in protected mode which allows CICS programs to issue SYNCPOINT / ROLLBACK commands as well as for the system to automatically perform Dynamic Transaction Backout (DTB) during ABEND processing for transactions.

Note that depending upon the frequency of use of the SYNCPOINT command by transactions updating the file, it may be necessary to increase the value in the 'Max Records' field. The value entered should correspond to the maximum number of records that may be locked or updated between issuance of SYNCPOINT commands on a region wide basis. For example, if a transaction is known to update 3 records on the same file between SYNCPOINT's and a maximum of 100 concurrent users may log into Eden Server at any given time, then a minimum value of 300 should be entered, however it is recommended that at least a minimum value of 1000 be entered for all protected files.

If in the event the maximum number of DTB protected records is exceeded, all transactions attempting to lock records over the limit will be abended and subsequently processed through DTB processing.

External Processing

In addition to providing transaction backout, Eden may also be configured to produce real-time change logs and journal files.

File Type (Sequential files only)

Included only on notebooks for sequential files, the File Type area, as show below in figure 3a, allows the selection of which type of sequential file implementation is desired:



The image shows a rectangular control panel with a light gray background. At the top left, the text 'File Type' is displayed. Below this, there are two radio button options. The first option is 'Record Sequential' with an empty radio button. The second option is 'Line Sequential' with a radio button that has a black dot in the center, indicating it is the selected option.

Figure 3a Sequential File type

Selecting a file type for sequential files allows Eden server to handle what are effectively text files by choosing the Line Sequential option, where records are delimited by line-feed/carriage-return characters.

Record Sequential files, if they are fixed length records, are supported as byte stream files, i.e., there are no record delimiters. Mainframe VSAM ESDS files should be defined as Fixed Length, Record Sequential files, a.k.a. RBA files.

Note that Variable Length Record Sequential files are handled via EXTfH and do have a Micro Focus file header.

Primary Data tab

The Primary Data tab is used for all file types, however, key information is included only for Indexed files.

The screenshot shows a dialog box titled "ISREG1 - Edit Indexed File Entry". At the top, there are several tabs: "Alt. Key 2", "Alt. Key 3", "Alt. Key 4", "Alt. Key 5", "Dataset Info", "Options", "Primary Data", and "Alt. Key 1". The "Primary Data" tab is selected. Below the tabs, there are several sections, all of which are grayed out, indicating they are disabled for user input. The sections are: "Record Type" with radio buttons for "Fixed Length" (selected) and "Variable Length"; "Record Length" with input fields for "Min. Length" (02400) and "Max. Length" (02400); "Primary Key" with input fields for "Offset" (00001) and "Length" (00024); "Identification" with an input field for "Alias" (ISREG1); and "Read Ahead" with checkboxes for "Read Ahead Enabled", "Forward Reads", and "Backward Reads". The "Read Ahead" section also includes "Start after" input fields with values 100 and 101. At the bottom right, there are "Save" and "Cancel" buttons.

Figure 4 Primary Data tab

Note in the figure above that all items are grayed out and disabled for user input. This is due to the file having a Micro Focus file header, which allows EManager to complete these items automatically. They are disabled for input to ensure a proper configuration. In the event that any of these items change as a result of the file changing, EManager will recognize the new settings when it queries the file and prompt to update or retain the notebook settings. Note that when file changes occur, it is required that the notebook be opened so that EManager can update the settings for Eden Server. If this step is not followed, it is possible that file corruption will occur as a result as Eden Server will attempt to use the configuration from the notebook which will not match the actual file.

Record Type

Fixed or variable records are supported, select the appropriate button. Selecting Fixed Length will cause the notebook to disable the Min. Length item, if not already disabled, and to update Min. Length with whatever is entered in the Max. Length field.

Record Length

Enter the minimum and maximum allowed record lengths. Note that the minimum field will be disabled if the record type was selected as fixed. In this case simply enter the maximum length and the notebook will automatically update the minimum field.

Primary Key

For indexed files only, the Primary Key area will be included on this page. The Offset field should contain the relative position of the field, i.e., if the key starts in the first byte of the record, enter an offset value of zero. The Length field should contain the length in bytes of the primary key for the record.

Identification

The Identification area is provided on this page as a documentary field. The value displayed in the Alias field is the CICS file name and was the name supplied when the entry was created. The Alias name is the name by which all CICS programs will access the file.

If the name of the file must be changed, it can be changed using the Rename menu option from the file list display. It cannot be changed during an edit of a file entry.

Read Ahead

All Eden Server managed files may be configured to use Eden's exclusive 'read ahead' feature to greatly enhance read throughput for sequential access. When in effect, Eden Server and Eden client will analyze the read operations a client is generating and when beneficial the server will automatically read up to 32k bytes of data in advance of the client actually requesting the reads to take place. Normally, the server will only read one record at a time – when the client requests it. In situations where the client transaction will eventually read large numbers of records, it will be of great benefit to enable the read-ahead feature. Not only will read-ahead improve transaction response time, it will also reduce overall network traffic and server CPU usage.

Note that read-ahead may be set for both forward and backward reads of the file. Also, read ahead may be set so that it is not invoked until a certain number of records have already been read. Knowledge of the transactions that access files is therefore of some importance when setting up read-ahead.

Specifically Read Ahead will be (potentially) invoked whenever a READNEXT, READPREV or standard READ with either the GENERIC or GTEQ options are included.

Alternate Indexes

The screenshot shows a dialog box titled "ISREG1 - Edit Indexed File Entry". At the top, there are five tabs labeled "Alt. Key 2", "Alt. Key 3", "Alt. Key 4", "Alt. Key 5", and "Alt. Key 1". Below these are four more tabs: "Dataset Info", "Options", "Primary Data", and "Alt. Key 1". The "Alt. Key 1" tab is selected and contains the following controls:

- Alternate Key 1**: A group box containing two text input fields labeled "Offset" and "Length".
- Duplicate Keys**: A group box containing two radio buttons: "Allowed" (unselected) and "Not Allowed" (selected).
- Identification**: A group box containing a text input field labeled "Alias".
- Read Ahead**: A group box containing:
 - A checkbox labeled "Read Ahead Enabled" (unchecked).
 - A checkbox labeled "Forward Reads" (unchecked) with a "Start after" text input field to its right.
 - A checkbox labeled "Backward Reads" (unchecked) with a "Start after" text input field to its right.

At the bottom right of the dialog are "Save" and "Cancel" buttons.

Figure 5 Alternate Index tab

For indexed files, the Alt. Key 1 through Alt. Key 5 tabs are included as part of the notebook. Note, Indexed files with more than five alternate indexes are not supported.

As with the entries on the Primary Data tab, entries on all Alt Key tabs will be disabled when the file contains a Micro Focus file header.

The Alias entry, however, may be changed for alternate keys on their respective tabs. Eden Server implements access via alternate keys within the same IO routine as it does the primary key. Internally, then Eden Server translates IO requests to alternate indexes to the base file name, but with a different key number.

TCP/Clients tab

All communications between Eden Client and Eden Server are done via Eden's own TCP/IP routines. See the Eden Server Administrators reference for complete information on TCP/IP.

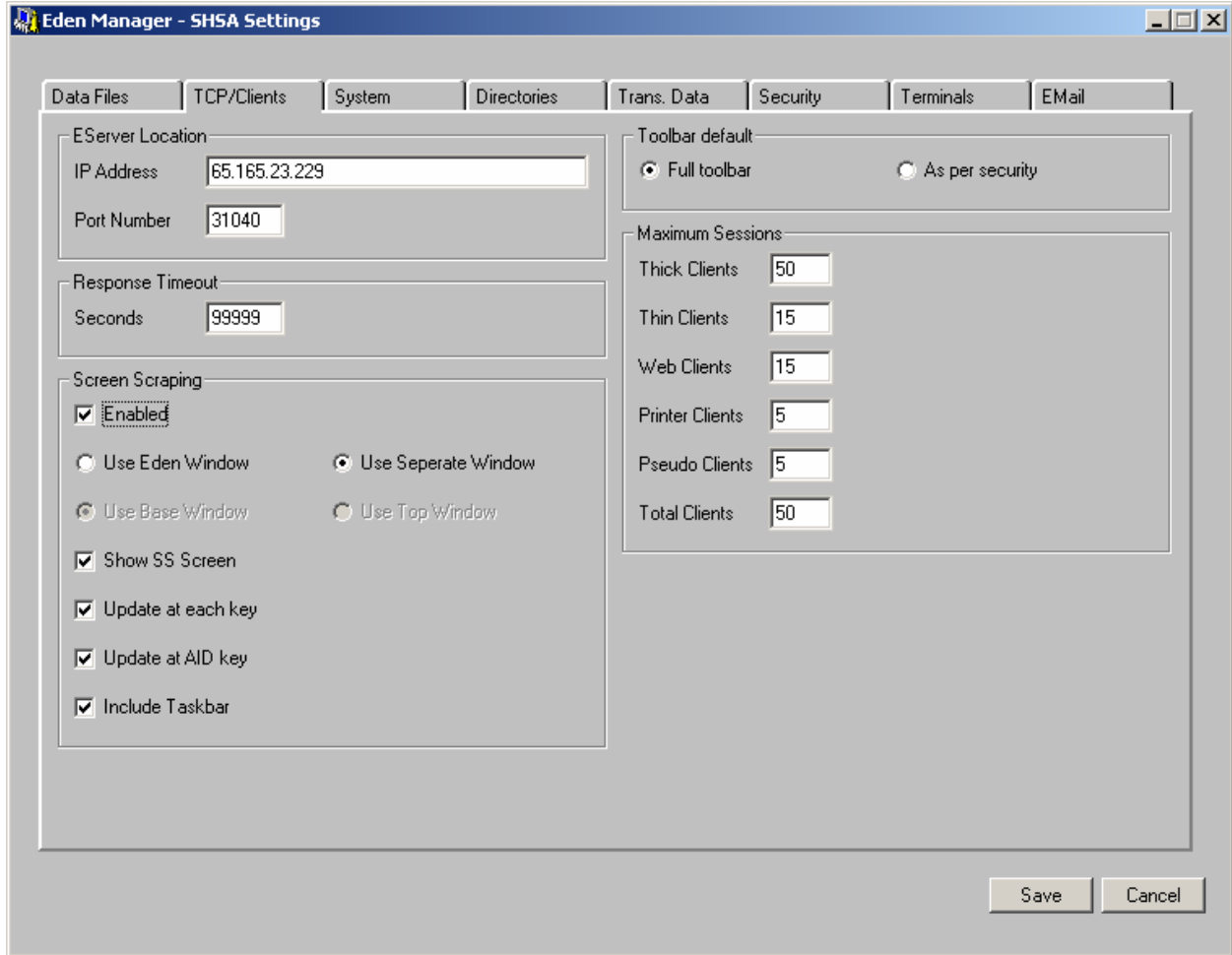


Figure 6 Connection tab

In terms of functionality and setup, most TCP/IP configuration is done directly with the Eden Server TCP/IP notebook. Configuration items within EManager are limited to the following:

IP Address

The IP address of the Server, in numerical format, is required. If no address is specified, Eden Client will attempt to connect to IP address 127.0.0.1, the TCP/IP "local host" address, i.e., "the current machine."

Port Number

All TCP/IP connections are established via a port number that is assigned at Eden Server. The port number entered here must match the number entered at Eden Server or no connection can be made.

See the [Eden Server Administrators Reference](#) for more information on setting up TCP/IP with Eden Server.

