

Transaction Processor

Version 4

Administration Guide
Revision 1.410

CLE|E|O

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Introduction

Overview

This document describes the functions provided by the Transaction Processor administration, configuration, and connection manager tools, hereafter referred to as the TP Admin. The TP Admin is a web-based utility that allows a user to configure and manage the Transaction Processor.

The *Transaction Processor Administration, Configuration, and Connection Manager* utilities are one component of Cleo's *Transaction Development Kit*, a set of tools designed to simplify program access to mainframe and application server data. This kit is composed of:

- *Transaction Designer* (TD) –records screens and creates transactions.
- *Transaction Designer for XML* (TD-XML) –imports or captures XML documents and creates transactions.
- *Transaction Processor* (TP) – processes the transactions in real time.
- *Transaction Processor Client* (TP Client) – provides the basic API functions.
- A set of *Transaction Processor Administration, Configuration, and Connection Manager* utilities (TP Admin) – web based tools used to set configuration parameters, provide session monitoring, display log messages and statistics for the TP Service and initialize the connection pools for redundant and secure client support.

Other supporting documents include:

Transaction Designer User's Guide

This guide explains how to record screen clips and create transactions.

Transaction Processor Quick Start Guide

This guide lists prerequisites and provides an installation procedure for the Transaction Processor.

Transaction Processor Client Quick Start Guide

This guide lists prerequisites and provides an installation procedure for the Transaction Processor Client.

Transaction Processor Programmer's Guide

This guide provides information about developing applications that utilize the Transaction Processor.

On Windows, the ***Administration Guide*** and ***Programmer's Guide*** are installed in the %TP_HOME%\docs directory in PDF format.

(For example: ***C:\Program Files\CleoTP\docs\AdminGuide.pdf***).

These documents can also be found on the Transaction Processor installation CD.

Component Diagram

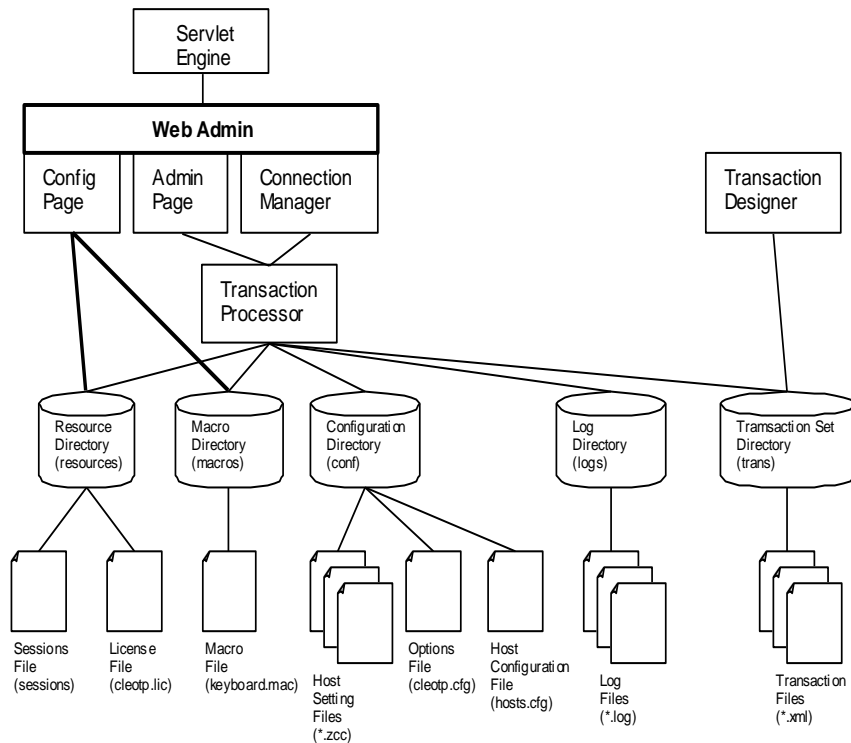


Figure 1: Component Diagram

Features

For a TP Service installation, the Web Admin consists of a configuration page, an administration page, and a connection manager page. For a TP Client installation, the Web Admin consists of only the connection manager page.

The configuration page is used to set configuration options and define resources required by the Transaction Processor. These settings are then stored in the configuration file (`%TP_HOME%\conf\cleotp.cfg`), sessions file (`%TP_HOME%\resources\sessions`), and keyboard macros file (`%TP_HOME%\macros\keyboard.mac`). The default `%TP_HOME%` is `C:\Program Files\CleoTP` on Windows, `/opt/cleotp` on UNIX/Linux.

The administration page allows the viewing of and searching through the log files (`%TP_HOME%\logs*.log`). The tool also provides session information such as status and last transaction run.

The connection manager page allows for the configuration and monitoring of pool(s) of connections. The pools are used to optionally support failover and/or a secure connection from the TP Client to the TP Service.

Functional Description

Configuration

The following configuration settings can be viewed, set, or modified:

- Session pool information (set ranges; enable/disable ranges; edit ranges; assign hosts)
- Keyboard macros (admin user only, no secure encryption enabled)
- Timeout (maximum seconds to wait for a host screen or XML response to arrive after sending data to the host/server)
- Interlogin gap (number of seconds to wait before logging in next session)
- Maximum recovery tries
- Recovery retry interval
- Recovery wait time (in seconds)
- Time in ASSIGNED state (this factor times the recovery wait time before an assigned session is thrown into recovery)
- Shutdown time
- Log level
- Auto Recovery
- Data Stream and Low Level Trace Information
- SSL Support
- Secure Encrypted Macro Table
- Host Settings (IP address and port of host(s))
- Version information
- License information

Administration

The following capabilities provide administrative support:

- View logs
- Search for specific text in a log file
- Start or stop the TP Service
- Activate or deactivate sessions
- Start or stop sessions
- Monitor session status

Connection Manager

The following settings can be viewed, set, or modified:

- Connection pool information
- Configure failover support
 - Enable/Disable Failover Service
 - Periodic time interval to run Failover Service to update status of all connections
 - Primary connection
 - Secondary connections
- Secure client support
- Status of connections to services that are defined in a pool

Getting Started

Pre-Requisites

- Transaction Processor (TP) Service must be installed to access Administration, Configuration, and Connection Manager Pages.
- Transaction Processor Client must be installed to access the Connection Manager Page remotely.
- Transaction Processor Admin Service must be running if on Windows.
- The tomcat web server delivered with the TP must be running if on UNIX/Linux.
- An Internet browser (such as Netscape 7 or above or Internet Explorer 6 or above) that can display HTML 4 and interpret JavaScript and CSS must be available.
- A Transaction Set must first be created/defined using the Transaction Designer (TD).
- Each Transaction Set should reside in its own folder. The Transaction Set folder must then be transferred into the Transaction Processor transaction set directory (i.e., %TP_HOME%\trans where the default %TP_HOME% is *C:\Program Files\CleoTP*, */opt/cleotp* on *UNIX/Linux*)

Refer to the *Transaction Designer User's Guides* for detailed instructions on creating/publishing/transferring transactions. Refer to the *Transaction Processor Quick Start Guide* for installation and licensing instructions.

Using the Web Admin

Access the TP Web Admin

To access the administration and configuration pages:

The Tomcat Web Server delivered with the TP must be running.

If on UNIX/Linux, issue the following command from the root user:

“tpadmin start“

On Windows, check that the Transaction Processor Admin service is running using Services under Administrative Tools. If not, start it.

1. Enter the following URL into the address line of your Internet browser:
“http://<ipaddress>:38080” where <ipaddress> is the host name or IP address of the system where the Transaction Processor service is running.
2. You will be directed to the TP Login Page



User Name

Password

[Change Password](#)

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3. Enter the User Name and Password in the fields provided. In addition to the admin user name, there are 5 user names provided for use: user1, user2, user3, user4, user5. The initial password is the same as the user name.

Note: The admin user has special privileges – ability to view and manipulate the keyboard macro table, and ability to change the password for any of the above-mentioned user names.

- Click the “Login” button. If you are logging in for the first time, you will be redirected to a page that requires you to change the Password, shown below. Otherwise, skip to step 6.



The screenshot shows a web interface for changing a password. At the top is a teal banner with the word "CLEO" in white. Below the banner are four input fields: "User Name" with "admin" entered, "Old Password" with five black dots, "New Password" (empty), and "Repeat Password" (empty). A "Change" button is located below the "Repeat Password" field. At the bottom of the form is the "CLEO Cleo Communications" logo and a copyright notice: "This content and all generating code is © 2003-2005 Cleo Communications".

- To change the password, type a new password into the “New Password” and “Repeat Password” fields and then click “Change”.

WARNING: If you forget the admin password, you may be required to reinstall the Transaction Processor.

Note: The “admin” user can change the password of any other user by typing his User Name and Password and clicking “Change Password”. Then, change the User Name field to the name whose password is being changed. If the password for the other user is not known, the Old Password field must be left blank.

- A page similar to the one below will then be displayed. From this page, you can go to the Administration/Configuration/Connection Manager Page by selecting **Administration / Configuration / Connection Manager** from the drop-down list and clicking **GO**.



The screenshot shows a web interface with a teal banner at the top containing the word "CLEO". Below the banner, there is a "Select:" label followed by a dropdown menu. The dropdown menu is open, showing three options: "Administration" (highlighted in blue), "Configuration", and "Connection Manager". To the right of the dropdown menu is a "GO" button. Below the menu is the "CLEO Cleo Communications" logo and a copyright notice: "This content and all generating code is © 2003-2005 Cleo Communications".

Configuration Features

CLEO

Cleo Transaction Processor Configuration

Configure: [Sessions](#) | [Hosts](#) | [Options](#) | [Version](#) | [License](#) | [Add-Ons](#)

Save Settings Reset Settings Return To Cleo Component Selection

Session Pool Setup:

For Session Range: to

Enable Sessions Disable Sessions Assign Sessions To Host sample

View Sessions Assign Sessions To Transaction Set sample

Session	Transaction Set	Host	Enabled	Keyboard Macros				
1	sample	sample	<input checked="" type="checkbox"/>	1 *	2 *	3 *	4 *	5 *

From the configuration page, you can define several different configuration settings described later in this document. You can also choose to return to the Selection Page without saving by clicking **Return to Cleo Component Selection**.

Saving Configuration Settings

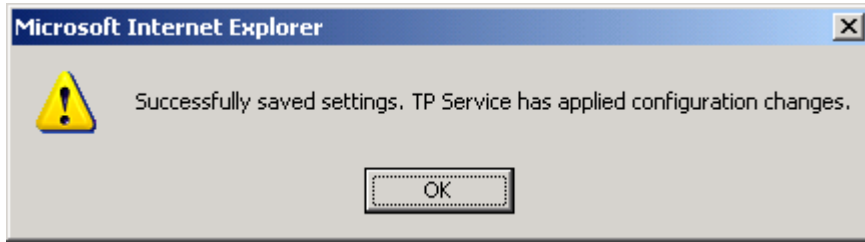
To permanently save configurations, click the **Save Settings** button at the top of the screen. The following dialog appears:

Explorer User Prompt

Script Prompt:
Do you wish to update the TP Service immediately? (y or n):

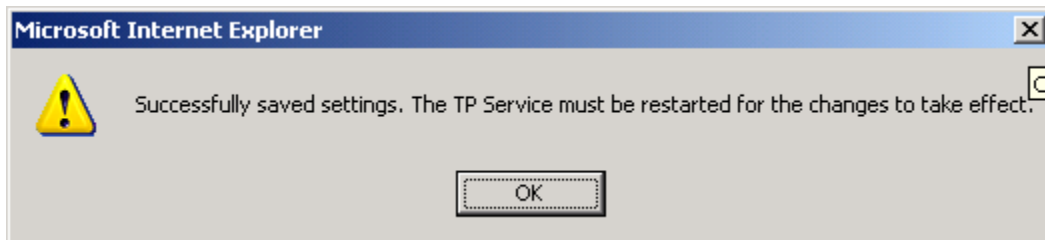
OK Cancel

If you would like the changes to take affect immediately in the running Transaction Processor Service, enter “y” and click OK. If the save is successful, the following dialog appears:



Note that the following configuration options cannot be changed while the TP Service is running: Server Address, Base Port, SSL Support and Encrypted Macro Table. In addition, session enablement, transaction set, and host assignments cannot be changed while the TP Service is running.

If you specify “n” and click OK, the changes will not take affect until the TP Service is restarted. If the save is successful, then the following dialog box appears:



Whenever configuration changes are made that affect mapping of transaction sets to sessions and host settings, the Transaction Processor Service must be stopped and restarted for those changes to take effect. See Starting and Stopping the Service on page 40.

Configure Session Pool

Session Pool Setup:

For Session Range: to

Session	Transaction Set	Host	Enabled	Keyboard Macros				
				1 *	2 *	3 *	4 *	5 *
1	sample	sample	<input checked="" type="checkbox"/>					

Figure 2 – Session Pool Setup

Assign Transaction Set

Transactions that are created in the Transaction Designer (see the Transaction Designer User's Guide for instructions on how to create transactions) can be run by the Transaction Processor on the request of a user's application. When a session assigned to a transaction set is reserved by the user application, the transactions that are contained in the transaction set are made available for a runTransaction call (see the Transaction Processor Programmer's Guide).

To assign sessions to a transaction set, you can either...

Manually select the transaction set from the drop-down list under Transaction Set for an individual session.

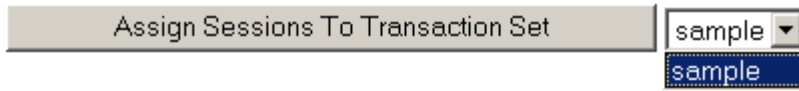
-OR-

Assign a range of sessions to a transaction set:

1. Enter the session number or a range of session numbers

For Session Range: to

2. Select the transaction set that will be using the session from the drop down list.



NOTE: *These transaction sets must already have been defined by the TD (Transaction Designer) and have been copied to the same machine that the Transaction Processor is installed – i.e. a transaction set subdirectory must exist under the main transaction set directory (%TP_HOME%\trans*<transaction set name>* where the default %TP_HOME% is **C:\Program Files\CleoTP** on Windows, **/opt/cleotp** on UNIX). For TN, the transaction set folder must contain login.xml and sdefs.xml.*

3. Click **Assign Sessions To Transaction Set**.

Assign Host Settings

Each transaction set contains a set of transactions that are designed to run against the configured host. Therefore, each host setting must be assigned to the session for which the associated transaction set is assigned.