Response Timeout

While most TCP/IP networks, including windows networks and even higher speed internet connections are considered to be reliable connections, the possibility of network errors does still exist. Virtually all network errors will be recognized by either Eden Client or Eden Server. If, however, Eden Client is waiting for a response from the server, there is a chance that the client could 'hang.' To prevent Eden Client sessions from hanging in such a case, enter a reasonable value in the Seconds field. Generally, 30 seconds is a sufficient length of time to allow Eden Client to wait for a response. If this wait period expires, Eden Client will issue a CICS transaction abend after raising the NORESPONSE error.

Screen Scraping

Due to the ability of the Eden Client interface to display a BMS map in a variety of different formats, some of which may appear visually different from the underlying BMS map, Eden Client windows may not be directly accessible or accurately interpreted by third party screen scraping software.

To facilitate the use of such third party software, Eden Client can provide either a hidden image of the BMS display on the existing Eden client window, or on a secondary window. In either case, Eden will always display a true and accurate representation of the underlying BMS / 3270 display. To activate this feature, the controls provided in the 'Screen Scraping' area of the TCP/Clients tab should be used. Note that regardless of which window the BMS image is created on, the image will consist of single line text strings. For example, a standard 24 by 80 BMS display would be represented by 24, 80 byte text strings.

Screen Scraping controls and their functions are as follows:

Enabled

The Enabled check box activates the screen scraping functionality within Eden Client. When selected, this control causes Eden Client to process the Screen Scraping window according to the settings of the remaining controls, listed below.

Use Eden Window / Use Separate Window

Some screen scrapers with limited functionality only have the ability to read data from the current window, which must also be the top most window on the desktop. Other screen scrapers with more advanced features can read data from any window on the desktop. Depending upon your own particular screen scraping software, you can cause Eden Client to place it's BMS display image either on the actual Eden Client window, or on a separate window. There is an advantage to using a separate window if your software will support it. Namely, when a separate window is used, you have the ability to cause this window to be visible which may be helpful during configuration and debugging of the screen scraping process. Note that when scraping directly from the Eden Window, it is not possible to actually see the scrap-able items in the BMS display. This is due to Eden Client placing these items far off the visible area of the window.

To cause Eden to create a separate window, select the 'Use Separate Window' radio button, otherwise choose the 'Use Eden Window' button.

Use Base Window / Use Top Window

When the Use Eden Window control is selected, a second choice is required. When scraping from the Eden Window, it is important to understand that there are actually two windows in use. The first window is the window which is visible and has the 'Eden Client...' text in the caption (a.k.a. title) bar. The second window is a borderless window which sits directly in the center of the client area of the base Eden Client Window. Again, based on the capabilities of your screen scraping software you may have to adjust this setting. The best choice when first configuring Eden for screen scraping is to select 'Use Eden Window' in combination with 'Use Base Window'. If you are unable to get these settings to work with your software, try 'Use Eden Window' and 'Use Top Window'. If these settings do not work, try 'Use Separate Window'. If none of these options work, contact RMS and or your screen scraping software vendor.

Show SS Screen

Typically the Screen Scraper Screen should not be visible, however when installing and configuring Eden Client to work with a screen scraper package, it may be desirable to be able to see the Eden Screen Scraper screen. Selecting the Show SS Screen check box will cause Eden Client to display, in the lower right hand corner of the monitor, the "Eden Screen Image" window. Note that during regular production use this setting should not be enabled. Also note this setting is only available when the 'Use Separate Window' setting is selected.

Update at each key

The Update at each key and Update at AID key (next item) controls are used to configure at what point in time the Eden Screen Image window is updated based on user actions. The Update at each key check box, when activated, will cause Eden Client to update the Eden Screen Image window to be updated following every key stroke. Note that when this setting is enabled it is not necessary to also enable the Update at AID key setting.

Update at AID key

The Update at AID key and Update at each key (previous item) controls are used to configure at what point in time the Eden Screen Image window is updated based on user actions. The Update at AID key check box, when activated, will cause Eden Client to update the Eden Screen Image window to be updated following every key stroke. Note that when this setting is enabled it is not necessary to also enable the Update at AID key setting.

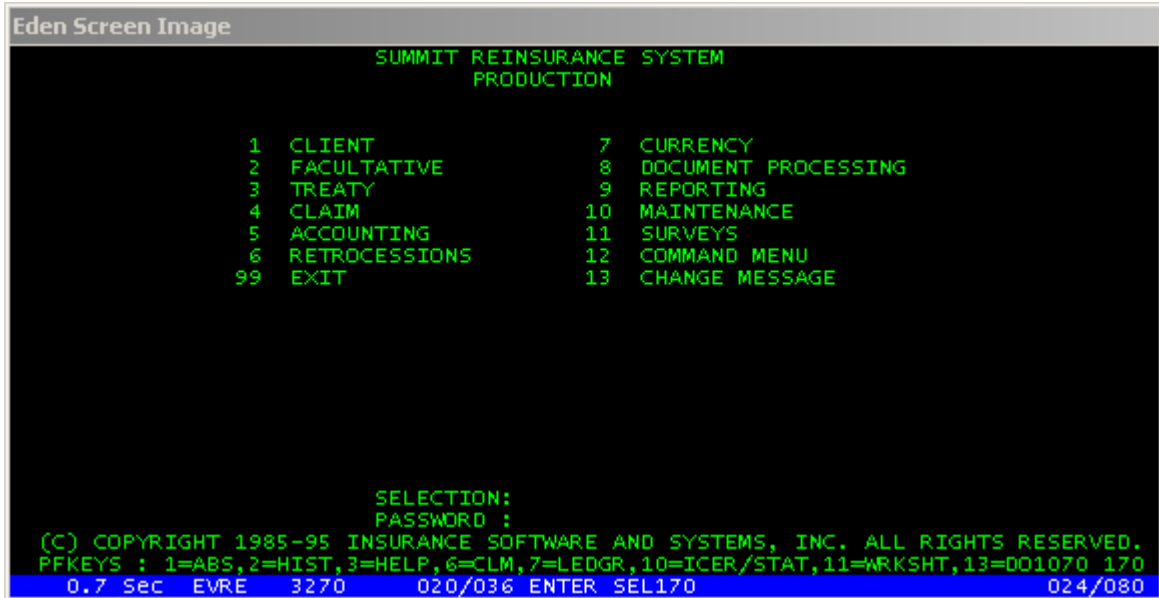
Include Taskbar

The Include Taskbar check box controls whether or not the Eden Screen Image window includes an additional line of text that displays the client window status and information area.

When activated, this control will cause the Eden Screen Image window to include the following items in the display:

- 1) Response time, or 'Running' indicator.
- 2) Eden CICS region name
- 3) Name of most recently display BMS map, or the word '3270' if the most recent output was a native 3270 data stream.
- 4) Cursor position in row & column notation. Note that Eden screens start at line 0, column 0.
- 5) The most recent AID key pressed by the user. The key names are ENTER, CLEAR, PA1 through PA3 and PF1 through PF24.
- 6) Name of the BMS map field where the cursor is currently located. Note that this item may display spaces if the cursor is not in a BMS input/output field.
- 7) Size of the overall BMS window in row and column notation. Typically this is 24/80 but may be different depending upon the particular display.

Sample Eden Screen Image Window

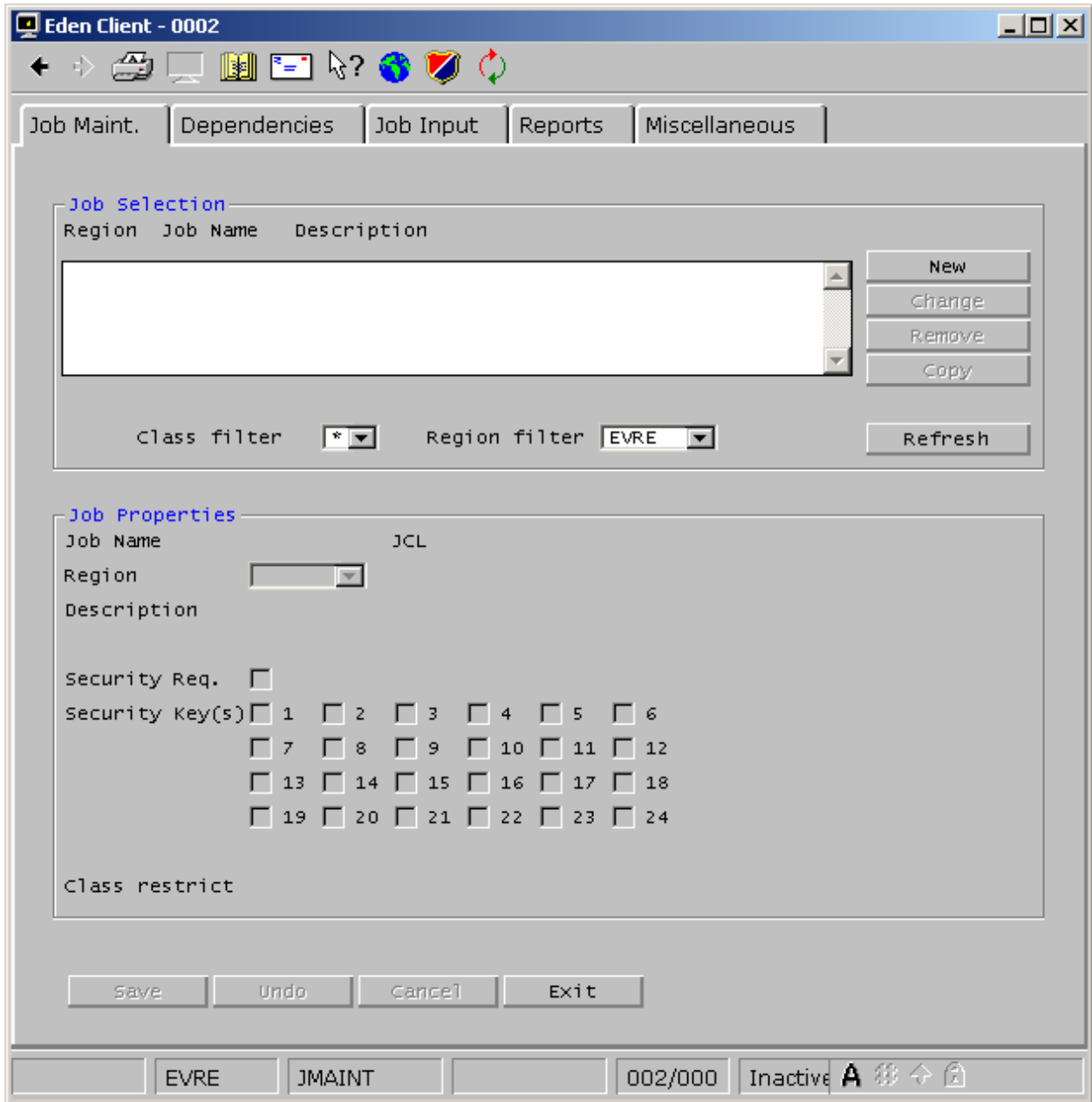


The image above is a sample image displayed when the 'Show SS Screen' checkbox was enabled. Note the image is a representation of a standard 3270/BMS image. The taskbar feature is activated, causing the bottom line (shown in Blue & White) to be displayed. In this example, the taskbar shows a response time of 0.7 seconds; the client is attached to an Eden Server region named 'EVRE', the most recent BMS output was for a native 3270 data stream, the cursor is currently at line 20, column 36 in a BMS field named SEL170. The ENTER key was the most recent AID key pressed by the user, and the overall screen size of the BMS display is 24 rows by 80 columns.

Be aware that when using the Eden Screen Scraping feature the image will include all those items on the actual BMS window. Therefore, it is possible for fields and other text to appear in the Eden Screen Image window that are not visible on the actual Eden Client display. An example is the 'PASSWORD:' item that is displayed near the bottom of the image above; this item is actually not visible on the BMS display because its display attribute is 'dark'. The Eden Screen Scraping feature will always display all items even if their underlying BMS attributes are such that they are normally non-displayable.

Another area to be aware of, when using screen scraping, is that the Eden Client interface has the ability to alter BMS data before, during and after a BMS output operation, and or user keystrokes. For example, it is possible that some transactions are written as 'GUI' displays. Items such as check boxes, radio buttons, drop down lists or list-boxes are not native BMS display gadgets. Such items still have an underlying BMS field associated with them, though. The Eden JOBS system is a prime example of an enhanced display. See the next two images for an example of what the underlying BMS looks like for such a screen display.

Sample Eden Client Window in GUI mode



Note that this image contains numerous 'non-BMS' items, such as the list box in the 'Job Selection' area as well as items in the Job Properties area. Further there are 'push button' items which are used only to generate AID keys when clicked.

Sample Eden Screen Image window for above display

```
Eden Screen Image
Region Job Name Description
JOBAJMDY0000

Class filter * Region filter EVRE

Job Name JCL
Region
Description

Security Req. N
Security Key(s) 1 2 3 4 5 6
7 8 9 10 11 12
13 14 15 16 17 18
19 20 21 22 23 24

Class restrict

1.0 Sec EVRE JMAINT 002/000 ENTER JMJLIST 024/080
```

The image above represents the underlying BMS data used to build the image on the previous page.

Toolbar Default

Eden Client typically displays a tool-bar at the top of it's window, directly below the title bar. By using the controls in the 'toolbar default' area, the default buttons displayed in the client toolbar may be set to either be all buttons, or only those specifically set on the users Eden login account. When 'Full Toolbar' is selected, Eden Clients attaching to this region will show all available buttons. When 'As per Security' is selected, the client toolbar will only display those buttons specifically turned on for the user.

Maximum Sessions

Typically Eden Server only limits the number of client sessions to the server, and not to any particular CICS region on that server. In some cases, however, it is required that a 'per-region' maximum number of sessions be enforced. To accommodate this requirement, EManager provides the 'Maximum Sessions' controls. Using these controls, individual CICS regions may be configured to limit connections of a particular type, and/or an overall total number of connections.

The first five controls limit, on a per client type basis, the number of connections for that client type. The sixth control, limits the overall number of connections, of any type, that may be made to the region.

Note, entries made in these controls will not override the Eden Server Master License, which will limit the total number of client sessions per server regardless of region.

System information tab

Miscellaneous configuration items for Eden Client, a.k.a. EClient, are made on the EClient tab, as shown below in figure 7.

The screenshot shows the 'Edén Manager - EVRE Settings' dialog box with the 'System' tab selected. The dialog has a title bar with standard window controls and a tabbed interface. The 'System' tab is active, showing various configuration options. The 'Year 2000' section has 'EIBDATE Type' set to 'Y2K Compliant'. The 'File Open time' section has 'On Demand' selected. The 'Storage Control' section has 'Enable Warnings' and 'Enable Failsafe' checked, with 'Low Disk Limit' set to '0 Meg'. The 'Startup' section has 'Init Trans + data' set to 'SIC2BMM'. The 'Pseudo devices' section has 'Process Count' set to '00'. The 'Default User Exit' section has an empty 'DLL name' field. The 'Client Program Loader' section has 'Enable Cache' checked. The 'JOBS report file IO' section has 'Via Eden Server' selected. The 'Light Pen Emulation' section has 'Mouse as Light Pen' unchecked. The 'Pre-Initialization Routine' section has empty fields for 'Batch Job', 'CICS TransID', and 'Maximum Wait'. The 'Post Shutdown Routine' section also has empty fields for 'Batch Job', 'CICS TransID', and 'Maximum Wait'. 'Save' and 'Cancel' buttons are at the bottom right.

Figure 7 – System tab

Year 2000

There are some applications that were improperly updated during Year 2000 remediation. In some cases, programs were updated to reflect using the CICS supplied field EIBDATE as though it was formatted with Pre-Y2K formats.

This source code remediation problem may cause dates in an application to appear incorrectly. If such problems occur with your applications, the EIBDATE type drop down should be set to Pre-Y2K.

The default setting of Y2K compliant should be used for the vast majority of applications.

File Open Time

The single most time consuming operation on virtually every hardware platform is opening files. While very much quicker than a mainframe, Eden Server's region startup processes may consume more CPU resources than slower servers may have available. To avoid the temporary unbalanced situation that a region startup may produce on such slower machines, EManager provides the File Open Time settings.

By selecting the At Region Startup setting, all VSAM files for the region will be opened as part of the region startup process.

By selecting the On Demand setting, the region startup will not include starting File IO plug-ins or opening files. Instead, files will be opened when the first IO is requested.

Storage Control

Unlike many mainframe environments that may perhaps devote an entire staff to DASD management, the majority of client-server environments do not have full-featured disk space management capabilities.

To help administrators avoid the problems that an 'out of disk space' condition will cause for a CICS application, Eden Server provides the ability to automatically monitor free disk space and take action when pre-set thresholds for free space are crossed.

Two levels of storage control are provided and are controlled by the entries in the Storage Control area of the page.

When either the Enable Warnings or Enable Failsafe items are selected, Eden Server will compare the actual disk free space to the Low Disk Limit entry from this page.

If the Enable Warnings item is selected, Eden Server will issue a warning on the System Log when the free disk space drops below the Low Disk Limit. Additionally, if the Enable Failsafe setting is selected and actual free disk space drops below 50% of the amount specified in the Low Disk Limit field, the region will begin a forced shutdown. Eden Server will grant active transactions up to 60 seconds to complete while preventing any new transactions from starting. Transactions that are not completed within the 60 second time period will be cancelled. When all transactions are completed, either by themselves or due to being cancelled, the region will shut down.

Startup

If client sessions for this region should start at a blank CICS screen, leave the Initial Trans field blank, otherwise enter a valid transaction id code in the Initial Trans field. Note the transaction ID, if one is entered, is not started until the user completes sign-on-processing. Also, if the transaction requires additional input, up to 12 additional characters maybe entered following the transaction ID. For example, to start CSSF and supply the LOGOF parameter, simply enter CSSF LOGOF in the Initial transaction & data field.

Pseudo Devices

CICS transactions are typically associated with a terminal, however it is entirely possible to run transactions in a CICS environment that are not associated with terminals. Within Eden Server, these non-terminal-tasks are executed on the Eden Server machine and are associated with a 'pseudo-device', which is simply an operating system process that executes a special version of the Eden Client software. Upon receipt of CICS START TRANS command for a non-terminal-task, Eden Server searches for an idle pseudo-device. If none are available, Eden Server will create the required process automatically, however a 5 second delay will be incurred. To help avoid this delay, a number of pseudo-devices may be defined to be automatically created during region startup by entering a value in the Count field under Pseudo Devices.

Default User-Exit

While application programs may dynamically install and uninstall their own User-Exit programs, it is sometimes desirable to have a client session automatically invoke a default user-exit routine. The use of a default region based user-exit allows the region to include base-level transaction navigation via the user-exits installed menus and toolbar buttons. For more information on the use of User-Exits, please see the [Programmers Reference](#).

Client Program Loader

Eden Client connections, with the exception of Thin Clients, run as distributed applications on the network (LAN). User Application programs also run within the client framework and so they are distributed also. Depending upon network size and the number of Eden Users, loading these application programs across the network (i.e., via mapped network drive or UNC name) may cause the network to become overloaded. To overcome this possible problem, the Cache Programs setting may be enabled. When enabled, Eden Client will cache all application programs on the client workstation as needed. Use of this feature is highly recommended as it will reduce Eden related network traffic by as much as 90 percent. Application programs remain cached on the workstation and are automatically updated in the event they are recompiled or updated on the server.

JOBS report file IO

If the JOBS system will be used to allow users to submit batch jobs and view / print batch reports, the method used to read the resulting report files must be considered. Because output produced by batch jobs is typically stored in the Eden Print Queue, and because the Eden Print Queue will most likely reside, from the clients perspective, on a network disk. User access to these reports, which are stored as individual files, therefore requires that client workstations have access to either a mapped network drive / UNC path name, or that Eden Server perform the file IO for the clients. There are pro's and con's to both alternatives: allowing direct workstation access to the print queue volume may pose undesirable security risks or user administration tasks, however placing the burden of disk IO on the server may cause undesirable performance issues. The Client Direct button will cause the JOBS report view and print functions to read report files directly through a client created file handle and requires that client machines have access to the directory specified in the 'Background Output' field as described later in this document under the section related to the Directories Tab.

Light Pen Emulation

If applications that will be used in the region require the use of a light pen, the check box marked Mouse as Light Pen will enable the Eden Client to support Selector Pen Detectable BMS fields with the mouse. Note that applications that have never been used with a light pen may not function as desired when they are exposed to light pen processing. In this event, the light pen emulation should be turned off.

Pre-Initialization Routine

If the CICS region requires processing to take place prior to control being released from Eden Server to the CICS region that processing may be supported by using the Pre-Initialization Routine feature.

By entering a Command Line in the supplied Batch Job entry field, it is possible to run batch processes during the region startup phase but before control is given to CICS. An example of this type of processing might be running a batch program that performed verification of data in VSAM files, or perhaps the resetting of data files that the CICS region expects to be empty when the region starts.

Command line values should simply be a fully qualified drive path and file name of any valid .BAT or .EXE file. Note that if there are multiple processes that must be executed it is recommended that a special .BAT file be created which uses the DOS 'CALL' command to execute each separate .BAT file required.

During execution of the Pre-Initialization routine the server will monitor the duration of the job and if it exceeds the 'number of minutes' value entered in the Maximum Wait field, the startup process will be cancelled. Likewise, if the final return code of the job is not zero, the startup will also be cancelled.

Note: As the pre-initialization batch command line is executed prior to the CICS region being initialized it is not possible for the program(s) being run within the created job to access any CICS features.

To access CICS facilities during Pre-Initialization, enter the transaction ID(s) in the CICS TransID field. If multiple transactions are to be run, separate the individual Ids with commas. Transactions started in this method may availa themselves of any standard CICS facilities.

Post Shutdown Routine

If the CICS region in question requires any special processing prior to the region being finally stopped, that processing may be supported by using the Post Shutdown Routine features. If CICS transactions are to be run during shutdown, enter the transaction ID(s) in the CICS TransID field. If multiple transactions are to be run, separate the ID's with comma's. Once the shutdown transactions are executed, if any, the Post Shutdown Batch Job command line will be executed. As the shutdown batch job routine is executed after all transactions have completed and all files are closed any program(s) used by the shutdown routine may not access any CICS features.