To assign which hosts that sessions will connect to, you can either...

Manually select the host from the drop-down list under **Host** for an individual session.

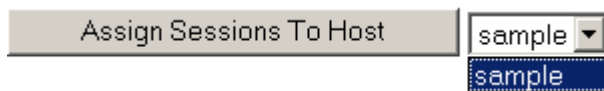
-OR-

Assign a range of sessions to a host:

1. Enter the session number or a range of session numbers

For Session Range: to

2. Select the host that the transactions will be running against from the drop down list.



3. Click **Assign Sessions To Host**.

Disable Sessions

If you wish to temporarily remove a session from a session pool but keep the definition intact, you can either...

Manually deselect the associated checkboxes under **Enabled** for an individual session.

-OR-

Disable a range of sessions:

1. Enter the session number or a range of session numbers

For Session Range: to

2. Click **Disable Sessions**.

Enable Sessions

To re-enable the session, you can either...

Manually select the checkboxes separately to individually add sessions.

-OR-

Enable a range of sessions:

1. Enter the session number or a range of session numbers

For Session Range: to

2. Click **Enable Sessions**.

Define Keyboard Macros (admin user only, no secure encryption)

Keyboard Macros allow you to specify variable input data (such as login ids and passwords) in “to host” fields created using the Transaction Designer. A Keyboard Macro is indicated by “[n]” in the “to host” field value, where “n” is the column number (1-10) in the Macros table. Refer to the section entitled *Define Variable Data Fields* in the *Transaction Designer User’s Guide* for details on setting up these field definitions.

At run time, the Transaction Processor Service accesses the Macros table and makes appropriate substitutions when sending the input to the host.

NOTE: *There is a separate keyboard macro definition for each session that is configured.*

For example, the field4 value “[2]” (Figure 3) as defined in the TD is replaced by “passwd1” when using session 1, and replaced with “passwd2” when using session 2 since those are the values defined in column 2 of the keyboard macro table (Figure 4).

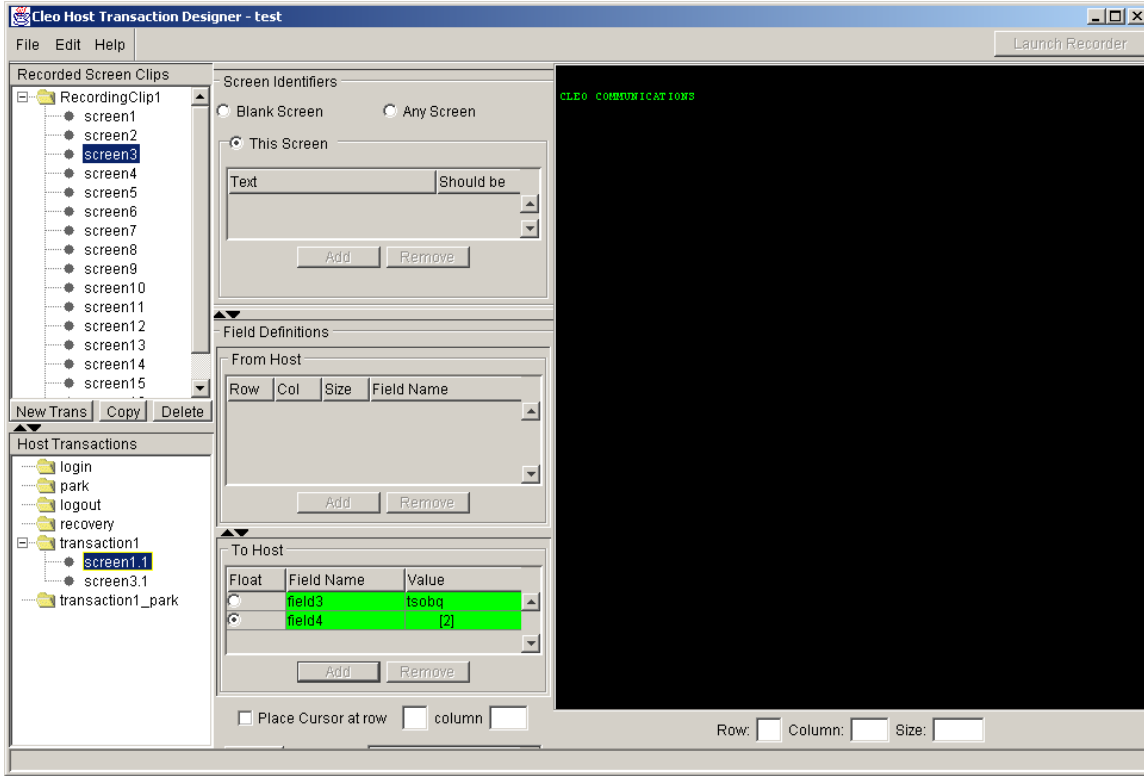


Figure 3: Keyboard Macro in Transaction Designer

Session	Transaction Set	Host	Enabled	Keyboard Macros				
				1 *	2 *	3 *	4 *	5 *
1	sample	sample	<input checked="" type="checkbox"/>	loginid1	passwd1	test1		
2	sample	sampleSSL	<input checked="" type="checkbox"/>	loginid2	passwd2	test2		

Figure 4: Keyboard Macros Table

To assign keyboard macros to sessions, you can either...

Modify an individual macro directly by typing into the appropriate text field under the numbered button headers. Click “Save Settings” when done.

-OR-

Define keyboard macros for a range of sessions:

1. Enter the range of sessions

For Session Range: to

2. Click the numbered button over the associated column

3. When the button is clicked, the following window will appear.

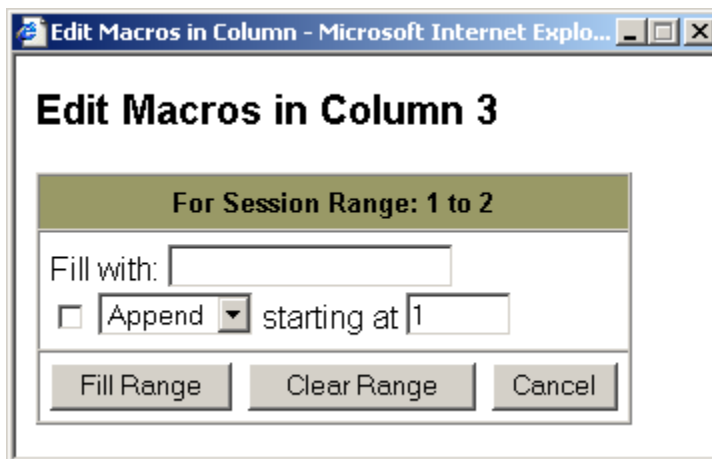


Figure 5: Edit Macros

To clear the contents of a column, click **Clear Range**. The contents of the column for the set range of sessions will be emptied.

To fill all the blank text boxes in the column for the set range with text:

1. Fill in the text box next to **Fill with:**

Fill with:

- Optionally append or prepend an auto-incrementing number by selecting the checkbox next to the drop-down list, selecting Append or Prepend from the drop-down list, and entering a starting number.

Append starting at

Append
Prepend

- Click **Fill Range**.
- The text will be displayed in the appropriate column.

Session	Transaction Set	Host	Enabled	Keyboard Macros				
				1 *	2 *	3 *	4 *	5 *
1	sample	sample	<input checked="" type="checkbox"/>	loginid1	passwd1	test1		
2	sample	sampleSSL	<input checked="" type="checkbox"/>	loginid2	passwd2	test2		

Figure 6: Keyboard macro values displayed

After the macro values have been entered, the “Save Settings” button must be clicked before turning display on/off.

To turn display of macro values on or off in a column, click the button. For example, the table above would be displayed as shown in Figure 7 after clicking in column 2.

Session	Transaction Set	Host	Enabled	Keyboard Macros				
				1 *	2 *	3 *	4 *	5 *
1	sample	sample	<input checked="" type="checkbox"/>	loginid1	●●●●●●	test1		
2	sample	sampleSSL	<input checked="" type="checkbox"/>	loginid2	●●●●●●	test2		

Figure 7: Hidden keyboard macro values

Define Keyboard Macros (admin user only, with secure encryption)

When “Encrypted Macro Table” is turned on through the Configuration options, the macro value tables by each session will not be shown. This is an added security feature that will not show the macro values to any user, including the admin. To enter in macros with the macro encryption feature, the admin must use the encryption utility found in %TP_HOME%/bin called “Encrypted Password.exe” (default is C:\Program Files\CleoTP on Windows or /opt/cleotp on Unix).

Launching this application will display a screen similar to below:



The screenshot shows a Windows-style dialog box titled "Encrypted Password Utility". The dialog has a title bar with standard minimize, maximize, and close buttons. Below the title bar, the text "Conversion..." is displayed. The main area contains several input fields and buttons:

- "Session:" with a dropdown menu showing "1".
- "Macro #:" with a dropdown menu showing "1".
- "Enter Current Value (if present):" with an empty text input field.
- "Enter New Value:" with a "Clear" button and an empty text input field.
- "Re-Enter New Value:" with a "Clear" button and an empty text input field.
- "Submit" and "Cancel" buttons at the bottom.
- Two checkboxes at the bottom: "No New Value Present" and "No Retype Value Present", both of which are unchecked.
- A footer bar with the text "Press Submit to Save the change."

Figure 8: Encrypted Password Utility

If macro values have previously been recorded, and you would like to convert them, click “Conversion...” in the menu. This will display the screen below.



Figure 9: Conversion Utility

The “Source” field should point to the correct macro file (the older version of the file that you wish to convert to the new, secure version). If it does not point to the proper file, choose the correct macro file by using the “Choose...” button.

Once you have properly entered the macro file to convert, click “Convert”. The result will be a new, securely encrypted macro file.

NOTE: This conversion is one-way. You cannot decrypt the new macro table back to the original file format.

If you do not previously have a macro file, or you wish to make changes to the macro file after conversion, you must use the main screen to make changes.

Changing Macro Values

To add security to macro fields, the new security macro table will never display values. This requires all values to be known prior to making any changes. Old values will be displayed as asterisk (*) when typed, and the new value will not be echoed to the screen at all.

To determine if a new value has been entered, two check boxes are at the bottom of the screen. These check boxes will become checked when a value is typed into the corresponding field.

To change a macro value, change the Session and Macro boxes to the appropriate position. For example, if you would like to change session three and the second macro field, you would change the session to “3” and “Macro #” to “2”. If the old value was “pass123”, that would be entered in “Enter Current Value” box. Then, enter the new password in the “Enter New Value” and retype the password in “Re-Enter New Value”.

Once that has been completed, click the “Submit” button to save the changes. If successful, the status bar will display a message indicating success. If not, the status bar will provide more details as to why the save failed. There are a number of reasons for a failed save, including not retyping the password correctly, or the previous password was invalid, etc.

Adding New Macro Values

To add a new macro value, repeat the process for “Changing Macro Values”, except for the “Enter Current Value” field, leave this blank.

Removing Macro Values

To remove a macro value, follow the process for “Changing Macro Values”, except for the “Enter New Value” and “Re-Type New Value” fields, leave them blank.

Mistype in the New Macro Value

If you realize that you’ve made an error in the “Enter New Value” or “Re-Enter New Value” fields, you can click the “Clear” button to remove what you have typed in that field. You can then retype the value correctly and press “Submit”.

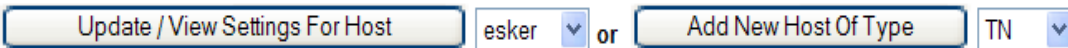
Configure Host Settings

This section describes how to configure the connection for communicating with a TN Mainframe/IBM AS400(S series) Host that supports TN3270 or TN5250 Protocol.

The Cleo TP Software acts as a TN Client to a Mainframe/IBM AS400(S series)'s TNSERVER.

- **TN** - a host providing access to tn3270(mainframe) or tn5250)IBM AS400(S series) applications.

Host Settings:



Configuration Options:

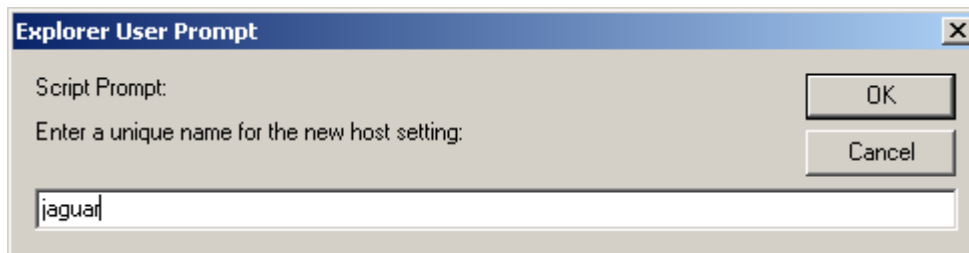
Figure 10: Host Settings

Add a New TN Host Setting

Since the preconfigured setting delivered with the sample is for accessing a public host, you will need to add a new host setting for your business application.

To add a new tn3270 or tn5250 host setting:

1. Select **TN** from the pull-down box.
2. Click **Add New Host Of Type**.
3. Enter a unique name for the host setting. Click **OK**.



- Enter host settings as shown in Figure 11 and click Save when done.

The figure shows two side-by-side screenshots of the 'Host Settings' web interface in Internet Explorer. The left window is titled 'samplesl' and the right window is titled 'sample'. Both windows show a form for configuring host settings. The left window has a URL of 'http://10.10.66.64:38080/cleotp/HostSettingsPage?host=samplesl&host' and the right window has 'http://10.10.66.64:38080/cleotp/HostSettingsPage?host=sample&host'.