Directories tab

The System tab, shown below in figure 8, is used to define system paths as well as transaction definitions and other items:

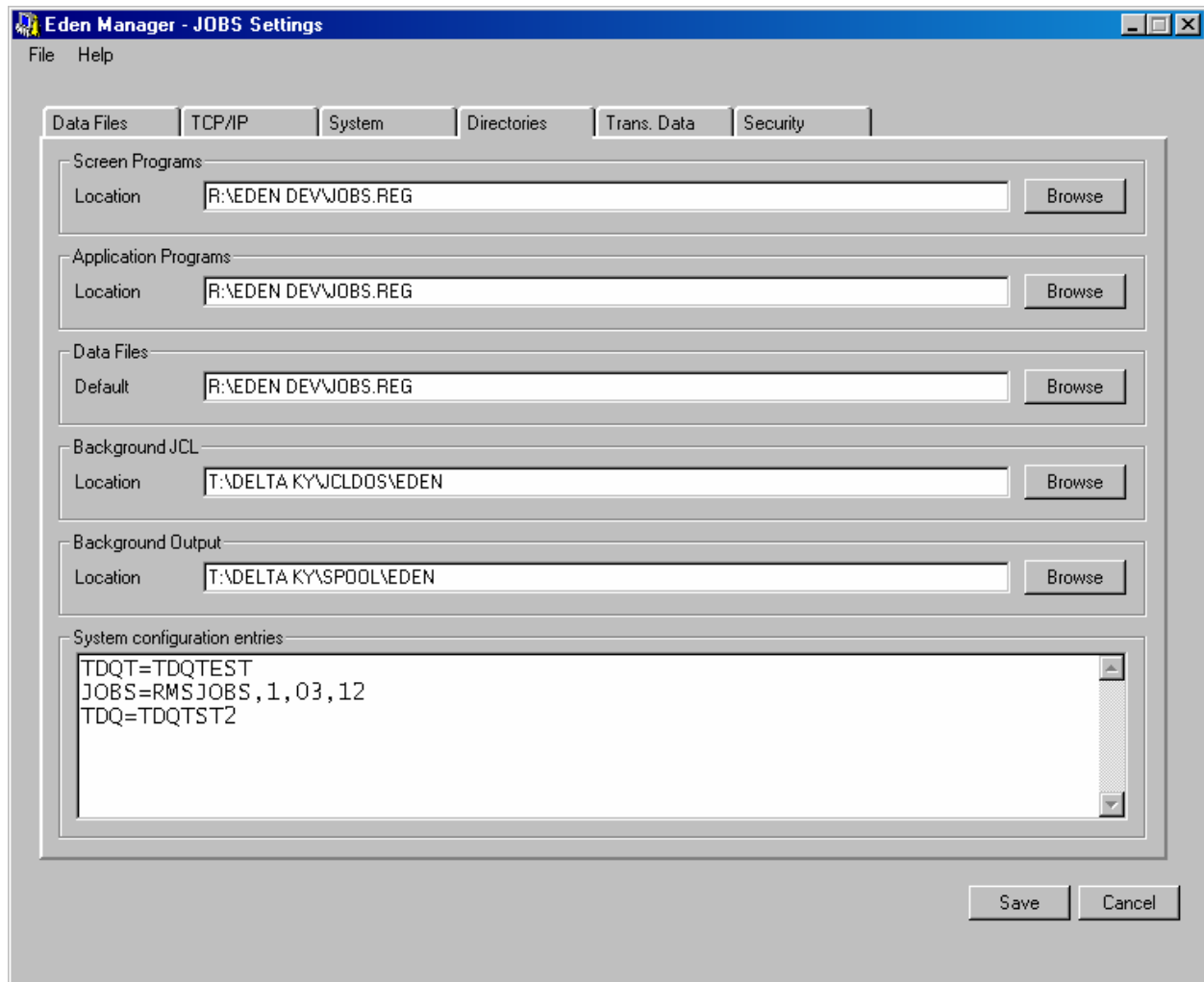


Figure 8 System tab

Screen Programs

The user interface portion of a CICS application is created using BMS maps. On Eden Server, the Assembler macro statements that make up BMS source code are compiled using Eden Server's BMS preprocessor. The resulting object code is then compiled to a .DLL.

Enter the location of the DLLs that will be used by the applications in this region. Note that, as with all path specifications in the Eden Server system, long names, names with spaces imbedded and UNC names are all supported.

Application Programs

Application programs that are referenced either directly via PROGRAM parameter in an EXEC CICS task control statement or indirectly via transaction ID must reside in the directory specified by the Application Programs field.

Note that when interpreting the value of an EXEC CICS statement's PROGRAM field, Eden Client will first attempt to load a DLL. If no DLL by the program name is found, Eden Client will attempt to load an INT. If no INT file is found, the PGMIDERR condition will be raised.

Enter the location of the INT/DLLs that will be used by the applications in this region. Note that, as with all path specifications in the Eden Server system, long names, names with spaces imbedded and UNC names are all supported.

Data Files

The Data Files Location field specifies a default location for the VSAM files defined on the EManager Data Files tab. Note that the entry made here serves only as a default and may be overridden at the individual file level.

Enter the default location of the VSAM files that will be used by the applications in this region. Note that, as with all path specifications in the Eden Server system, long names, names with spaces imbedded and UNC names are all supported.

Background JCL

Eden Server provides support for batch jobs to run via the Background Manager. The Background JCL entry, which is required, allows Eden Server to find JCL for the region quickly. Providing an entry in this field also allows the console operator to enter the region name in RUN commands instead of repeatedly entering the JCL directory.

Note use of the JOBS system requires an entry in this field. See the [JOBS User](#) and [JOBS Administrator](#) references for complete information.

Note that while Eden Server supports all name formats for path specifications, including use of UNC names, it is not recommended that UNC names be used in the Background JCL field. This is because the Background JCL entry also serves as the 'working directory' for all batch jobs run via JOBS. This may cause execution problems for commands, etc., run via CMD.EXE, which does not support a 'working directory' value that is a UNC name.

Background Output

A companion entry to the Background JCL setting, the Background Output setting, provides Eden Server and specifically, JOBS, a default location for storing reports and other output produced by JOBS managed batch jobs.

Note that use of the JOBS system requires an entry in this field. See the [JOBS User](#) and [JOBS Administrator](#) references for complete information.

Unlike the Background JCL entry, UNC names are permitted and fully supported for this entry.

System Configuration Entries

Eden Client requires a minimum of CICS “table entries” as they are referred to in mainframe CICS parlance.

The primary entries that are required are transaction definitions that are the equivalent of a CICS Program Control Table, a.k.a. PCT entry, however, CICS terminal printers and the JOBS system administrator may also be defined here.

To define a transaction to Eden Client, simply enter the transaction ID (from one to four characters) followed directly the equal sign (=) and the program name (from one to eight characters). For example, if program RMSTEST was to be accessed via transaction RTST, the entry would be as follows: “RTST=RMSTEST”.

Do not enter path names or other qualifiers or extensions as part of the program name. If the program is to have transaction level security applied to it, add the security level(s) associated with the transaction after the program name, for example RTST=RMSTEST,1,9,14 will allow users who have security switches 1, 9 or 14 set to execute the transaction. Other users will receive a NOTAUTH transaction abend if they attempt to run the transaction.

On Eden Server, there is no requirement for a Processing Program Table, a.k.a. a PPT. The equivalent of a PPT is built automatically based on the contents of the BMS and CICS program directories.

Note that up to 1,000 entries may be made in this field. EManager does not perform any editing or checking of any kind on the entries made. Further, all entries made will be stored in Eden Client’s internal INI table. Access to entries and values made in this field by application programs is possible through the use of the RmsGetINI API as described in the [Programmers Reference](#).

Note the special reserved transaction id’s of CSSN, CESN, CSSF, CESH and EXIT are automatically included in every region definition and should not therefore be included in this field.

An additional use of the System Configuration entries field is to allow the definition of module names which may be called directly from a CICS application program. Due to the distributed nature of the various types of Eden Client connections that may be made (i.e., Think, Thin and Web), ensuring called modules are available to the client process requires that the module(s) be stored in a client accessible location. This may be accomplished by adding entries in the System Configuration field for each module.

These entries, of which there may be more than one, take the form of:

CALLMOD=module-name

For example, if a CICS application program performs the following CALL statement:

```
CALL 'MYPROG'
```

We would make the entry “CALLMOD=MYPROG”. Additionally, the executable module MYPROG.DLL should be stored in the standard CICS program directory. Upon initialization of the client interface, the system will ensure that the local client has access to current versions of

the modules.

Transient Data Tab

Eden Server provides full support for intra-partition transient data queues, which may be defined on the Trans. Data tab, as shown below in figure 9.

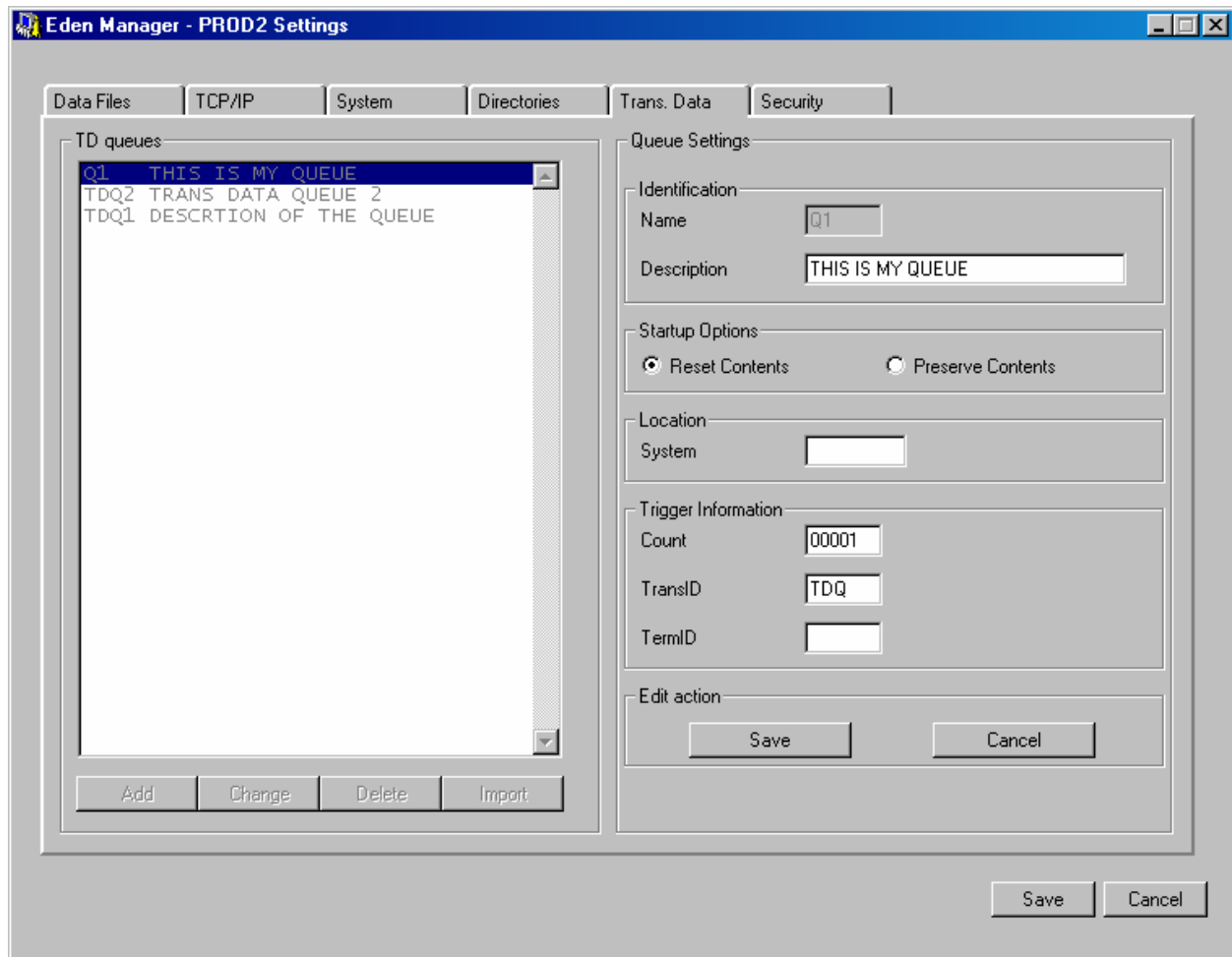


Figure 9 Transient Data tab

The Transient Data, a.k.a. 'TD', tab is divided, left to right, between the list of existing queue definitions on the left and the individual queue definition items on the right.

To start, select an existing queue name from the list and click the Change button at the bottom of the list, or click the Add button to create a new queue definition. Note that the Import button may also be used to cause the Transient Data queue definitions from another region to be copied into this region. Existing queue entries may be deleted by clicking the Delete button, however it is recommended that transient data queue's not be deleted while a region is active as the delete process will not be effective until the next re-start of the region.

Once the Add or Change button has been clicked, the list of queues and the Add, Change and Delete buttons are disabled and the queue definition fields and buttons on the right side are activated.

The Queue Settings area fields provide all necessary information for defining TD queues including transaction trigger information. The definition items and options are described below.

Identification

The Name field allows for the entry of the one to four character name of the TD queue. Note this field is disabled during change operations. Also, while it is the users responsibility to ensure no duplicate TD queue names exist, Eden Server will perform duplicate checking during region startup processing. The Description field is purely documentary and does not affect any system processing.

Startup Options

Upon region startup, Eden Server will scan the actual file used to hold all TD queues and will either delete the queue contents, or preserve and validate it, based upon which of the startup options buttons are selected. If the Reset Contents button is selected, the server will ensure that the queue is empty before control is given to CICS. If the Preserve Contents button is selected the server will scan the contents of the queue and compare the items found to the transient data systems internal pointers. Out of sync errors are automatically performed, ensuring previously read items are removed from the queue and that all records that were successfully written are available for subsequent reads during this run of CICS.

Location

The System field is reserved for future use and is intended to serve as the Eden Server equivalent of the CICS SYSID parameter.

Trigger Information

Eden supports the use of TD queue's to trigger the start of either a terminal or non-terminal associated task. To associate a trigger with a TD queue, the trigger level and transaction id must be entered. The trigger Count value must be from 1 to 99999 and the transaction id must be valid for this region. Note a trigger Count of zero indicates no triggering will be performed, regardless of the presence of a transaction id.

Eden also provides the ability to have the triggered task be started at a specific terminal by entering the name of the terminal in the TermID field. Note, however, that the use of this field does impose one restriction. Because all TermID values for display (i.e., workstation) connections are dynamically assigned, the use of a standard numeric TermID (i.e., 0001 – 1000) is not recommended as where this id number actually is installed cannot be predicted. The one exception to this rule is the ability to define CICS terminal printers with a hard-coded non-standard TermID value. Therefore, specification of a terminal at which to start a triggered task is limited, effectively, to specifying a printer TermID value. Note: See Printer Definitions, above for information on adding a CICS printer to a region.

Save and Cancel buttons

The Save and Cancel buttons will reset the screen display so that the list of TD queues is accessible again. Note, use of the Save button is immediate, the general Cancel button displayed at the bottom right of the overall EManager window will not remove the effects of using the TD queue Save button.

User Security Tab

Eden Server and Eden Client security are controlled via configuration settings made both on the Security tab of EManager as well as the User Security feature. Note, see the User Security reference manual for complete information on configuring individual users.

All system wide security settings are entered and maintained via the Security tab, as shown below in figure 10.

The screenshot shows the 'Eden Manager - EVRE Settings' window with the 'Security' tab selected. The window contains several configuration sections:

- Security:** Radio buttons for 'Required' and 'Ignored'. 'Ignored' is selected.
- Single sign-on:** Check box for 'Enabled' (checked).
- Lost password:** Check box for 'Send email' (checked).
- Password Expiration:** Text box for 'Days until forced' with value '000'.
- JOBS Admin. Access:** Text box for 'Security Key' with value '001'.
- Bad Password attempts:** Text box for 'Daily tries' with value '000'.
- CICS UserID:** Radio buttons for 'Windows Name' and 'Eden Name'. 'Eden Name' is selected.
- Windows Authentication:** Check box for 'Enabled' (unchecked).
- User Admin. Access:** Text box for 'Security Key' with value '001'.
- CSSN UserID:** Radio buttons for 'Windows Id' and '3 char OPID'. '3 char OPID' is selected.
- Password Size:** Text boxes for 'Minimum Length' (02) and 'Maximum Length' (07).
- Password Contents:** Text boxes for 'Minimum Alpha' (01) and 'Minimum Numeric' (01).
- Password History:** Text box for 'History Count' with value '05'.

'Save' and 'Cancel' buttons are located at the bottom right of the window.

Figure 10 – Security tab

Using the security tab of EManager, as shown above, a wide variety of security options may be configured. The region specific settings available are as follows:

Security

Aside from the transaction level security which may be defined for individual transactions, Eden provides the ability to force users to supply valid sign-on information, or to allow the users existing Windows login information to be used. Note that the use of Windows login information, however will limit the ability to use transaction level security as Windows does not provide individual resource keys that may be queried by Eden. To force users to enter an Eden sign on, the Required button should be selected. If the Ignored button is instead selected, the system will not force users to login, however all other security features remain intact. Further, regardless of settings on this page, transaction level security (if in place) will always be enforced.

Single sign-on

Eden will, upon selecting the Enabled button under Single Sign-on, attempt to automatically login users to Eden by using their existing Windows Login information as the key to the Eden Security system. If a match is found between the users Windows login name and the Windows ID associated with an Eden user id (see next section), the user will be logged in automatically without them having to manually key their ID and password.

Lost Password

If the Send Mail button is selected, the client Login program will include additional features that allow the user to request their sign-on and password information be emailed to them at their private email account. If activated, the send lost password process will automatically mark the users password as expired (regardless of the Password Expiration setting). To be effective, the users individual information must include their email address, also the Eden Server machine must have a mail account setup on it as the send mail routines use a MAPI interface to access the existing mail client for send-mail operations.

Password Expiration

If the Days until forced field contains a number greater than zero (i.e., 001 through 999), the client and server will monitor the age of all users passwords and force them to be changed upon expiration. Note, a value of zero in this field disables password expirations, except in the case of a password that was reset due to the users use of the Lost Password email feature.

JOBS Administrator Access

The administrator functions of the supplied JOBS system requires that authorized users have a specific security key turned on. The Security Key field should indicate the particular 1 through 24 value that this region will use to determine whether or not to allow access to JOBS administrator functions. Note that using JOBS administrator functions requires that users have a sign-on that is defined in the Authorized Users for the region, see the User Security manual for complete information on setting up user accounts and defining security keys.

Bad Password attempts

Eden Server has the ability to automatically disable a users accounts if during the course of a given day, the user attempts to login with an incorrect password an excessive number of times. To enable this feature, enter the number of allowable password failures in the 'Daily tries' entry field. Note, if a user account becomes disabled, re-enabling it is performed by using the controls in the Authorized Users area to change the users password. Once the password is reset in this manner, the account is re-enabled.

CICS UserID

For installations that have migrated to Eden from other operating systems, it is possible that Eden's use of a clients Windows login as their Eden User ID may be inappropriate. This is especially true if CICS applications already include logic which expects the EXEC CICS ASSIGN USERID api to return a name string that was a mainframe login name (i.e., a TPX login name). To overcome this the CICS UserID radio buttons allow the source of the string returned with this CICS api to be set either to the Windows login name, or to the Eden user name.

Windows Authentication

To force Eden Server to verify a users network rights (i.e., their Windows login rights), select the check box titled Enable. This will cause Eden Server, as part of it's login process to verify the Windows account privileges for the requesting user. Note, see the Eden Server Administrators guide for additional information on configuring this feature. Also, note that the Windows Authentication control on this tab will override the Server based setting for Windows Authentication.

User Administration Access

The administrator functions of the supplied User Security system requires that authorized users have a specific security key turned on. The Security Key field should indicate the particular 1 through 24 value that this region will use to determine whether or not to allow access to User Security administrator functions. Note that using User Security administrator functions requires that users have a sign-on that is defined in the Authorized Users for the region, see the User Security manual for complete information on setting up user accounts and defining security keys.

CSSN UserID

The Windows ID and 3-char-OPID radio buttons may be used to select which type of user name users must supply when they are executing the CSSN login transaction. Selecting the Windows ID button will allow users to sign in to Eden Client using their familiar Windows Login name. Selecting the 3-char-OPID button will require users to use their unique Eden 3 character identifier.

Password Size

By default Eden does not enforce any minimum or maximum lengths for a user password. However, such limits may be enforced by entering a minimum and maximum size in the entry fields provided here. Note, that when using minimum and maximum lengths, the Password Contents items (see below) must not cause an impossible situation. Also note, the maximum allowed length for any password is 8 characters.

Password Contents

By default Eden does not enforce any limits or requirements on the characters that make up a password. It is possible, though to require a users password to contain a minimum number of either alphabetic or numeric characters by entering such minimums in the entry areas provided. Note, EManager will verify that any supplied values to not create an impossible situation with respect to the Password Size limits entered. That is, Eden will not allow entry of minimums here that would be outside the minimum or maximum sizes entered in the Password Size areas. For example, is a maximum password length of 5 were entered, EManager will not allow a minimum number of numeric characters of 6.

Password History

By default Eden does not enforce any password history checking that would disallow a user from changing their password to a value used previously. If such processing is required, it may be invoked by entering a suitable value in the History Count field. When ever a value is present in this field, and the user changes their password either because it was expired, or just because the clicked 'New Password' during login, the system will verify that the new password is not among the 'n' previous passwords. To disable this process, enter a zero value here, or leave the field blank. Note the maximum allowed number of previous passwords that Eden will maintain is 36.

Terminal Settings Tab

Eden Server and Eden Client may be configured to use either existing Windows login information as the basis for access to Eden, or to enforce the use of a standard CICS 'OPID and RSL' type security structure.

All such security settings are entered and maintained via the Security tab, as show below in figure 11.