Left Window (samplesl):

- Host Address: nermvs.nerdc.ufl.edu
- Port: 992
- Emulation Type: TN3270
- Screen Size: Model 2
- Turn E Support: On
- LU/Pool: (empty)
- E Response Support
- Use Keep-Alive
- Keep Alive Timer: 5 minutes
- Keep Alive Sequence: NOP
- Use SSL: No
- SSL Certificates:
 - Accept Self-Signed: Yes
 - Accept Expired: No
 - Accept Not Yet Valid: No
 - Accept Invalid: No
 - Ignore Certificate Error: No

Right Window (sample):

- Host Address: nermvs.nerdc.ufl.edu
- Port: 23
- Emulation Type: TN3270
- Turn E Support: On
- Device Type: (empty)
- LU/Pool: (empty)
- Use SSL: Off
- Use NLS: Off
- NLS Translation Table: (empty)

Both windows have 'Save', 'Delete', and 'Close' buttons at the bottom.

Figure 11: TN Host Settings (Windows on left, UNIX on right)

- **Host Address:** is the host name or IP address of the TN Server or 3270 host computer.
- **Port:** is port/socket number of the TN Server (as defined on your TN Server – default is 23)
- **Emulation Type:** is either TN3270 or TN5250
- **Turn E Support:** is either On or Off

The following are optional:

- **LU/Pool:** is the specific LU or pool name that you wish to use
- **Device Type** (*supported on UNIX only*): specifies terminal type to be used during sub-negotiation when connecting to the host. If not specified, the following terminal types are assumed: IBM-3279-2-E, IBM-3278-2-E, IBM-3279-2, IBM-3278-2

Supported on Windows only

- **Screen Size:** Default Screen Size is Model 2(24x80).
Optionally can specify Model 3(32x80), Model 4(43x80), Model 5(27x132), or Dynamic.
- **E Response Support:** Older TN3270 Servers such as IBM Communications Server require this to be checked. Most modern TN3270 Servers do not have this requirement.
- **Use Keep-Alive:** Some TN3270 Servers will shut down a connection if there is no activity for a specified amount of time. To prevent this automatic session termination, use the Keep-Alive option to send a periodic signal to the server. This feature can also be used to keep an internet connection alive.
- **Keep Alive Timer:** This value specifies the regular interval at which a timing signal is sent. The value may be between 1 minute and 1440 minutes (1 day). The default value is 5 minutes. Use Keep-Alive must be checked to use this parameter, otherwise it is ignored.
- **Keep Alive Sequence:** Choose between two timing signal options: NOP or TM (Timing Mark). The default setting is NOP. Use Keep-Alive must be checked to use this parameter, otherwise it is ignored.
- **Use SSL:** When set to Yes, SSL (Secure Sockets Layer) encryption is enabled and both TN3270 and TN5250 terminal emulation sessions are protected from eavesdropping, tampering, or message forgery. Secure Telnet sessions using SSL typically use TCP Port 992 instead of 23, but may be re-configured to any available TCP Port desired. The host mainframe computer you are connecting to must also be configured for SSL, or a connection will not be made.

The following are ignored if Use SSL is set to No:

- **Accept Self-Signed:** Set to Yes to accept a self-signed server certificate
- **Accept Expired:** Set to Yes to accept a server certificate that has expired
- **Accept Not Yet Valid:** Set to Yes to accept a server certificate that has a starting date in the future
- **Accept Invalid:** Set to Yes to accept invalid server certificates for any reason other than the date or signature. The server certificate check will be ignored.
- **Ignore Certificate Error:** (Not Yet Implemented) If set to No and any SSL certificate connection error occurs, an error will be returned when attempting to connect to the host.

View or Modify an Existing Host Setting

Refer to Figure 10 and Figure 11 for the following instructions.

To view existing settings:

1. Select a host setting from the host drop-down list on the configuration page.
2. Click **Update / View Settings For Host** on the configuration page.
3. Once you're done viewing the settings, click **Close** on the host settings window.

To update existing settings:

1. Select a host setting from the host drop-down list on the configuration page.
2. Click **Update / View Settings For Host** on the configuration page.
3. Make any modifications to the settings in the edit host settings window.
4. Click **Save** on the edit host settings window.

Configure Options

Configuration Options:

Remember to click the **Save Settings** button for changes to take effect.

**** These parameters cannot be changed while the TP Service is running.**

Base Path:	C:\Program Files\CleoTP\
Time Out:	<input type="text" value="10"/> seconds
Interlogin Gap:	<input type="text" value="3"/> seconds
Max Recovery Tries:	<input type="text" value="0"/>
Recovery Retry Interval:	<input type="text" value="60"/> seconds
Recovery Wait Time:	<input type="text" value="120"/> seconds
Time in ASSIGNED state:	<input type="text" value="1"/> x Recovery Wait Time
** Server Address:	<input type="text" value="localhost"/>
** Base Port:	<input type="text" value="7560"/>
Startup Time:	<input type="text" value="120"/> seconds
Shutdown Time:	<input type="text" value="120"/> seconds
Log Level:	<input type="text" value="WARNING"/> ▾
Turn Auto Recovery:	<input checked="" type="radio"/> On <input type="radio"/> Off
Tracing:	<input checked="" type="radio"/> Off <input type="radio"/> Low Level <input type="radio"/> Data Stream <input type="radio"/> All
** SSL Support:	<input type="radio"/> On <input checked="" type="radio"/> Off
** Encrypted Macro Table:	<input type="radio"/> On <input checked="" type="radio"/> Off
E-mail Notification:	<input type="radio"/> On <input checked="" type="radio"/> Off <input type="button" value="View / Edit Settings"/>
Event Logging:	<input type="radio"/> On <input checked="" type="radio"/> Off
TN3270 Auto Reconnect/Retry:	<input type="radio"/> On <input checked="" type="radio"/> Off

Figure 12: Configuration Options

View Base Path

The Base Path is specified during installation and cannot be modified (is read-only).
Defaults: Windows (**C:\Program Files\CleoTP**), UNIX/Linux (**/opt/cleotp/**)

The Base Path identifies the location of the Transaction Processor install folder. This folder contains all the necessary directories and files to run the product. This folder includes the following:

- **bin** – a subdirectory of executables needed to run the TP and utilities
- **conf** - a subdirectory of all necessary configuration files for the product
- **lib** – a subdirectory of java and shared libraries required by the Transaction Processor
- **macros** – a subdirectory containing the values for macros that are defined in the Transaction Designer
- **resources** – a subdirectory containing Web Admin templates, and licensing and session information
- **trans** – the subdirectory of transaction sets created using the Transaction Designer
- **uninstall** – a subdirectory which includes the programs to uninstall the Transaction Processor

Configure Timing Options

See Figure 12 for the default values of the timing options, which are:

Applicable to TN3270/5250 transactions only

- *Timeout* – the maximum amount of time, in seconds, to wait for each host screen in a transaction
- *Interlogin gap* – the number of seconds between Transaction Processor startup and login (and subsequent logins)
- *Maximum recovery tries* – maximum number of user-defined recovery attempts.
- *Recovery retry intervals* – seconds between tries at recovering a session
- *Recovery wait time* – seconds a session can remain in one state before it is put into recovery (excluding states PARKED, AVAILABLE, RECOVERING, DEACTIVATED, HOST_DOWN).

This time should be configured to be greater than Timeout.

Applicable to both TN3270/5250 and XML transactions

- *Time in ASSIGNED state* – seconds a session can remain in the ASSIGNED state before it is put into recovery. This number, a multiple of the recovery wait time value, is the amount of time an application can keep a session reserved during a period of inactivity.
- *Startup time* - seconds allotted for Transaction Processor service to initialize all enabled sessions, which includes time needed to run the login transaction for all TN sessions. If the startup time is not long enough, some of the TN sessions may not be logged into the host and PARKED.
- *Shutdown time* - seconds allotted for Transaction Processor service to shutdown, which includes time needed to run the logout transaction on all parked TN sessions. If the shutdown time is not long enough, some of the TN sessions may not be logged off the host.

To change the timing, edit the value in the associated textbox.

Configure Log Level

The Log Level identifies the type of entries made to the %TP_HOME%\logs\transaction.log file for each session. The Log Level may be configured to any one of the following settings:

- *DEBUG* – Provide detailed information on what is occurring during a run of the Transaction Processor.
- *INFO* – Provide basic information on what is occurring during a run of the Transaction Processor.
- *WARN* – Provide information on minor / recoverable / ignorable errors that are encountered during a run of the Transaction Processor.
- *CRITICAL* – Provide information on errors that need to be addressed immediately before a run of the Transaction Processor can continue.
- *FATAL* – Provide information on errors that prevent the Transaction Processor from running and cannot be recovered.

To change the log level, select the desired log level from the log level drop-down list.



NOTE: *Setting the log level to **DEBUG** will turn ON input field validation for TN transactions only. For XML transactions, the last XML response received as a result of running an XML transaction is written to the response.xml file in the logs directory.*

Configure Recovery Options (for TN transactions only)

User-defined Recovery

Use of the recovery feature in the Transaction Processor, though strongly recommended, is optional. Setting the Max Recovery Tries to a value greater than 0 will signal the Transaction Processor that it should run the user-defined **recovery** transaction that was previously defined using the Transaction Designer.

NOTE: User-defined Recovery will not be run in a recovery situation caused by a host-outage.

To change the max number of user-defined recovery tries, edit the value in the associated textbox.

Automatic Recovery

If automatic recovery is turned on, the Transaction Processor (TP) will use *Power Off* followed by *Power On* session commands to attempt to recover the session and get it back to a **parked** state after all user-defined recovery attempts have been made. Sending *Power Off* followed by *Power On* tells the host that the terminal session has been turned off, and then turned back on. This usually causes the initial host (i.e. banner) screen to be sent to the session. When the TP detects this screen has been received, it runs the **login** transaction to put the session into the **parked** state

Information captured during the trace can be found in the trace files, described below.

On Windows

The OHIO (Open Host Interface Objects) interface, similar to HLLAPI, is used to provide access to TN3270/5250 screens on Windows. The mapping between each OHIO session and Transaction Processor session can be found in the %TP_HOME%\logs\transaction.log.

Data Stream Trace

%TP_HOME%\conf\

This trace captures the TN3270 or TN5250 data stream between the host and the emulation layer. This type of trace is very helpful in resolving problems involving the SNA BIND attributes as well as other problems involving the data stream.

Low Level Trace

%TP_HOME%\conf\

This trace captures the lowest level of communication between the emulation communications layer and the underlying communications subsystem. This type of trace is very helpful in resolving problems involving the establishment of a connection.

For example, the following log message specifies that session 3 is using OHIO session # 10506: **LU3: Enabling trace for OHIO session 10506.**

The trace files are found in the %TP_HOME%\conf directory and are named as402__10506_ds.txt and as402__10506_ll.txt, where as402 is the name of the host setting for session 3.

On UNIX/Linux

HLLAPI Trace

/opt/cleotp/logs/hll1-<port + sessid>, /opt/cleotp/hll2-<port + sessid> (e.g. /opt/cleotp/logs/hll1-7564, /opt/cleotp/logs/hll1-7564)

This trace captures HLLAPI function information such as function number and data passed into the function and/or returned from the function. This type of trace is useful for determining which HLLAPI calls may have failed.

Message Trace

/opt/cleotp/logs/cleomsg1, /opt/cleotp/logs/cleomsg2

Configure E-mail Notification (Windows only)

Any number of conditions (or triggers) encountered while running the Transaction Processor might require that an operator be notified by e-mail.

E-mail Notification:

On Off

Turn E-mail Notification *On* if e-mail should be sent whenever a trigger is encountered. Turn E-mail Notification *Off* if no e-mail should be sent.

To View or Edit the E-mail Notification Settings (including triggers and e-mail server information) click the View/Edit Settings button.

E-mail Notification Setup

Configuration

Host:

User:

Password:

Recipient(s):

Trigger

Any session is host down

The Transaction Processor is starting

The Transaction Processor is stopping

Message Format

HTML Text

The Transaction Processor Service running at localhost has sent the following notification:

Session 8 in transaction set eskerTrans went host down at 11:54:27 AM on October 10, 2005

Please see the [Transaction Processor Administration \(http://localhost:38080\)](http://localhost:38080) for more details.

Figure 13 - E-mail Notification Setup

Configuration

Host: IP address or host name of e-mail server

User: Valid e-mail user account name

Password: Valid password for e-mail user account name

Recipient(s): A semi-colon (;) delimited list of e-mail addresses to which notifications will be sent.

Trigger

Triggers define what conditions (when satisfied) will cause an e-mail notification to be sent out to the recipient list.

- **Any session is host down:** One email is sent for each transaction set when one of its sessions becomes HOST_DOWN.
- **The Transaction Processor is starting:** The TP service has been started by an administrator.
- **The Transaction Processor is stopping:** The TP service has been stopped.

Select (check) the check box next to the trigger(s) to turn the trigger(s) on.

Unselect (uncheck) the check box next to the trigger(s) to turn the trigger(s) off.

Message Format

E-mail notifications can be sent as either HTML or plain text.

Most e-mail clients (such as Outlook) support the display of HTML messages. However, there are some cases where HTML cannot be displayed. In this case, the use of plain text can be used.

HTML Text

The Transaction Processor Service running at localhost has sent the following notification:

Stopping service at 1:54:27 AM on October 10, 2005.

HTML Text

The Transaction Processor Service running at localhost has sent the following notification:

Session 8 in transaction set eskerTrans went host down at 11:54:27 AM on October 10, 2005

Please see the [Transaction Processor Administration \(http://localhost:38080\)](http://localhost:38080) for more details.

To set the message format, select the desired Message Format “HTML” or “Text” radio button.

Configure Event Logging (Windows only)

If this option is set on, then all log messages having level WARNING, CRITICAL, and FATAL will be written to the Windows event logger. This could result in a large number of event logs depending on the number of sessions configured.

Configure TN3270 Auto Reconnect/Retry: (Windows only)

The default for this option is OFF so that the Windows TN3270 Client software does not automatically try to reconnect the TN3270 Protocol Connection to the Mainframe/AS400's TNSERVER. If instead, it is desired to have the TN3270 Client software automatically try to reconnect the TN3270 Protocol Connection when it drops, then change the setting to ON. Using a setting of ON duplicates the Cleo Transaction Designer setting so that transactions will run identically to how they run using the TD Validator.

View Version and License Information

Version Information:

Transaction Processor version=**4.3.0.10**

License Information:

Host ID:	blade1
Serial Number:	123456
Licensed Sessions:	120
Expiration Date:	PERMANENT
License File:	<input type="text"/> <input type="button" value="Browse..."/> <input type="button" value="Install"/>

The license information includes:

- *Host ID* - a unique descriptor identifying the computer running the Transaction Processor
- *Serial Number* - a unique 6-digit number that is assigned to the Transaction Processor software by Cleo.
- *Licensed Sessions* - the number of configurable sessions that are allowed by the license
- *Expiration Date* - provides the date when the license expires and the Transaction Processor will be disabled. If this field displays “PERMANENT”, then the license does not have an expiration date.

Any *Licensed Add-Ons* (separately installed additions to the Transaction Processor) will be displayed below the license information.

See the *Transaction Processor Quick Start Guide* for information on installing or updating a license.

Administration Features

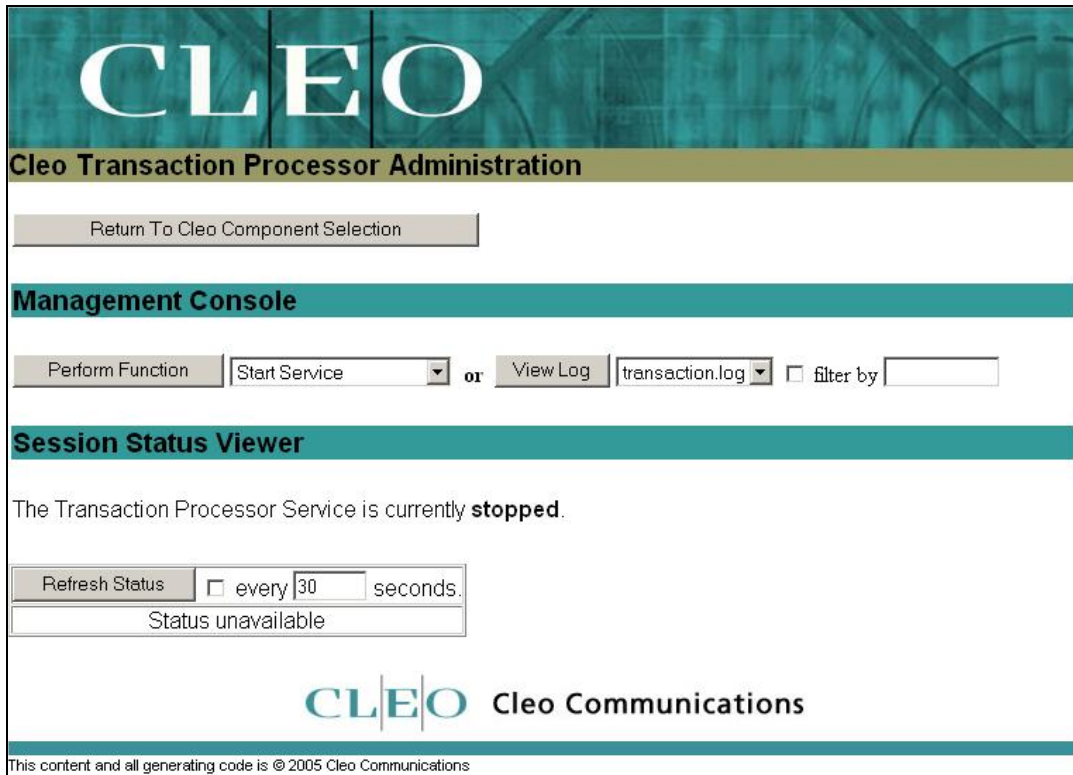


Figure 14: Administration Page

From the administration page, you can:

- View and empty the log files.
- View service status.
- Start and stop the TP Service.
- Deactivate and activate one or more sessions.
- Start and stop one or more sessions.
- View session status.

You can also choose to return to the Selection Page by clicking **Return To Cleo Component Selection**.

View Logs

There may be a need to view the messages contained in the log files. You can view the log files using the Log Viewer from the administration page.

View Log filter by

To launch the Log Viewer:

1. Select a log from the log file drop-down list.
2. Optionally, check the **filter by** check box and enter a value to filter by (which will display only messages that contain the given text)
3. Click **View Log** which will display the following window.

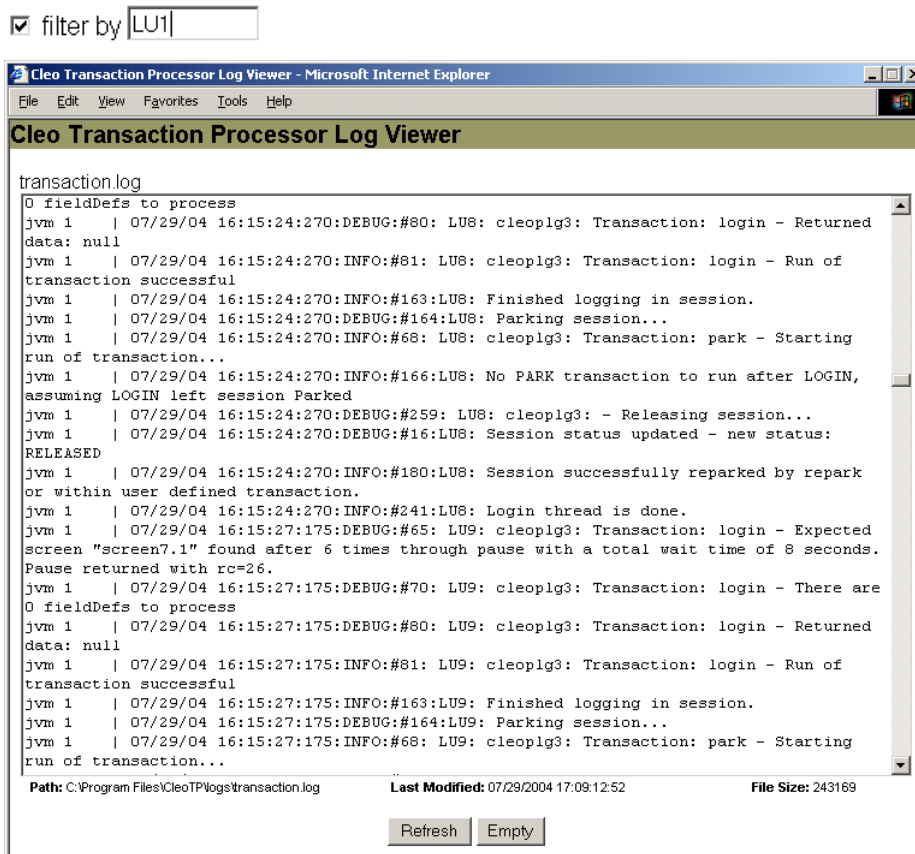


Figure 15: Log Viewer

4. Click **Refresh** to display the most current log messages.
5. Click **Empty** to clear the log.

Managing Sessions using the Web

Management Console

filter by

Session Status Viewer

The Transaction Processor Service is currently **starting**.

<input type="button" value="Refresh Status"/> <input type="checkbox"/> every <input type="text" value="30"/> seconds.					
Session Range: <input type="text" value="1-10"/>					
LU	Transaction Set	Host Server	Status	Last Transaction	Since
1	eskerTrans	esker-TN	PARKED	login	05/31/11 10:22:36:951
2	sample	sample-TN	PARKED	login	05/31/11 10:22:39:639
3	sample	sample-TN	PARKED	login	05/31/11 10:22:42:561
4	eskerTrans	esker-TN	PARKED	login	05/31/11 10:22:45:670
5	eskerTrans	esker-TN	PARKED	login	05/31/11 10:22:48:623
6	---	---	UNASSIGNED	---	---

Figure 16: Session Management

The Session Manager provides status information about and controls for the Transaction Processor sessions. The Session Manager is divided into the following sections:

- Service Status (snapshot)
- Service Management
- Session Pool Status (snapshot)
- Session Pool Management

Service Status

If the Transaction Processor Service is running, the status will display as “The Transaction Processor Service is currently **running**.”

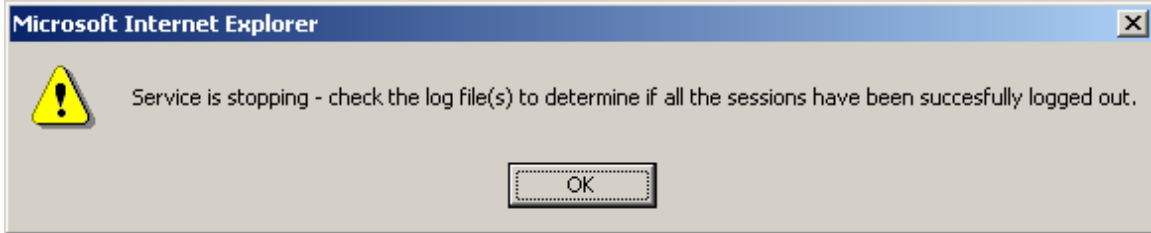
If the Transaction Processor Service is not running, the status will display as “The Transaction Processor Service is currently **stopped**.”

Starting and Stopping the Service

In the event that changes affecting mapping of transaction sets to sessions and host settings have been made to the Transaction Processor configuration, the Transaction Processor Service (TP) must be restarted (by stopping and starting the TP) in order for the changes to take effect.

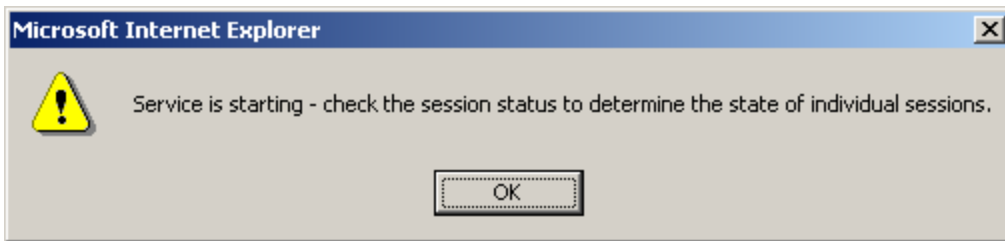
The Transaction Processor Service can be started and stopped from the Administration Page by selecting the **Start Service** and **Stop Service** entries in the pull-down box and clicking **Perform Function**.

If stopped successfully, you will be notified with a message similar to the following and the Service Status will change accordingly.



NOTE: *You will no longer be able to view session status after stopping the service. Instead you will see "Status is unavailable."*

If the service starts without any error, then the following dialog box will be displayed and the Service Status will change accordingly.



NOTE: *At this point, you will be able to return to viewing session status.*

On UNIX/Linux, the following commands can also be issued to start and stop the TP.

- > tpservice start
- > tpservice stop

Session Management

Use the **Activate/Deactivate** functions to add/remove a session to/from the Transaction Processor session pool before launching the Session Viewer. (See Appendix A: Manual Recovery.) This is necessary so that the user application does not attempt to access the particular session while you are viewing it. (This could cause unpredictable results.) Once you have finished viewing sessions, be sure to reactivate them so that they will be returned to the session pool.

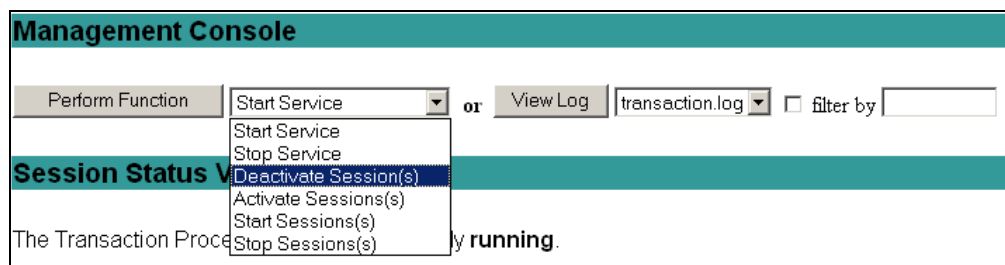
NOTE: *A session cannot be activated if the Transaction Processor Service cannot put it into a PARKED state. Be sure to navigate to either the initial (banner) screen (if the session failed to park during initial startup) or to the parked screen (if the session was successfully parked during initial startup) before reactivating a session.*

Issuing the **Stop Session** followed by the **Start Session** function allows any changes made to the transaction files (as a result of using the Transfer function of the Transaction Designer) to take effect without stopping and restarting the whole TP service.

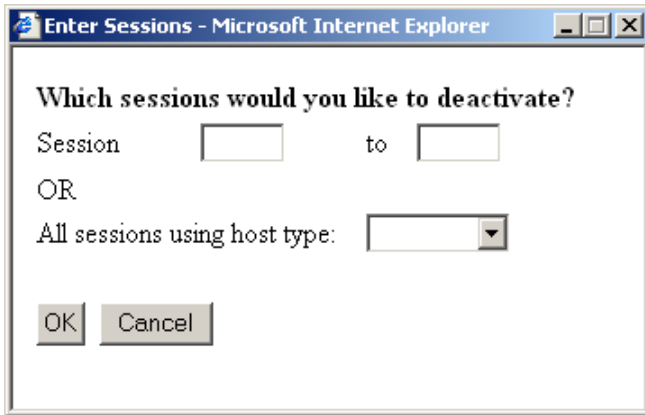
Use the **Stop Session** function to run the logout transaction, remove the session from the Transaction Processor session pool, and disconnect from the session. This allows another application access to the session. Any deactivated sessions must be activated before they can be stopped.

Use the **Start Session** function to re-connect to the session and run the login transaction, putting the session into the Transaction Processor session pool.

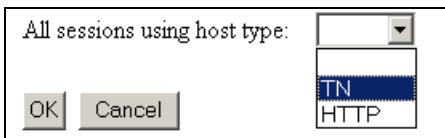
To perform the **Activate**, **Deactivate**, **Start Session**, or **Stop Session** function for one or more sessions, select the appropriate entry from the pull-down box and click **Perform Function**.