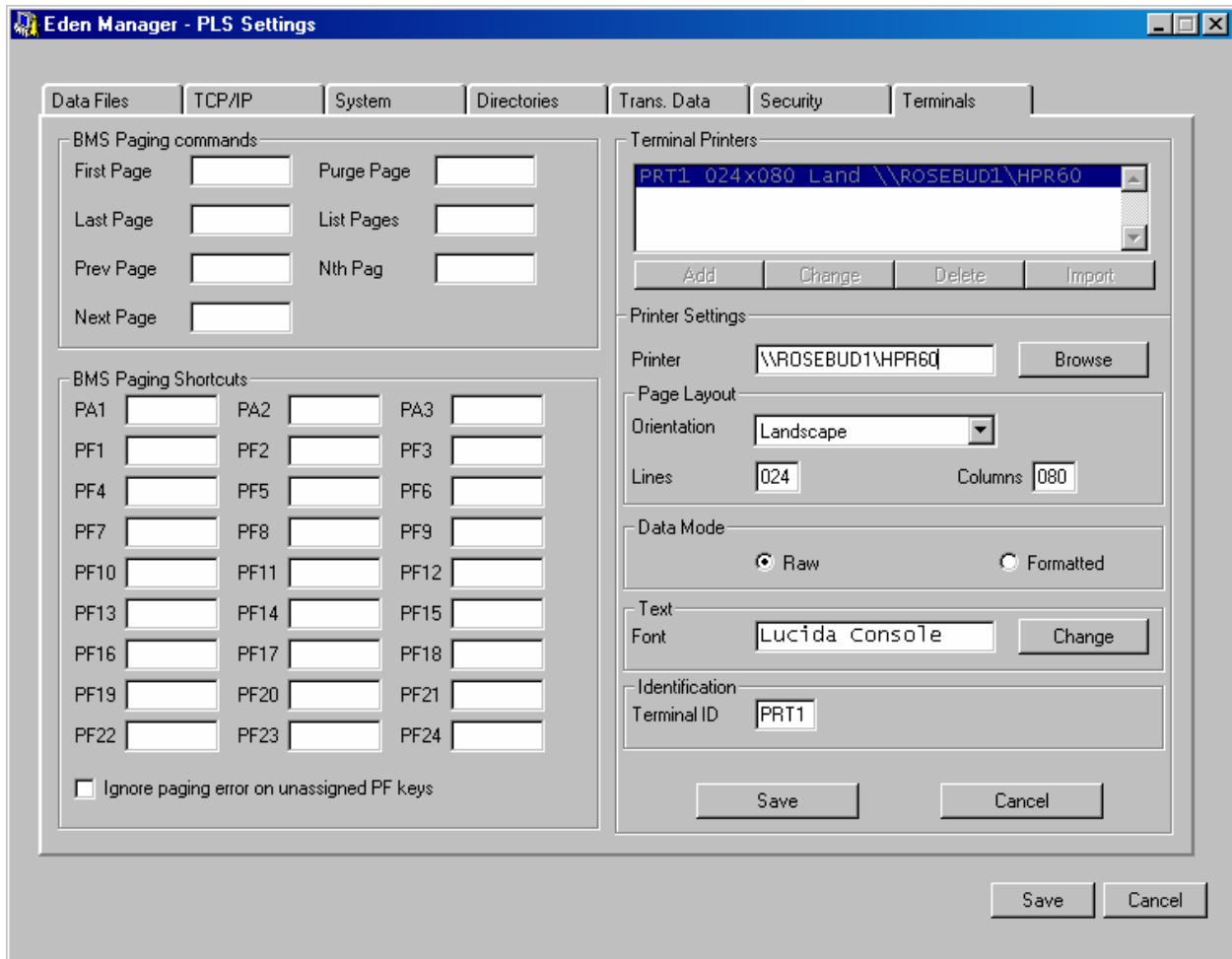


Figure 11 – Terminals tab

The left side of the Terminals tab provides the ability to configure the BMS paging system keys. There are two main groups of settings that are associated with BMS paging; the base keystrokes used to invoke paging operations and shortcut keys used to mimic the base keystrokes.

The BMS paging commands area, at the top left of the page, provides for entry of base keystrokes used for paging. Note, 'base keystrokes' are defined as the character sequences of keys used to activate a particular paging function.

The paging functions supported by Eden are:

First Page when used will cause the first page of the accumulated series of pages for the current paging session to be displayed.

Last Page when used will cause the last page of the accumulated series of pages for the current paging session to be displayed.

Previous Page when used will cause the page number that is one less than the current page number to be displayed.

Next Page when used will cause the page number that is one greater than the currently page to be displayed.

Purge Page when used will cause all pages in the current paging session to be deleted. Purge page also ends the paging session.

List Pages when used will cause a brief list of the available pages to be displayed.

Nth Page when used will cause the page number entered following the base keystrokes to be displayed. Note, Eden client analyzes keystrokes that follow the Nth Page keystrokes for $\frac{1}{4}$ of a second. When the Nth Page keystrokes have been recognized, Eden will accept any numeric keys pushed within a quarter second of each other as page numbers. Therefore, to display page 1 or 100 it is not necessary to enter '001' as the page number, only '1'. When a full $\frac{1}{4}$ second has elapsed since the last numeric keystroke, Eden will activate the paging processes.

Note: all paging keystroke commands may contain from 1 to 7 characters.

BMS Paging Shortcut key definitions are made using the items in the lower left had corner of the page. In this area, each of the available PF and PA keys are listed. Each key may have associated with it any paging keystroke command. Also, the ability to override certain normal BMS paging errors is possible.

Note that under normal BMS paging rules, during a paging session the only PF/ PA keys that may be used are those keys defined as paging keys. Using any other PF or PA key will cause a BMS paging error to be displayed. Many times it is desirable to have the PF and PA keys be available to be used to re-start the underlying CICS transaction as does the Enter key. By selecting the 'Ignore Paging errors..' check box, Eden will allow all unassigned PA and PF keys to be interpreted by BMS and passed along to CICS as they would be were there no paging session in progress.

Terminal Printers

The right hand side of the Terminals tab allows for the specification and configuration of Windows printers that will be used as CICS 'terminal printers'. To be able to be used as a terminal printer, the physical printer must be defined to and accessible from the Eden Server machine.

Once the physical printer(s) are installed, they may be set up as a CICS terminal printer by clicking the 'Add' button under the list of existing printers.

When adding, or changing, printer definitions it is recommended that printer names be selected by using the Browse button next to the printer name entry field. Names may be manually entered, however use of the Browse button method ensures that the printer names are correct.

The items that may be configured for each printer are:

- Page Orientation of Landscape or Portrait may be selected. Note page orientation settings are only effective for Formatted Printers – See Data Mode below.
- Lines and Columns defining the size of the printed page in character notation may be set. Note, page size settings are only effective for Formatted Printers – See Data Mode below.
- Data Mode settings of Raw and Formatted are provided to allow programs to access the printer in different methods. A setting of Raw should be used if the program(s) that will write to the printer use PCL or other printer control characters in the outputted data. A setting of Formatted should be used if the program(s) that will write to the printer do not include page formatting or other printer control characters. Note that when Raw mode is in effect page formatting settings made here are not possible to enforce. This is due to the inherent nature of Raw mode printing and is not a limitation in Eden Server.
- The Font used on formatted pages may also be selected from a list of the fixed width fonts available on the Eden Server machine. Note that Font settings are only effective for Formatted Printers – See Data Mode below.
- The Terminal ID that the printer will be known to the CICS region by may also be set to any unique 4 character alphanumeric string. Note that terminal ID's, if all numeric must be greater than 1000. This is due to Eden Server's reserving terminal ID's of from 0001 through 1000.

Email Notification tab

Eden Server regions have the ability to recognize errors and other warning type situations occurring during execution, and by using the Email tab, as shown below in figure ?, Email notifications may be automatically distributed to alert system administrators and others.

The screenshot shows the 'Eden Manager - SHSA Settings' dialog box with the 'Email' tab selected. The 'EMail Notifications' section on the left has 'Enabled' selected. The 'Mail Recipients' section on the right lists four groups of recipients with their respective email addresses.

Notification Type	Mail to group(s)
Region Start / Stop	1
Transaction Abend	2
Open / Close Error	3
System Warning Message	4
System Error Message	4
Region Failure	4

Mail Recipients:

- Group 1 Recipients: one@rosebudusa.com, ADMIN@TEST.COM, ADMIN2@TEST.COM
- Group 2 Recipients: two@rosebudusa.com
- Group 3 Recipients: three@rosebudusa.com, data_TECH@TEST.COM
- Group 4 Recipients: four@rosebudusa.com

Figure12 - Email tab

The Email tab, as shown above, provides two separate sets of configuration values used by the region. On the left side of the tab, the activation of Email notifications as well as the definitions of which messages are sent and each messages recipient group are defined. The right side of the tab defines the individual recipients for each of up to four recipient groups.

Before configuring any email notification settings, it is a good idea to first gather a list of those individuals responsible for the Eden region in question and to group them into up to 4 lists of recipients. By grouping the email addresses, it is possible to ensure that email from any of the six different types of notifications reaches the responsible party(s). Specifically, the configuration settings provided in the Email Notifications area are as

follows:

The Enabled and Disabled radio buttons control the entire email notification process, if the Disabled button is selected, no emails will be sent, regardless of any other settings. To cause Eden to send notifications, the Enabled button must be selected.

The following 6 controls, for Region Start/Stop, Transaction Abend, Open/Close Errors, System Warning Messages, System Error Messages and Region Failure are all similar in use.

For each of these 6 controls, the Enabled check box, when selected, will cause Eden to send an email to the members of the group numbers entered into the Mail to group(s) field. For example, in the above figure, members of Group 1 (i.e., one@rosebudusa.com, ADMIN@Test.com and ADMIN2@test.com) will receive an email whenever the region is started or stopped.

The contents of the email(s) that are sent vary from reason to reason, however, each email sent will contain the relevant Eden Server message codes and relevant parameters for the message. Each email message will also contain the date and time the message was generated indicated in local EServer based time, that is, unadjusted for time zone(s).

Note that use of these email notifications requires configuration of the Eden Server Email manager. See the Eden Server Administrators Guide, section on Email, for complete information on setting up and using Eden Server email features.

Eden Server User Plug-in Configuration

In addition to, and as a compliment to, the Eden Server supplied programming API's (see the [Programmers Reference](#)), Eden Server also provides the capability to include user programs as part of the Eden Server load time modules.

While the Programmers Reference documents actual programming information for the user written program(s), this section is intended to provide the accompanying documentation on how EManager is used to build the actual server plug-in(s) as Dynamic Link Library's.

By selecting 'User Plugins' from the 'File' menu in EManager, the user plugins list is displayed, as shown below in figure 13.