A dialog similar to the following is displayed:

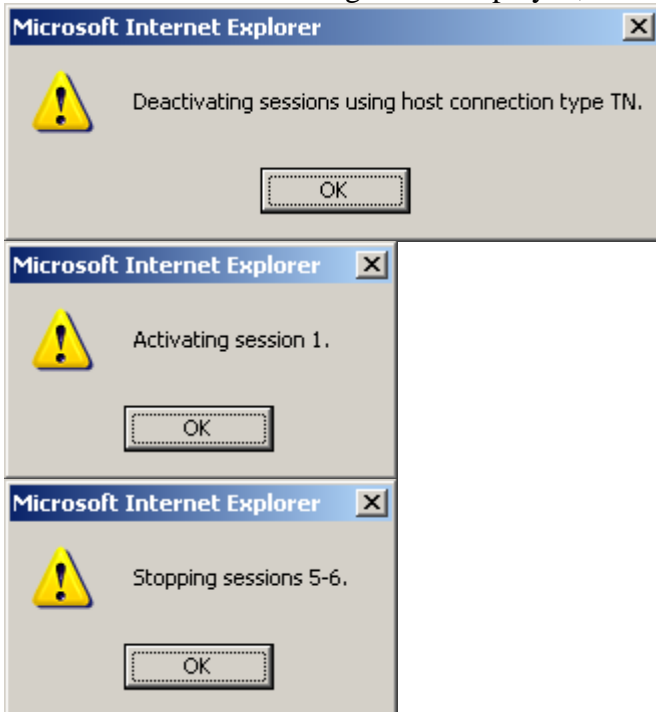


Enter one session number, a range of session numbers, OR select from the pull-down box the host connection type of the sessions to be affected.



Click OK to continue.

An informational dialog box is displayed, similar to those shown below.



Check the session pool status table to determine when the status has changed to what was requested. Also, check the transaction.log file for more information.

Session Pool Status

The Session Pool Status section displays licensed sessions and their corresponding transaction sets (if enabled), host server being used, status values, the last transaction run, and time when the session last changed status.

To refresh the status information manually, click the **Refresh Status** button.

To refresh the status information automatically on a periodic basis:

- Select the **every** check box
 - Enter the number of seconds between subsequent refreshes in the associated textbox.
- every seconds.

Session Pool Status will be displayed for a range of up to 10 sessions at a time. If more than 10 sessions are licensed, to change which sessions are displayed, select the range from the provided **Session Range**: drop down list.

Session Range: ▼

The following tables describe the meaning of each status that can be displayed.

Status	Description	TN3270/5250	XML
ASSIGNED	Session has been reserved by an application.	Yes	Yes
PARKED	Transaction Processor has completed running the login and optionally the park transaction.	Yes	No
RECOVERING	Transaction Processor is attempting to restore the session to a parked state.	Yes	No
AVAILABLE	Session is ready to be initialized for Transaction Processor start-up, or when re-starting individual sessions.	Yes	Yes
DEACTIVATED	Session is not in the session pool and thus cannot be reserved.	Yes	Yes
IN_TRANSACTION	Transaction Processor is running a transaction.	Yes	Yes

These status strings are returned less frequently:

Status	Description	TN3270/5250	XML
UNAVAILABLE	Session is in an unrecoverable state due to fatal error. See Event Log for possible reasons for the failure.	Yes	Yes
RELEASED	Transaction Processor has completed running the login and optional park transactions	Yes	Yes
REPARKING	Transaction Processor is running a <transaction>_park transaction.	Yes	No
LOGGING_IN	Transaction Processor is running the login transaction.	Yes	No
LOGGED_IN	Transaction Processor has completed running the login transaction.	Yes	No
PARKING	Transaction Processor is running the park transaction.	Yes	No
LOGGING_OUT	Transaction Processor is running the logout transaction.	Yes	No
LOGGED_OUT	Transaction Processor has complete running the logout transaction.	Yes	No
COMM_CHECK	Host communications have failed for the session.	Yes	No
KB_LOCKED	Session is not allowing input due to previous attempt to send invalid data to screen. (e.g., field value is longer than field width on screen)	Yes	No
HOST_WAIT	Host application for this session is busy processing data	Yes	No
HOST_DOWN	Access to host is unavailable due to network outage, host outage, or link outage.	Yes	Yes
UNLICENSED	License (cleotp.lic) has not been installed from the Web Admin after the Transaction Processor has been installed.	Yes	Yes
UNASSIGNED	Session is licensed but not enabled.	Yes	Yes

Each status label is color-coded, with RECOVERING and HOST_DOWN displayed in red, DEACTIVATED displayed in gray, and the remaining status values displayed in black.

NOTE: *If a session is shown in the UNAVAILABLE state, the Transaction Processor Service will need to be restarted and possibly reconfigured in order to restore the session to a useable state. Check for logs indicating the problem.*

Management Using Command-line Utilities

The TP Service and sessions can be managed using the command-line programs that are described in this section. The programs are located in %TP_HOME%\bin (default on Windows is C:\Program Files\CleoTP\bin, /opt/cleotp/bin on UNIX).

Start/Stop/Status of the TP Service

Use the `tpmanager` command on Windows and the `tpservice` command on UNIX/Linux to start or stop the TP service, or to determine its status.

tpmanager <start|stop|status>

Examples

tpmanager start

Transaction Processor Service is starting...
Transaction Processor Service was successfully started.

tpmanager status

Transaction Processor Service is running.

tpmanager stop

Transaction Processor Service is stopping.....
Transaction Processor Service was successfully stopped.

tpmanager status

Transaction Processor Service is not running.

Session Management

Use the `tpcommand` to display information about one or more sessions as described in the table below.

tpcommand <command number> [<start session id> [<end session id>]]

FUNCTION	COMMAND	RESULTS
GET_STATUS_TABLE	tpcommand 1	Displays status table for all licensed sessions
DEACTIVATE session(s)	tpcommand 2 <session1> [<session2>]	Removes specified session(s) from session pool
ACTIVATE session(s)	tpcommand 3 <session1> [<session2>]	Returns specified session(s) to session pool
STOP_SESSION(s)	tpcommand 4 <session1> [<session2>]	Runs logout for specified session(s)
START_SESSION(s)	tpcommand 5 <session1> [<session2>]	Runs login for specified session(s)
GET_STATUS of session(s)	tpcommand 6 <session1> [<session2>]	Displays status for specified session(s)
GET_SCREEN for session	tpcommand 7 <session id>	Displays current emulator screen for session

Equivalent commands are listed in the following table:

EQUIVALENT COMMAND	COMMAND	RESULTS
gstatall	tpcommand 1	Displays status table for all licensed sessions
deactses <session1> [<session2>]	tpcommand 2 <session1> [<session2>]	Removes specified session(s) from session pool
actses <session1> [<session2>]	tpcommand 3 <session1> [<session2>]	Returns specified session(s) to session pool
stopses <session1> [<session2>]	tpcommand 4 <session1> [<session2>]	Runs logout for specified session(s)
startsdes <session1> [<session2>]	tpcommand 5 <session1> [<session2>]	Runs login for specified session(s)
gstat <session1> [<session2>]	tpcommand 6 <session1> [<session2>]	Displays status for specified session(s)
gscreen <session id>	tpcommand 7 <session id>	Displays current emulator screen for session

Examples

tpcommand 1 or gstatall

LU	Transaction Set	Host Server	Status	Last Transaction	Since
1	sample	sample-TN	PARKED	login	08/18/06 09:00:38:465
2	eskerRecovery	esker-TN	HOST_DOWN	---	08/18/06 09:01:23:919
3	sample415	testssl1-TN	PARKED	login	08/18/06 09:00:43:545
4	sample415	sampleSSL-TN	PARKED	login	08/18/06 09:00:46:280
5	eskerTrans	esker-TN	HOST_DOWN	---	08/18/06 09:01:32:922
7	eskerTrans	esker-TN	HOST_DOWN	---	08/18/06 09:01:38:923
8	eskerTrans	esker-TN	HOST_DOWN	---	08/18/06 09:01:41:923
9	eskerTrans	esker-TN	HOST_DOWN	---	08/18/06 09:01:44:923

etc.

tpcommand 2 1 or deactses 1

Deactivating session 1.

tpcommand 6 1 or gstat 1

LU	Transaction Set	Host Server	Status	Last Transaction	Since
1	sample	sample-TN	DEACTIVATED	login	08/18/06 10:01:27:285

tpcommand 4 7 10 or stopses 7 10

Stopping sessions 7-10.

tpcommand 6 7 10 or gstat 7 10

LU	Transaction Set	Host Server	Status	Last Transaction	Since
7	eskerTrans	esker-TN	AVAILABLE	logout	08/18/06 10:36:14:812
8	eskerTrans	esker-TN	AVAILABLE	logout	08/18/06 10:36:15:796
9	eskerTrans	esker-TN	AVAILABLE	logout	08/18/06 10:36:16:796
10	eskerTrans	esker-TN	AVAILABLE	logout	08/18/06 10:36:17:796

tpcommand 5 8 or startsdes 8

Starting session 8.

tpcommand 6 8 or gstat 8

LU	Transaction Set	Host Server	Status	Last Transaction	Since
8	eskerTrans	esker-TN	PARKED	login_any	08/18/06 10:40:14:328

tpcommand 7 8 or gscreen 8

Status of session 8 is PARKED

Press Enter to display screen ...

After the Enter key is pressed, the current screen is displayed as shown in Table 1. The exclamation point (!) indicates a field attribute on the screen.

WARNING: If the session is in use by the TP (e.g. running a transaction), executing this command could cause a transaction to fail due to contention for the screen.

Table 1: Session Screen Display

!LUIIS Menu	USER1R	08/18/06	10:23:58	TEDVI0K9	NERLUIIS
!Type!h!and press <ENTER> for help. !					
!					
!	!LIBRARY CATALOGS	!	!6	!LUIIS INDEXES & DATABASES A-E	
!	!2	!Florida A&M University	!	!7	!LUIIS INDEXES & DATABASES F-Z
!	!3	!Florida Atlantic University	!	!8	!COURSE RESERVE INDEXES
!	!4	!Florida Gulf Coast University	!	!	!
!	!5	!Florida International University	!	!	!
!	!6	!Florida State University	!	!	!*****
!	!7	!University of Central Florida	!	!	!These databases and many more
!	!8	!University of Florida	!	!	!are available via WebLUIIS at
!	!9	!University of North Florida	!	!	! http://webluis.fcla.edu
!	!10	!University of South Florida	!	!	!some include links to full text
!	!11	!University of West Florida	!	!	!*****
!	!12	!COMBINED CATALOG of SUS LIBRARIES	!	!	!
!	!	!	!	!	!
!	!	!	!	!29	!Staff Signon (USERID Required)
!	!15	!Center for Research Libraries	!	!30	!Exit LUIIS and sign off
!					
!Type the number of your choice and press the ENTER key:!8 !					

Session Monitoring

Use the cleotstats command to periodically report the following:

- Current date and time
- Number of licensed sessions
- Number of configured (enabled) sessions
- Number of PARKED sessions
- Number of sessions in use, or active (IN_TRANSACTION, PARKING, etc.)
- Number of sessions in RECOVERY
- Number of sessions HOST_DOWN

cleotstats <frequency in minutes> <number of repetitions> [seconds]

Defaults: frequency = 1 minute, repetitions = 1

Use 0 repetitions for continuous reporting.

Specify “seconds” for frequency in seconds.

Examples

cleotstats

```
date time licensedCount configuredCount parked inUse recovering hostDown
08/17/2006 04:30:31,96,30,15,0,0,0
```

cleotstats 5 3 seconds

```
date time licensedCount configuredCount parked inUse recovering hostDown
08/17/2006 04:32:07,96,30,30,0,0,0
08/17/2006 04:32:12,96,30,30,0,0,0
08/17/2006 04:32:17,96,30,30,0,0,0
```

Using the Connection Manager

Introduction

The Transaction Processor Connection Manager provides the following configuration and monitoring capabilities for the TP Client:

- Connection Pool Setup
- Enable/Disable Cleo Fail Over Monitor Service
- Configure periodic time interval to run Cleo Fail Over Monitor Service to update status of all connections
- Configure Primary Connection for each pool
- Configure Secondary Connections for each pool
- Configure Secure(SSL) Client Connection Support
- Service Status Monitoring

NOTE:

If TP Connectors are NOT used with the optional “pool” parameter, then there is no need to use the Connection Manager nor the Cleo Fail Over Monitor Service.

Even if TP Connectors are used specifying a “pool”, connection pools do not need to be configured if neither a secure or redundant connection is required.

The Connection Pool contains a set of “pools” each with connection configurations that specify to the TP Client how to access a TP Service that is available, for each “pool”.

When a TP Connector, specifying a pool name, is requested, the TP Client will refer to a file “connPool.xml” that contains connection information about all pools and the current status of each connection(In Service on NOT In Service(Unavailable)). If the primary connection is “In Service” the TP Client will use that connection to try to establish a TP Connector. Otherwise, the TP Client will use the first connection for the pool specified, that is in an “In Service” state. The “connPool.xml” file is located as follows:

WINDOWS

%TP_HOME%\resources\sessions

UNIX

%TP_HOME/resources/sessions

WHERE: TP_HOME

is C:\Program Files\TP on Windows

is /opt/cleotp on UNIX

In addition to the Connection Manager to configure TP Client pools and their connections and monitor the status of all the connections, the TP Client also includes a Service.

Using the Cleo Fail Over Monitor Service

The service that Monitors each pool's connections and updates their status, for Windows systems is called

Cleo Fail Over Monitor Service

The *Cleo Fail Over Monitor Service* is installed with a default mode of "Manual".

The *Cleo Fail Over Monitor Service* can be started manually using the Windows "Administrative Tools", or can be set to "Automatic" mode to start automatically whenever the Windows system is started.

For UNIX, the same functionality is accomplished by using the command line command

fomonitor start

to start the *Cleo Fail Over Monitor Service*, or

fomonitor stop

to stop the *Cleo Fail Over Monitor Service*.