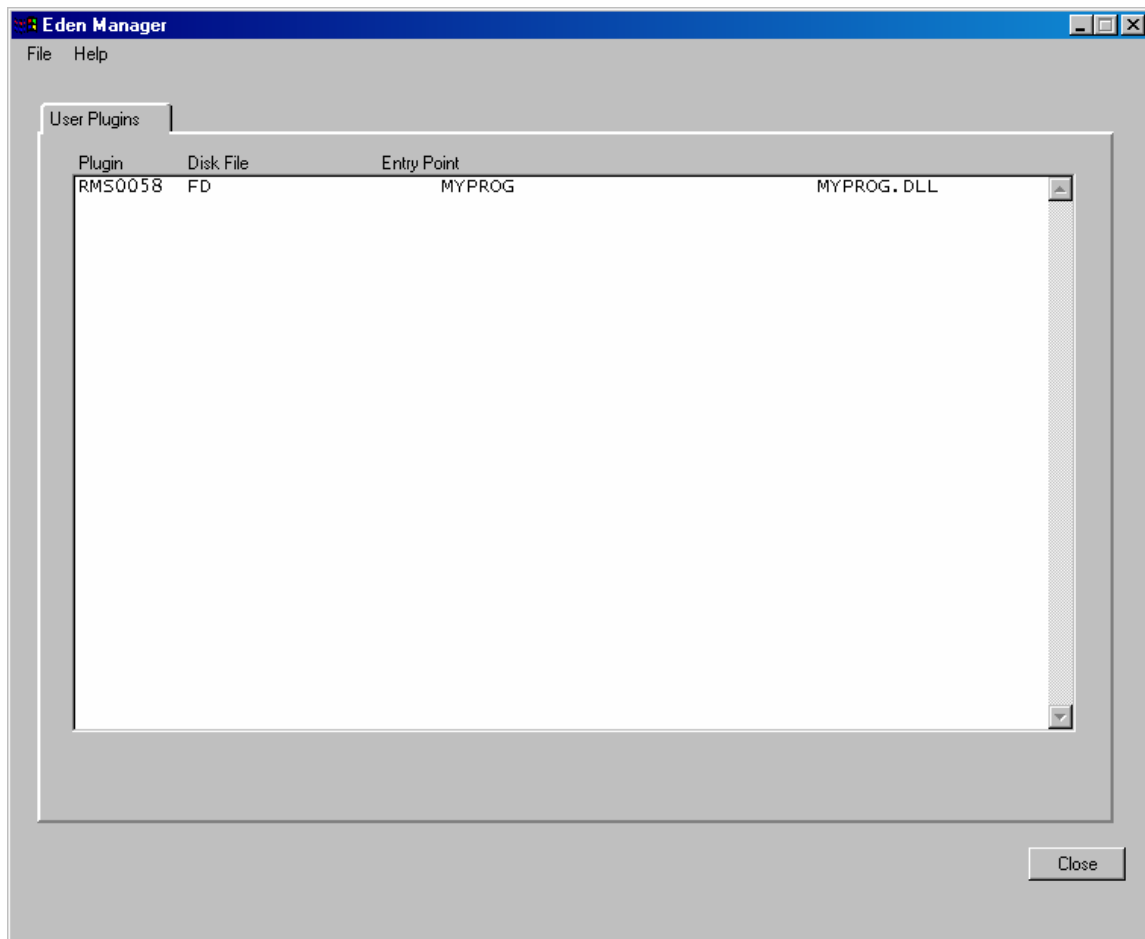


Figure 13 User Plugin list

By using the list of User Plug-ins, an item may be selected, and edited, or a new plug-in may be created. Both creating new and editing existing plugins use the same series of notebook tabs, which are described on the following pages.

Module selection / Plugin Creation

The first step in creating a User Plugin is to identify the user module that will be included with the plug-in.

The screenshot shows a dialog box titled "Edit plug-in RMS0058/MYPROG". It has four tabs: "User Module", "Startup", "Services", and "Notebook". The "User Module" tab is active. Inside, there are two main sections: "Module details" and "Plugin Information".

Module details:

- DLL/Obj file: "R:\EDEN DEV\MYPROG.DLL" (with a "Browse" button)
- Description: "My User Program"
- Entry point: "MYPROG"
- Link files: (empty field)

Plugin Information:

- Plugin: "RMS0058" (with a "Rebuild" button)
- Build date: "06/21/2002 13:33:02"

At the bottom right, there are "Save" and "Cancel" buttons. A mouse cursor is visible over the "Link files" field.

Figure 14 User Module definition

The user module tab is used to define the user program as well as to build the actual Eden Server plug-in DLL.

The fields within the Module details area are used as follows:

DLL/Obj file Enter the fully qualified .dll or .obj file name of the user program. Use the browse button to find the file on disk. Note that in the event a .obj file is chosen, the 'Link files' field will be made available, while choosing a .dll file causes the Link files field to be cleared and locked.

Description Enter a brief description of the function being performed by the user program, i.e., Web Server interface. Note this description will be used on Eden Server menus, see the File or Edit menu's under the 'User Plugins' options at the bottom of each of these menus.

Entry Point Enter the call name of the module. Generally this field should simply contain the disk file name of the module described in the DLL/OBJ file field. In the case of multi-function .dll's and .obj's, however, this field must contain the name of the specific entry point within the .dll, or .obj file.

Link files Enter any additional include files (.obj or .lib types) as would normally be entered at the end of a standard LINK command. Note, this field is available only when the user module being used is a .obj file.

The items within the Plugin information area, with the exception of the Rebuild button, are informational only. Note that when a new plug-in is created, the Plugin field will initially be blank, but will be completed when the Build button is pushed. Also, remember that in the case of linked .obj files, if the .obj is rebuilt, the user plug-in must be rebuilt.

Plug-in Startup mode selection

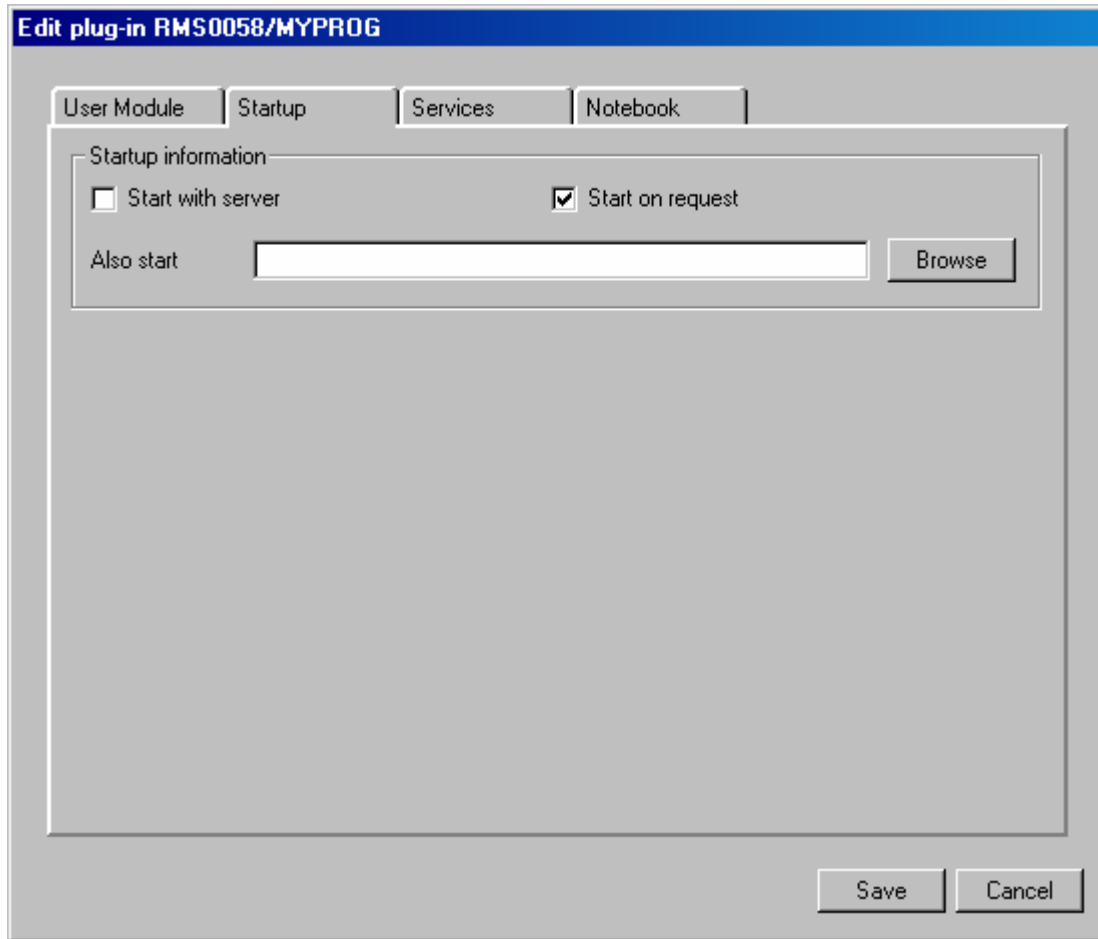


Figure 15 Startup tab

The items contained in the Startup information area are used to define both which startup actions to take and which are allowed.

Start with Server If selected, this item causes the plug-in to be started each time Eden Server is started.

Start on Request If selected, this item will allow the console operator to start and stop the plug-in at will by issuing the console START and STOP commands.

Also Start Optionally, enter the name of another user plug-in that is to start with this plug-in. If entered, the name must be in the format of RMS0nnn, where 'nnn' is the number 050 through 500 of the secondary plug-in to be started.

If a value is present in this field at the time Eden Server is starting this plug-in the secondary plug-in will also be started. Note that Eden Server performs no coordination of any kind when starting a secondary plug-in such as this, it is the programmers responsibility to ensure that both the primary and secondary plug-in(s) coordinate their initialization with themselves.

Services to be provided

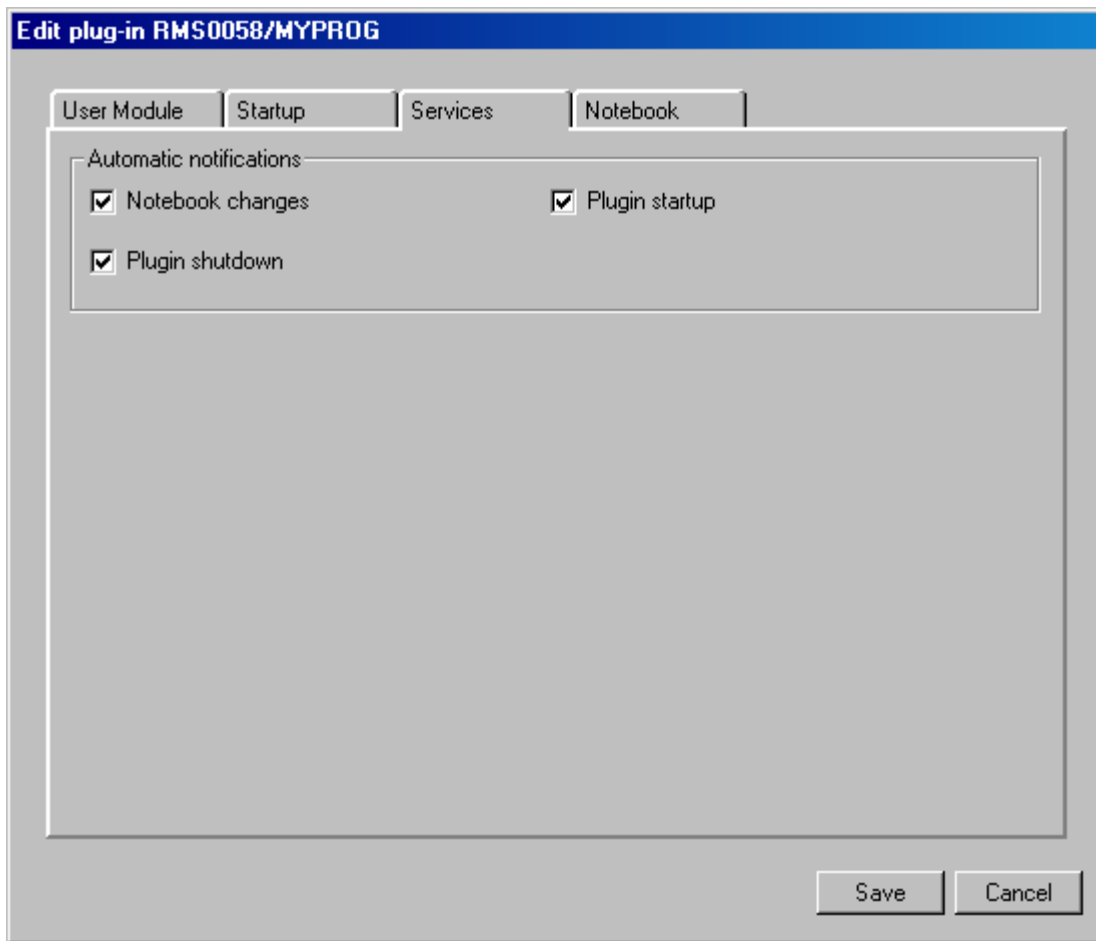


Figure 16 Services tab

As the plug-in is run by and as part of Eden Server's core logic, and to allow further integration with Eden Server, certain system services can be provided.