The *Cleo Fail Over Monitor Service* can be ENABLE or DISABLED using the Connection Manager. And a *Failover Retry Interval(seconds)* can be configured using the Connection Manager. The *Cleo Fail Over Monitor Service*, if ENABLED and if the Service is started, will run every *Failover Retry Interval* seconds and check the status of each pool's connections updating their current status of "In Service" or "Unavailable" in the connPool.xml file located in the "resources" directory.

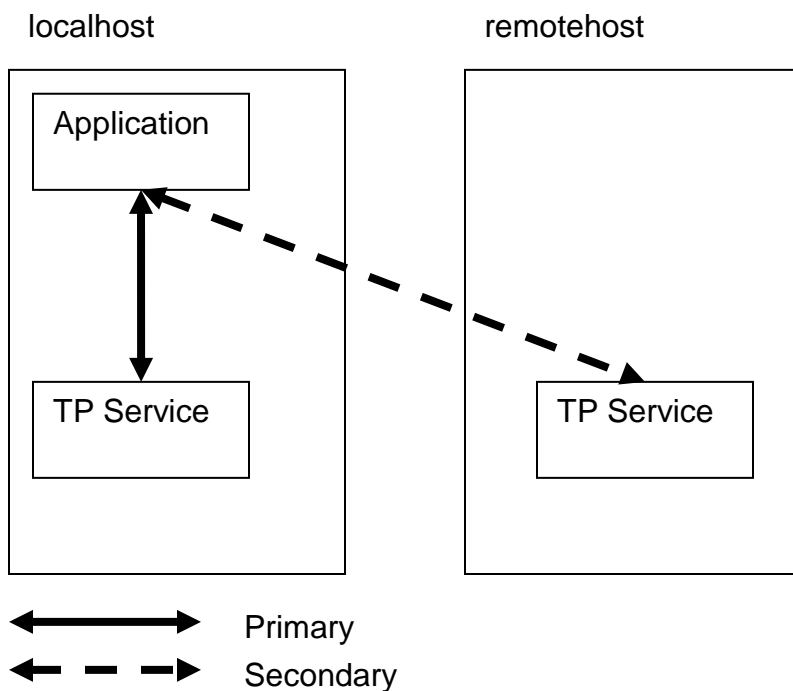
When a TP Connector is created by an application specifying a "pool" the TP Client uses the Primary connection, defined in the connPool.xml file, unless its status is "Unavailable". If the Primary connection's status is "Unavailable" the TP Client will find the first Secondary Connection defined for the "pool" that has a status of "In Service" and use that connection for subsequent API requests from the Application(eg. reserve, runTransaction, release).

Refer to the TP Programmer's Guide for more details on how to utilize the dynamic failover capability within the client application.

Failover Support

There may be instances where failures occur in either the Transaction Processor Service itself, the remote system where the Transaction Processor Service is running, or the network that prevent the associated application from accessing the necessary data needed by the user of the application. For this reason, the TP Client supports failover support to multiple Transaction Processor Services through the use of the Connection Pool.

The first connection in a pool is designated the “primary” connection. If the associated Transaction Processor for the “primary” connection is “In Service”, then the connection will be established. The remaining connections in a pool are designated “secondary” connections. A “secondary” connection will only be established if the “primary” connection is unavailable for any reason (such as network failures, service stopped, system shutdown, etc.). The connections will be tested in sequential order until an accessible connection can be found. (The order can be changed by following the instructions to Set Priority Order.)



Access the Connection Manager

The Connection Manager is a web based application that runs in any web browser such as Internet Explorer, Netscape, or Mozilla that can access the system where the TP Service is running.

To access the Connection Manager:

1. Check that the Transaction Processor Admin service is running using Services under Administrative Tools. If the Transaction Processor Admin service is not running, then start it.
2. Enter the following URL into the address line of your browser.
“http://<ipaddress>:38080/CManager/CManager.jsp” where <ipaddress> is the host name or IP address of the system where the Transaction Processor service or client is installed.
3. If accessing the Connection Manager for a Transaction Processor Service installation, select Connection Manager from the drop-down list that is displayed on the Selection Page and click **GO**. If accessing the Connection Manager for a Transaction Processor Client installation, no additional step is necessary. The Connection Manager should appear.



Figure 17: Connection Manager

Connection Pool Setup

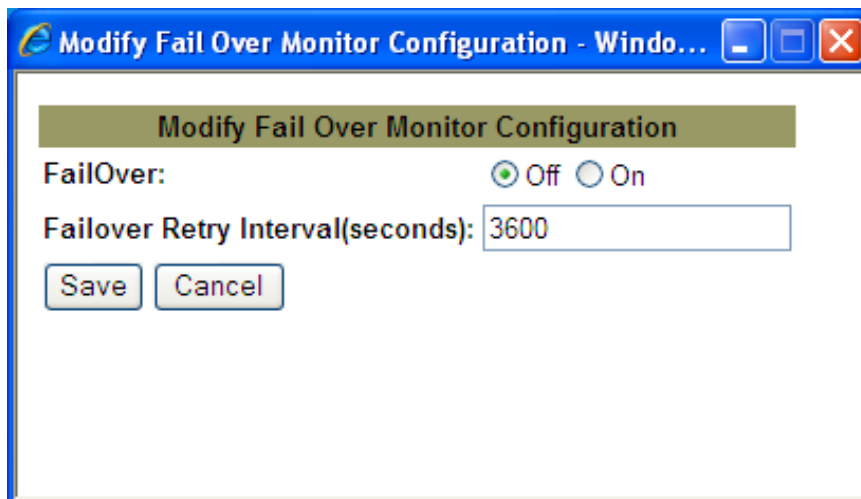
The Connection Manager can be used to:

- Enable/Disable the Cleo Fail Over Monitor Service
- Configure time interval for the Cleo Fail Over Monitor Service to test each connection to determine if the connection is “In Service” or “Not In Service”
- Add a Connection or Pool
- Modify an Existing Connection
- Delete an Existing Connection
- Set Priority Order
- Delete an Entire Pool

Enable/Disable and Configure the Cleo Fail Over Monitor Service

To Enable/Disable the Cleo Fail Over Monitor Service:

1. Click the **Fail Over Config/Manage** button under **Fail Over Monitor**.
2. The “Modify Fail Over Monitor Configuration” window should appear.



3. Click the **FailOver Off** button to DISABLE the Fail Over Monitor Service from running
4. Click the **FailOver ON** button to ENABLE the Fail Over Monitor Service. When ENABLED (and for Windows the Service is running, or for Unix the service is running via the “fomonitor start” command), the Cleo Fail Over Monitor Service will run every “Failover Retry Interval” seconds. Each time the Cleo Fail Over Monitor Service runs, it will test every connection and determine if the connection is “In Service” or “Not In Service (Unavailable)”. The “conPool.xml” file will be updated as well, to reflect the current status of each connection.
5. To Configure the time interval (seconds) to run the Enabled Fail Over Monitor Service, enter the number of seconds in the **Failover Retry Interval(seconds)** box.

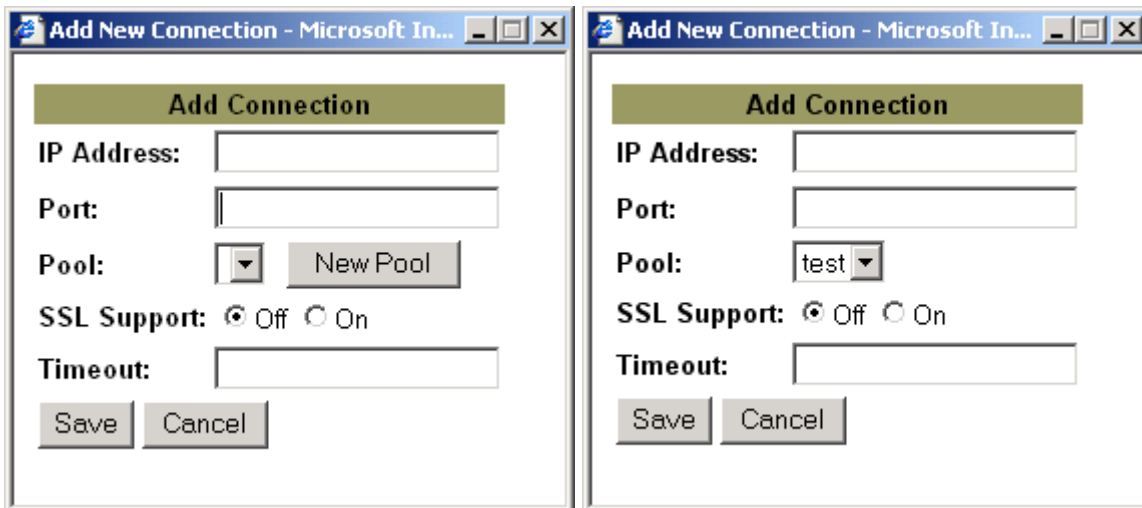
- Click the **Save** button to SAVE the changes made.

Add a Connection or Pool

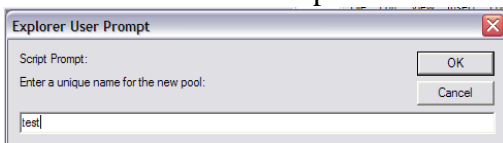
NOTE: New connections can be added to an existing pool or a new pool. Since a pool must contain at least one connection, a new pool can only be added when a new connection is added.

To add a connection to a new or existing pool:

- Click the **Add New** button under Connections.
- The “Add New Connection” window should appear.



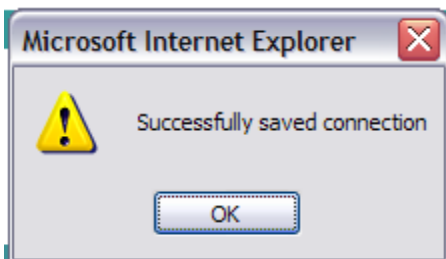
- Enter an IP Address of an available TP Service (running locally or remotely).
- Enter the Port of the TP Service. (7561 is the default)
- Click **New Pool** if a pool name has not yet been specified.
 - Enter a name for the new pool.



- Click **OK**.
 - The new pool name will appear in the drop-down list.
- Configure SSL Support option. Select *Off* if a secure connection between the TP Client and Service is not required. Select *On* if a secure connection between the TP Client and Service is required.

NOTE: When changing this option, all affected TP services should be stopped, and all TP client applications must be restarted. If SSL Support is turned *Off* in the TP Service, only TP Clients with SSL Support turned *Off* can access the TP Service. Likewise, if SSL Support is turned *On* in the TP Service, only TP Clients with SSL Support turned *On* can access the TP Service.

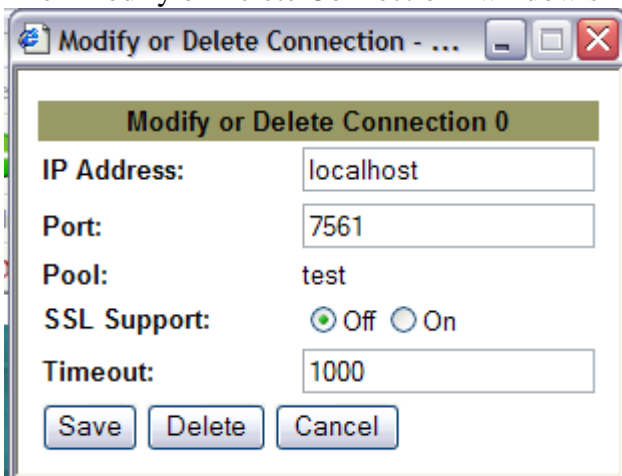
7. Configure Timeout (in milliseconds). The timeout is used to determine how long to wait before giving up while attempting to connect to the configured TP Service. A value of at least 1000 milliseconds is suggested.
8. Click the **Save** button to save the settings. Click the **Cancel** button to close the “Add New Connections” window without saving.
9. Click **OK**.



Modify an Existing Connection

To Modify a Connection:

1. Select the connection # for the connection that will be modified from the drop-down list under the “Connections” header.
2. Click the **Modify/Delete** button.
3. The “Modify or Delete Connection” window should appear.



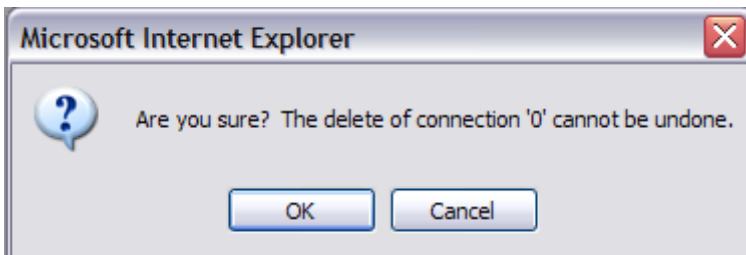
4. Modify any of the settings.
5. Click the **Save** button to save the settings. Click the **Cancel** button to close the “Modify or Delete Connection” window without saving.

6. Click **OK**.

Delete an Existing Connection

To Delete a Connection:

1. Select the connection # for the connection that will be deleted from the drop-down list under the “Connections” header.
2. Click the **Modify/Delete** button.
3. The “Modify or Delete Connection” window should appear.
4. Click the **Delete** button to delete the connection. Click the **Cancel** button to close the “Modify or Delete Connection” window without deleting.
5. Click **OK** to continue with the delete.

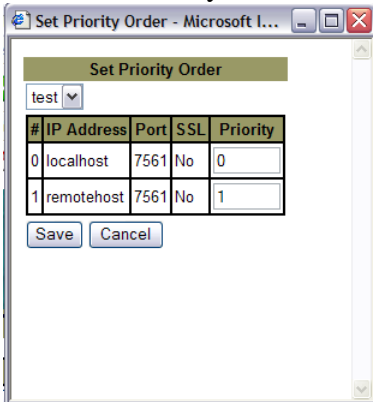


6. Click **OK**.

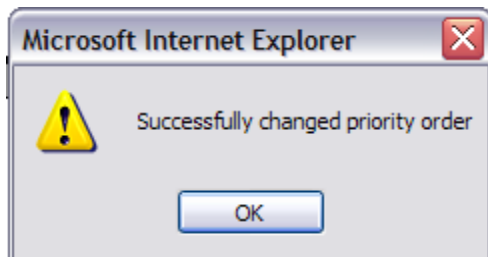
Set Priority Order

To Set the Priority Order:

1. Click the **Set Priority** button.
2. The “Set Priority” window should appear.



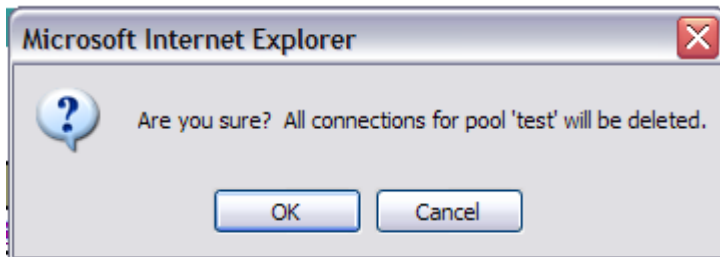
3. Enter the priorities in the required order.
4. Click the **Save** button to save the priorities. Click the **Cancel** button to close the Set Priority window without saving.
5. Click **OK**.