When selected, Eden Server will provide the plug-in, and hence, the user program, with notifications of the following events, when selected.

Notebook Change When selected, Eden Server will send a message to the plug-in whenever the console operator clicks the OK or APPLY buttons on this plug-ins notebook, which if defined is available via the servers Edit / User Plug-ins menu item(s). See the Programmers reference for more information on how this call is implemented.

Plug-in startup When selected, Eden Server will send a message to the plug-in whenever it is started by way of a server issued command (as opposed to another user plug-in issued command). See the Programmers reference for more information on how this call is implemented.

Plug-in shutdown When selected, Eden Server will send a message to the plug-in whenever it is stopped by way of a server issued command (as opposed to another user plug-in issued command). See the Programmers reference for more information on how this call is implemented.

Notebook definition

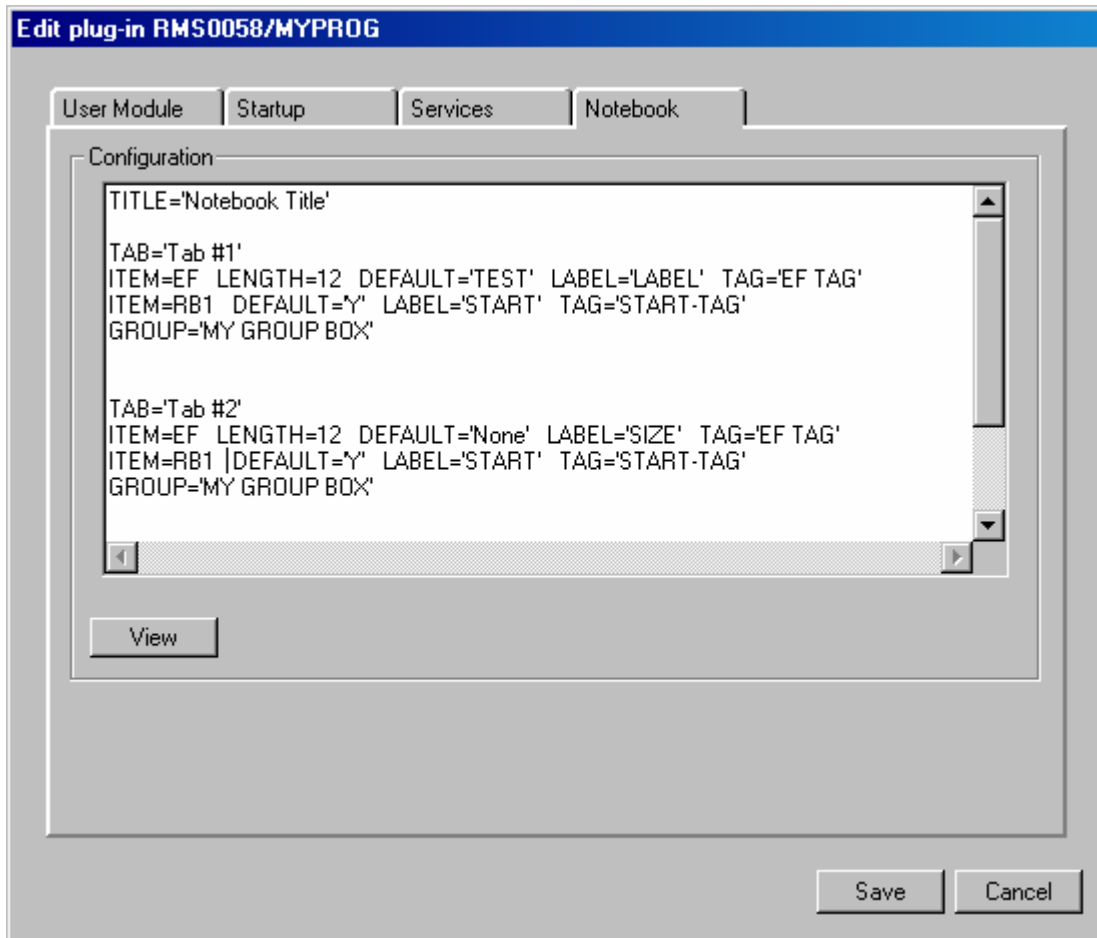


Figure 17 Notebook definition tab

To allow even closer integration of user plug-ins with Eden Server, the ability to create a plug-in 'properties' type notebook which is displayed and processed by Eden Server is made possible through the use of the Notebook tab and a simple scripting language.

By entering commands in the Notebook entry area, a complete properties notebook can be created, and then viewed with the 'View' button.

The commands available and their uses and requirements are as follows:

Command: **TITLE**

Use: Allows for the specification of the text to be displayed on the title bar of the notebook. Note, the maximum number of character for use in the title is 20. Characters over 20 will be truncated.

Format: TITLE='text'

Notes: The entered text also appears on the Eden Server drop down menu under 'Edit' / 'User Plugins'.

Command: **GROUP**

Use: Causes the notebook to draw a border with a caption around an area on the notebook page.

Format: GROUP='text'

Notes: The area bounded by the resulting border starts at either the top of the notebook page, or directly following the previous borders, if any are already drawn. The area ends at the current position on the notebook page.

Multiple items may be included within a bordered area.

Command: **TAB**

Use: Causes a page, and resulting tab, to be added to the notebook.

Format: TAB='text'

Notes: The entered text is displayed on the resulting notebook tab.

Command: **ITEM**

Use: Defines a gadget that will be displayed on notebook page.

Format: ITEM=gadgettype (parameters)

Where gadgettype may be any one of the following

- EF Creates a text entry field that starts approximately 15 characters from the left side of the page
- EFR Creates a text entry field that starts in the right half of the page
- REGN Creates an entry field and 'Browse' button combination Item that allows for the specification of an Eden Server region name.
- DIR Creates an entry field and 'Browse' button combination Item that allows for the specification of a directory name.
- FILE Creates an entry field and 'Browse' button combination Item that allows for the specification of a file name.
- RB1 Creates a radio button and sets this button as the first button in a group of buttons. Note, subsequent ITEM lines defining more RB type items should directly follow this line. When a non-RB type, or another RB1 ITEM line is encountered, the current group of radio buttons is considered to have ended. Buttons defined via RB1 are created on the left side of the screen.
- RBR Creates a radio button on the right half of the screen, on the current line, as part of the current group of radio buttons.
- RBL Creates a radio button on the left half of the screen starting on the next line, as part of the current radio button group.
- CBL Creates a check box item on the left half of the screen on the next line.
- CBR Creates a check box item on the current line on the right side of the line.

Parameters are defined below, based upon the value entered for gadgettype

The ITEM command, depending upon the value specified above, is further defined by addition of the following parameters:

Parameter: **LENGTH**

Use: Required for and allowed only on EF type fields. Is used to define the number of characters to allow in the entry field.

Format: LENGTH=nn

Notes: Maximum number of characters allowed is 80. If physical space for the entry field is limited, the text will be made to scroll within the entry field.

Parameter: **LABEL**

Use: Optional, but highly recommended, for all ITEM types. Used to define the 'heading' or 'label' text associated with each item. In the case of EF, REGN, DIR and FILE type ITEMS, the LABEL text is displayed to the right of the entry field. In the case of Radio buttons and check boxes, the LABEL text is displayed directly to the right of the actual item.

Format: LABEL='text'

Notes: A maximum of 15 characters is allowed for label text. Text must be enclosed within apostrophes.

Parameter: **DEFAULT**

Use: Provides a default value for any ITEM type. For EF, REGN, FILE and DIR type ITEM's, the supplied value is displayed in the ITEM. For RB and CB type ITEMS, a value of 'Y' or 'N' may be used to indicate if the radio button or check box should be highlighted or not.

Format: DEFAULT='value'

Notes: All values should be enclosed in apostrophes, regardless of ITEM type.

Parameter: **TAG**

Use: Inclusion of the TAG parameter allows Eden Server to maintain the ITEM value in the Eden Server INI file, ESERVER.INI. The value specified for the TAG parameter may be used within a user program as an input parameter to an EXEC EDEN GETINI API call, with the returned value being that data entered or set for the ITEM in question.

Sample Notebook display

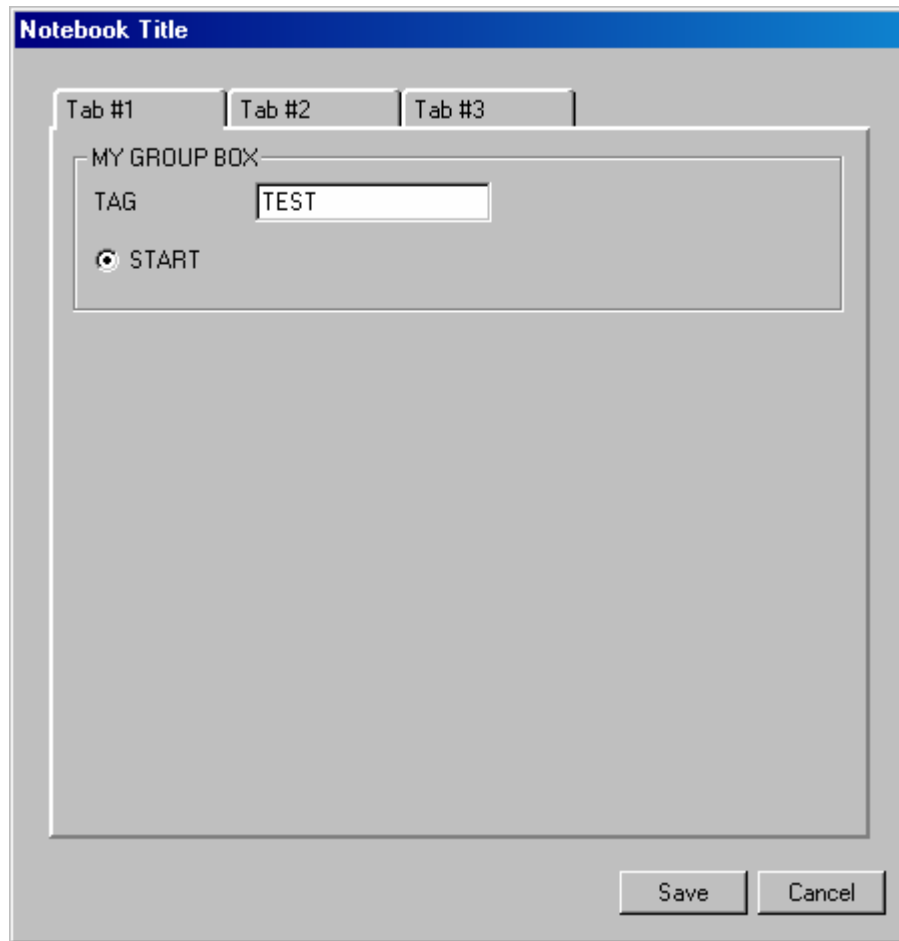


Figure 18 Sample notebook

The notebook display shown above in figure 18 is a sample taken directly from the definitions entered and shown in figure 17.