Delete an Entire Pool

To Delete a Pool (and all connections in the pool):

1. Click the **Delete** button under the “Pools” header. Refer to Figure 17.
2. Click **OK** to continue with the delete.



Service Status Monitoring

The Connection Manager can also be used to monitor the status of the Transaction Processor Services that are configured in any of the connection pools. Services that can be accessed will have a status of “In Service” in green. Any service that is not accessible will have an “Unavailable” status in red.



The screenshot displays the CLEO Transaction Processor Connection Manager interface. At the top, the title "CLEO Transaction Processor Connection Manager" is shown. Below this, there are two main sections: "Connections" and "Pools".

The "Connections" section includes a table with the following data:

Connections				Pools	
Add New	0	Modify/Delete	Set Priority Order	test	Delete

The "Pools" section is titled "Transaction Processor Connections" and contains a "Refresh Status" button. Below the button is a table showing the status of two connection pools:

Pool #	IP Address	Port	SSL	Timeout	Status	Admin
test 0	localhost	7561	No	1000	Unavailable	http://localhost:38080
test 1	remotehost	7561	No	1000	In Service	http://remotehost:38080

Appendix A: Manual Recovery (TN Only)

Session Viewer

There may be a need to access a host emulator screen for a session that does not reach the **parked** state and goes into recovery, and/or has errors reported in the transaction.log file.

This could happen if

- The Transaction Processor was unsuccessful getting the session to the **parked** state when performing automatic recovery and/or running the user-defined recovery transaction.
- The auto recovery property is not ON and no recovery transaction was defined, so that no attempts were made to bring the session to a **parked** state.

Deactivating the session will remove the session from the Transaction Processor session pool so that the screen can be displayed and, if necessary, brought to a recoverable screen.

Once a session is in the *deactivated* state, (i.e. not available to the TP) the session can be viewed using the Session Viewer (see Figure 18) and brought to the correct initial or parked screen. It can then be activated so that the TP can resume using the session for running transactions.

NOTE: *If the auto recovery option is set ON in the configuration properties for the Transaction Processor, the screen may have changed to the initial host (banner) screen as a result of the Power Off and Power On commands being issued to the host for the session. This prevents the ability to view the original screen that caused the error, as does the presence of a recovery transaction. In order to preserve the integrity of the error screen, auto recovery will have to be turned off. (For any configuration property change to take effect, the TP must be stopped and restarted.)*

The Session Viewer is a standalone Transaction Designer recorder-like utility that allows you to manipulate host screens.

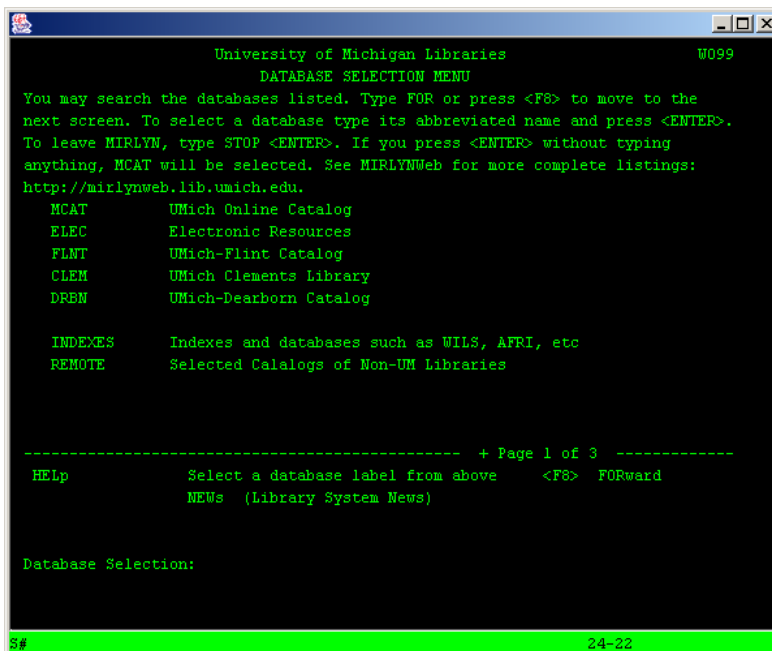


Figure 18: Session Viewer

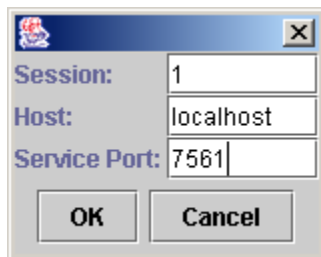
To launch the Session Viewer:

1. First deactivate the session you wish to view (See Session Management).
2. Open the Session Viewer
 - On Windows, open the Session Viewer using the installed shortcut (e.g. Start | Programs | CleoTP | Session Viewer)
 - On UNIX/Linux, open the Session Viewer by executing the `tpviewer` script (parameters are optional):


```
> tpviewer [<Host> <Service Port> <Session>]
```

 using an xterm window on the console, or
 using an X-Windows server running on a remote system, such as Omni-X. The `DISPLAY` environment variable must be set to the IP address of the remote system running the X-Windows server. For example,


```
“export DISPLAY=10.2.3.55:0.0”
```
3. Fill in the required configuration values:




where,

- **Session:** is the session that you deactivated in step 1

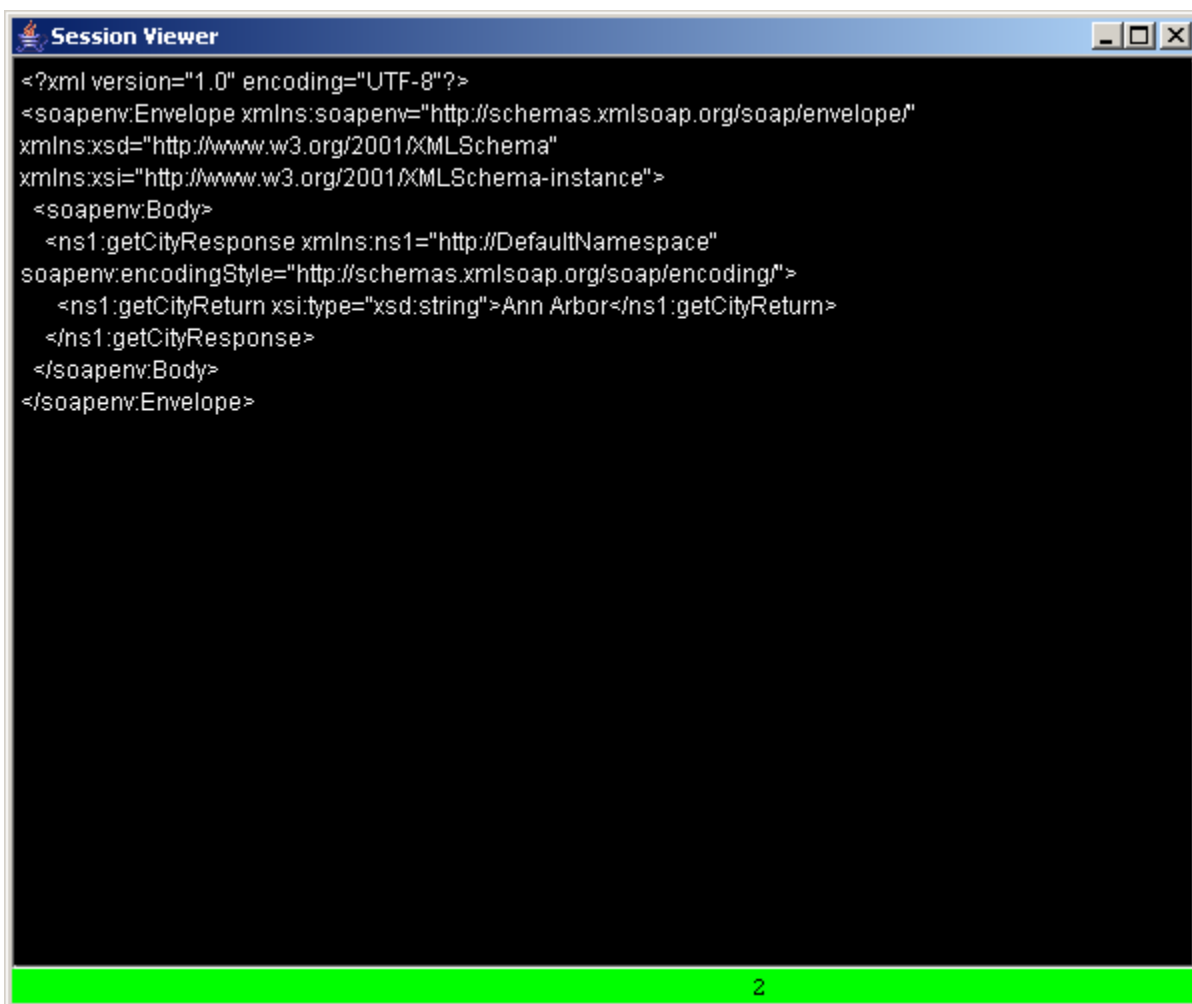
- **Host:** is the hostname or IP address of the system where the Transaction Processor Server is running
- **Service Port:** is the port (Base Port + 1) used for client access (default is 7561) See section, Configure Server Options, for a description of Base Port.

4. Click **OK**.
5. Navigate screens.

To close the Session Viewer, click the  in the top right hand corner.

Session Viewer for XML

The Session Viewer can also be used to display the last XML response document received for a session that has been deactivated. Below is an example.



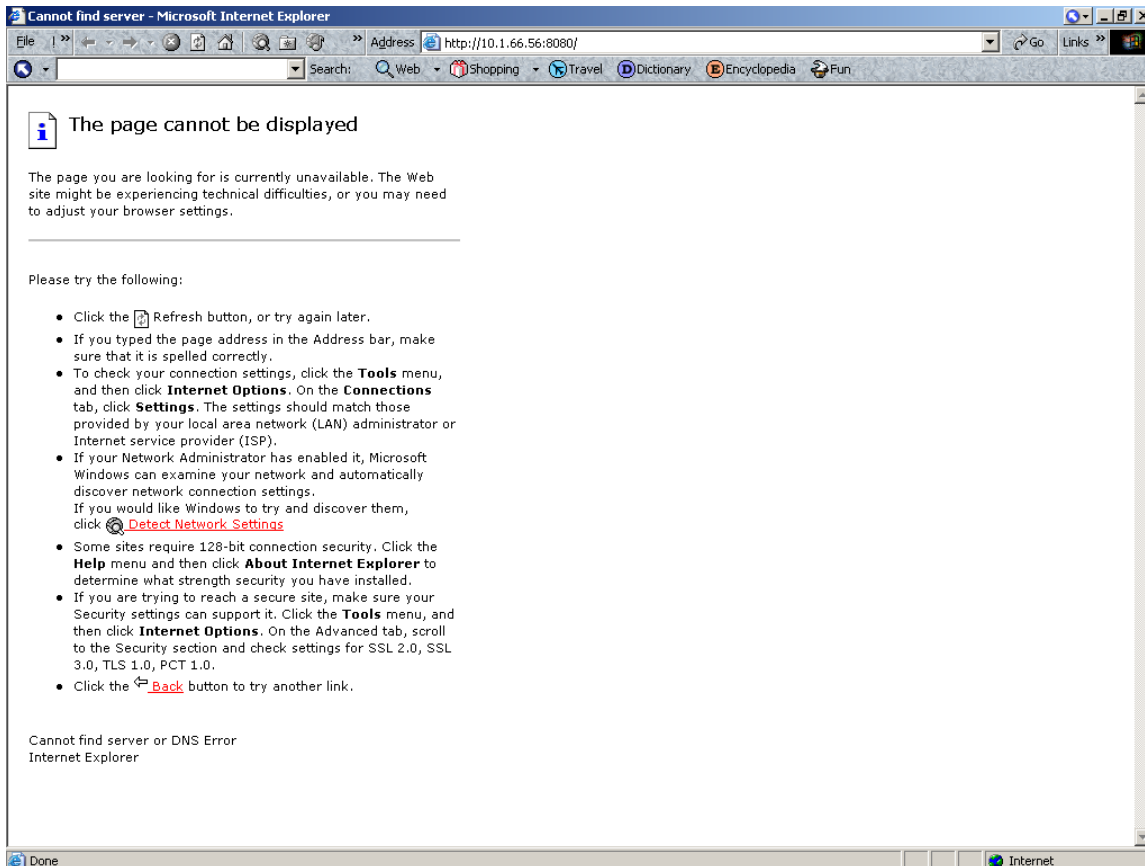
The screenshot shows a window titled "Session Viewer" with a black background and white text. The text is an XML document. At the bottom of the window, there is a red bar with the number "2" centered in it.

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <ns1:getCityResponse xmlns:ns1="http://DefaultNamespace"
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
      <ns1:getCityReturn xsi:type="xsd:string">Ann Arbor</ns1:getCityReturn>
    </ns1:getCityResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

Appendix B: Troubleshooting

General Errors

If the following page displays when attempting to enter the Web Admin, then most likely the Transaction Processor Admin service on Windows, or the tomcat web server on UNIX, is not running.



Solution on Windows:

1. Check whether the Transaction Processor Admin service is running by viewing the status in the Services list.
2. If it is not running, attempt to start the Transaction Processor Admin service by clicking the start button.

Solution on UNIX/Linux:

1. Check whether the tomcat web server is running by issuing "ps -ef | grep tomcat". Lines similar to the following are displayed if so:

```
# ps -ef | grep tomcat
root  4635  1 0 11:40 pts/0  00:00:29 /opt/IBMJava2-141/bin/java -
Djava.endorsed.dirs=/opt/cleotp/tomcat/common/endorsed -classpath /opt/IBMJava2-
```

- 141/lib/tools.jar:/opt/cleotp/tomcat/bin/bootstrap.jar:/opt/cleotp/tomcat/bin/commons-logging-api.jar:/opt/cleotp/lib/cleotp.jar:/opt/cleotp/lib/service.jar:/opt/cl.....
2. If it is not running, start the tomcat web server by issuing “tpadmin start”.

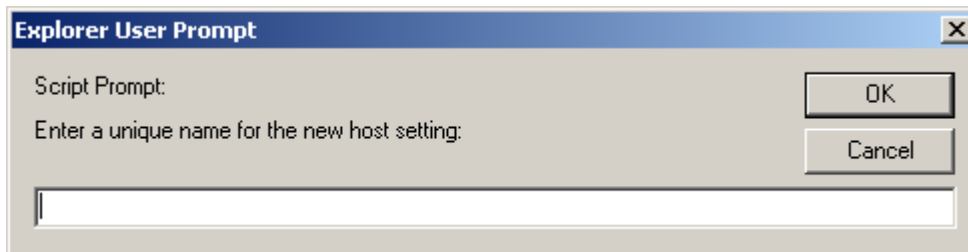
Configuration Errors

Asynchronous Keyboard Macros and Session Files

If %TP_HOME%\macros\keyboard.mac (where the default %TP_HOME% is C:\Program Files\CleoTP) does not include references to ALL the sessions contained in %TP_HOME%\resources\sessions, the configuration page will display an error message. This problem will only occur if either the sessions file or the keyboard macros file has been manually edited outside the configuration page. **It is highly recommended that these files not be edited manually.**

Solution: In this case, delete both files and redefine the sessions (and keyboard macros).

Failure to Enter A Required Host Name (Host Setting Configuration)

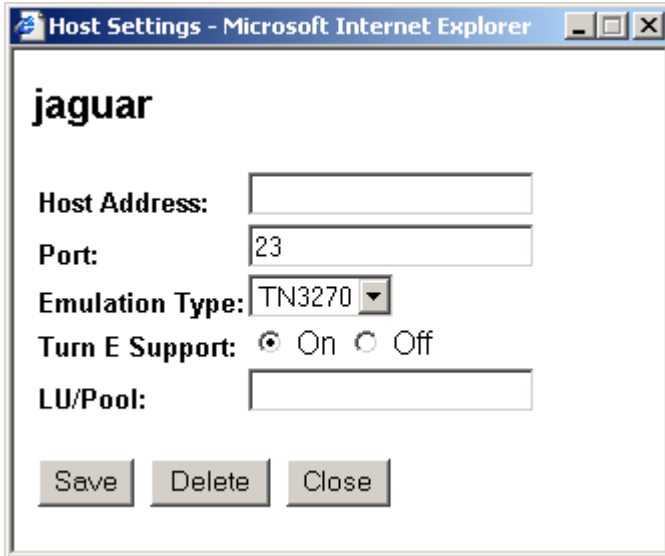


Failure to enter a required host name when adding new host settings will result in an error message being reported back.



Solution: Make sure that a host name has been entered before clicking OK.

Failure to Enter a Required Parameter (Host Setting Configuration)

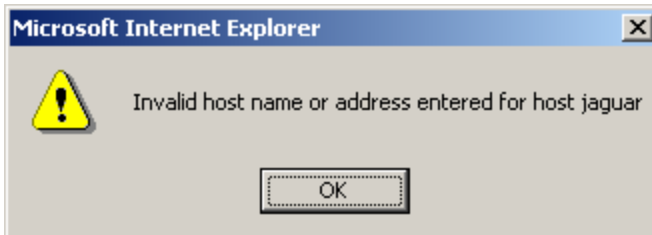


The screenshot shows a web browser window titled "Host Settings - Microsoft Internet Explorer". The page content is for a host named "jaguar". It contains the following fields and controls:

- Host Address:** An empty text input field.
- Port:** A text input field containing the value "23".
- Emulation Type:** A dropdown menu with "TN3270" selected.
- Turn E Support:** Radio buttons for "On" (selected) and "Off".
- LU/Pool:** An empty text input field.
- At the bottom, there are three buttons: "Save", "Delete", and "Close".

Failure to enter a required parameter (Host Address or Port) will result in an error message being reported back.

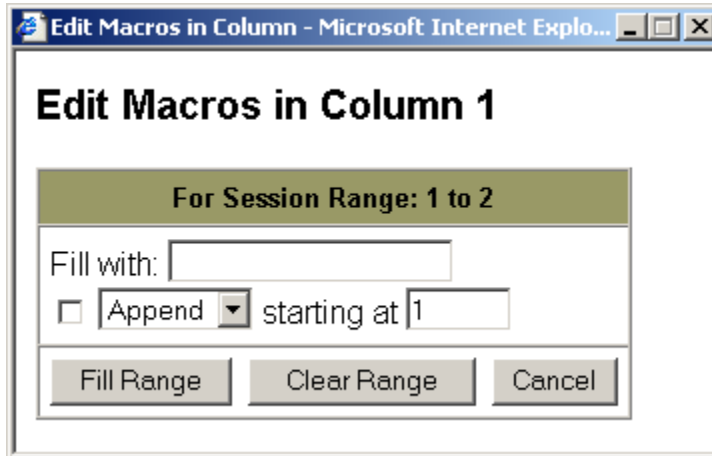
An error similar to the following will appear when the "Save Configuration" is clicked.



Solution: Make sure that all required parameters are filled in before clicking Save Configuration.

Failure to Enter Macro Fill With (Base) Value

When editing keyboard macros, if the **Fill Range** button is clicked,



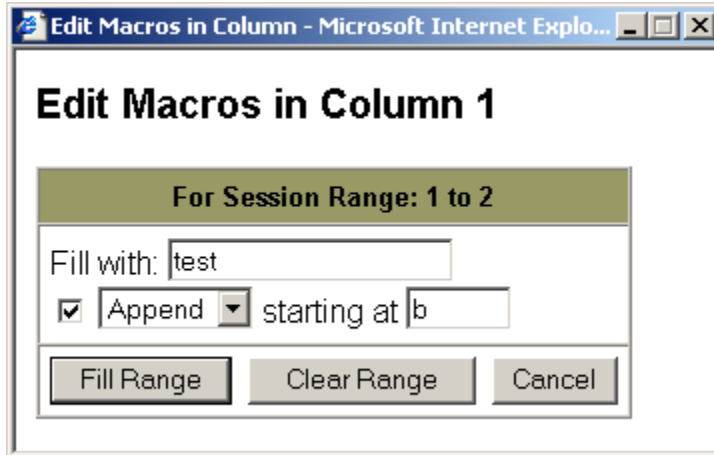
but no **Fill with** (base) value is provided then the following dialog box will display.



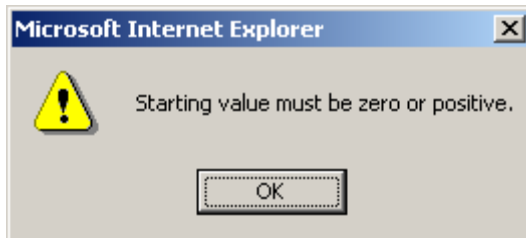
Solution: Enter a base value before clicking Fill Range.

Invalid Macro Start Value

When editing keyboard macros, if the **Fill Range** button is clicked,



but an invalid starting value (which must be an integer ≥ 0) is entered then the following dialog box will display.



Solution: Enter a valid starting value before clicking Fill Range.

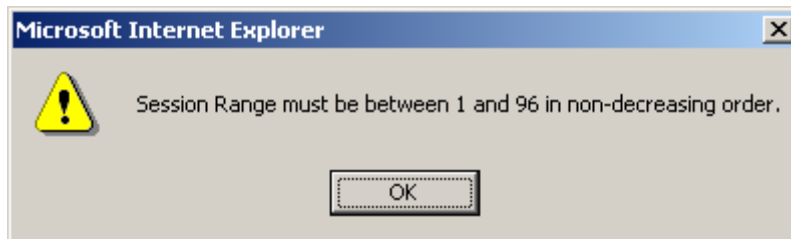
Invalid Session Range

The screenshot shows a web interface for session management. At the top, there is a section titled "For Session Range:" with two input fields. Below this are several buttons: "Enable Sessions", "Disable Sessions", "Assign Sessions To Host", "View Sessions", and "Assign Sessions To Transaction Set". There are also two dropdown menus, both currently showing "sample". Below the buttons is a table with the following columns: "Session", "Transaction Set", "Host", "Enabled", and "Keyboard Macros". The table contains five rows, each with a session number (1-5) and a "*" in the "Keyboard Macros" column.

Session	Transaction Set	Host	Enabled	Keyboard Macros
1				*
2				*
3				*
4				*
5				*

An error message will display if an invalid session range (any non-integer values or integers outside of 1 and the number of licensed sessions) is entered and any of the following buttons are clicked:

- **Enable Sessions**
- **Disable Sessions**
- **Assign Session To Host**
- **View Sessions**
- **Assign Session To Transaction Set**

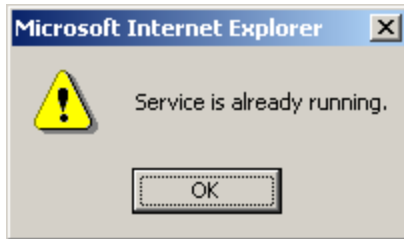


Solution: Enter a valid range before clicking any of the above named buttons.

Administration Errors

Starting the Transaction Processor Service when it is already running

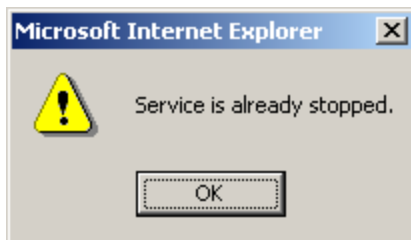
If an attempt is made to start the service and it is already running, then the following dialog will be displayed.



This message can be safely ignored since the intended action of starting the service was already previously completed.

Stopping the Transaction Processor Service when it is already stopped

If an attempt is made to stop the service and it is already stopped, then the following dialog will be displayed.



This message can be safely ignored since the intended action of stopping the service was already previously completed.

Log Messages

A table of log messages can be found in the Cleo TP Programmer's Guide. These logs provide details on the possible warning, critical, and fatal level messages that could be logged to the transaction.log file. They may or may not relate to an administration error, and can be helpful in determining where the application failed.

Restrictions

Because of the nature of some of the JavaScript as well as the CSS and because HTML 4 is being used, some older browsers may not be able to display or handle the pages correctly.

Currently the **Reset Settings** button, when pressed, restores the page to its appearance directly after it was loaded (which occurs after form submission through clicking one of the Add buttons or the Save Settings Button.) It does not return the appearance to the initial state right after component selection.

Technical Support

If you have purchased technical support from Cleo Communications, you may contact the technical support number listed in your contract. Otherwise, you may purchase support from Cleo Communications by contacting a sales representative at salesEN@cleo.com or 1-800-315-3849

Glossary

CSS - Cascading Style Sheets. A feature of HTML that gives both Web site developers and users more control over how pages are displayed.

HTML 4 - Short for HyperText Markup Language, the authoring language used to create documents on the World Wide Web. HTML is similar to SGML, although it is not a strict subset. Version 4 is the current standard.

JavaScript - A scripting language developed by Netscape to enable Web authors to design interactive sites.

JSP - Java Server Pages. A server-side technology, Java server pages are an extension to the Java servlet technology that was developed by Sun as an alternative to Microsoft's ASPs (Active Server Pages). Embedded in an HTML page, the Java source code and its extensions help make the HTML more functional.

Keyboard Macro File - variable text stored in a table to be used as input in a transaction sequence. A column number references each entry when defining send field definitions. The value given in the keyboard macro will override any value that was defined in the transaction. Commonly used to specify a different logon id and/or passwords for each host session.

Session pool - the sessions that are available for use by the applications accessing the TP. The sessions contained in the pool can be uniquely assigned to a single or multiple transaction set(s). An application can only run the transactions contained in the transaction set assigned to the session that is reserved.

Service - an application that runs in the background on Windows.

Session - HLLAPI id which maps to an LU. Refers to a 3270/5250 emulation session. This document uses the term "LU" and "session" interchangeably.

TD - Transaction Designer. A standalone GUI based utility used to create recording clips that are then used to define transaction sequences run by the TP.

%TP_HOME% - The install path of the TP that can be determined by issuing "echo %TP_HOME%" from the Windows command line.

Transaction - a sequence of requests used by the TP to traverse a host application.

Transaction Sequence – a transaction sequence is defined in the TD, to be run later by the TP. (Refer to the *TD User's Guide* for more information on creating transaction sequences, also referred to as transactions.) It represents a series of 3270 host application screens. Either a user-defined transaction or a pre-defined transaction can be created. The following are pre-defined transaction names:

- **Login** – used to log on to the host
- **Park** – used to navigate to a 3270 screen that the next transaction to run requires
- **Logout** – used to log off the host
- **Recovery** – used to navigate from an unknown or erroneous application screen back to a **parked** state

Transaction Set - defined and created by the TD. It consists of a directory containing transaction files and screen definitions that will be used during TP execution. It can be associated with an existing or newly created user application and therefore have the same name.

Transaction Set directory - this directory is the top-level directory (example: C:\Program Files\CleoTP\trans) where all TD transaction sets will be accessed and stored. Each transaction set is stored in a subdirectory, named according to the transaction set name, below this top-level directory (... \trans\sample).

User-defined transaction - contains a host transaction that is run by the TP when requested by the IVR application to retrieve information from the host. An empty user-defined transaction named “transaction1” is created by the TD when it is first started up.