

TIBCO Messaging Appliance™ P-7500

Maintenance and Troubleshooting

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Preface

This document describes how you can monitor and troubleshoot your TIBCO Messaging Appliance P-7500 network by using the CLI to display summary screens of IP network status, and how to use the CLI to monitor the P-7500 status.

Topics

- *Audience, page x*
- *Related Documentation, page xi*
- *Typographical Conventions, page xii*
- *How to Contact TIBCO Support, page xiv*

Audience

This document is intended for use as a reference by system administrators and experienced users who are familiar with IP network configuration.

TIBCO assumes that:

- you have a functioning IP network
- you and your TIBCO Sales representative have determined the correct number and placement of P-7500 systems required
- that these P-7500 systems have been or will be installed in an equipment rack and at least minimally configured by network administrators who are responsible for installing and setting up network equipment

Related Documentation

This section lists documentation resources you may find useful.

TIBCO Messaging Appliance P-7500 Documentation

In addition to this book, the following documents form the TIBCO Messaging Appliance P-7500 documentation set:

- *TIBCO Messaging Appliance P-7500 Hardware Installation*
- *TIBCO Messaging Appliance P-7500 Getting Started*
- *TIBCO Messaging Appliance P-7500 Concepts*
- *TIBCO Messaging Appliance P-7500 Operations Guide*
- *TIBCO Messaging Appliance P-7500 Administration Interface Reference*
- *TIBCO Messaging Appliance P-7500 Release Notes*

If the information in the latest *TIBCO Messaging Appliance P-7500 Release Notes* differs from the information in this document, always follow the release notes.

Typographical Conventions

The following typographical conventions are used in this manual.

Table 1 General Typographical Conventions

Convention	Use
code font	<p>Code font identifies commands, code examples, filenames, pathnames, and output displayed in a command window. For example:</p> <p>Use <code>MyCommand</code> to start the foo process.</p>
bold code font	<p>Bold code font is used in the following ways:</p> <ul style="list-style-type: none">• In procedures, to indicate what a user types. For example: Type admin.• In large code samples, to indicate the parts of the sample that are of particular interest.• In command syntax, to indicate the default parameter for a command. For example, if no parameter is specified, <code>MyCommand</code> is enabled: <code>MyCommand [enable disable]</code>
<i>italic font</i>	<p>Italic font is used in the following ways:</p> <ul style="list-style-type: none">• To indicate a document title. For example: See <i>TIBCO BusinessWorks Concepts</i>.• To introduce new terms For example: A portal page may contain several portlets. <i>Portlets</i> are mini-applications that run in a portal.• To indicate a variable in a command or code syntax that you must replace. For example: <code>MyCommand</code> <i>pathname</i>
Key combinations	<p>Key name separated by a plus sign indicate keys pressed simultaneously. For example: <code>Ctrl+C</code>.</p> <p>Key names separated by a comma and space indicate keys pressed one after the other. For example: <code>Esc, Ctrl+Q</code>.</p>

Table 2 Syntax Typographical Conventions

Convention	Use
[]	<p>An optional item in a command or code syntax.</p> <p>For example:</p> <pre>MyCommand [optional_parameter] required_parameter</pre>
	<p>A logical 'OR' that separates multiple items of which only one may be chosen.</p> <p>For example, you can select only one of the following parameters:</p> <pre>MyCommand param1 param2 param3</pre>
{ }	<p>A logical group of items in a command. Other syntax notations may appear within each logical group.</p> <p>For example, the following command requires two parameters, which can be either the pair param1 and param2, or the pair param3 and param4.</p> <pre>MyCommand {param1 param2} {param3 param4}</pre> <p>In the next example, the command requires two parameters. The first parameter can be either param1 or param2 and the second can be either param3 or param4:</p> <pre>MyCommand {param1 param2} {param3 param4}</pre> <p>In the next example, the command can accept either two or three parameters. The first parameter must be param1. You can optionally include param2 as the second parameter. And the last parameter is either param3 or param4.</p> <pre>MyCommand param1 [param2] {param3 param4}</pre>

How to Contact TIBCO Support

For comments or problems with this manual or the software it addresses, please contact TIBCO Support as follows.

- For an overview of TIBCO Support, and information about getting started with TIBCO Support, visit this site:

<http://www.tibco.com/services/support>

- If you already have a valid maintenance or support contract, visit this site:

<https://support.tibco.com>

Entry to this site requires a user name and password. If you do not have a user name, you can request one.

Chapter 1

Upgrading, Downgrading, Backing Up and Restoring Software Files

This chapter describes the tasks associated with upgrading or downgrading TIBCO Messaging Appliance P-7500 system software, and backing up and restoring configuration database files on the P-7500 system.

Topics

- [*Overview, page 2*](#)
- [*Prerequisites, page 3*](#)
- [*Upgrading TIBCO Messaging Appliance Software, page 4*](#)
- [*Rolling Back TIBCO Messaging Appliance Software, page 7*](#)
- [*Downgrading TIBCO Messaging Appliance Software, page 9*](#)
- [*Deleting TIBCO Messaging Appliance Software, page 11*](#)
- [*Creating a Local Backup of Configuration Database Files, page 13*](#)
- [*Scheduling Automatic Local Backups of Configuration Database Files, page 14*](#)
- [*Backing Up a Configuration Database File to an External Server, page 17*](#)
- [*Restoring a Configuration Database File, page 19*](#)

Overview

Your P-7500 system is shipped with preloaded default TIBCO Messaging Appliance software. As future releases of TIBCO Messaging Appliance software become available, you can save these new software releases to a remote server on your network and subsequently install them to the P-7500 systems on your network. Alternately, you can downgrade to previous versions of TIBCO Messaging Appliance software installed on the P-7500 system, or rollback to the previous TIBCO Messaging Appliance software that was running before the last upgrade was performed.

NOTICE

NOTICE: Information in this chapter is not restricted to specific software and hardware versions.

Backup and restore of configuration database files allows you to recover from hardware or software failures with minimal loss of management data. You can also use backup and restore to move configuration database files from one P-7500 system to another, for example, to facilitate hardware upgrades.

Software Restrictions for Multiple P-7500 Systems

When multiple P-7500 systems are running on a single network, the TIBCO Messaging Appliance software on each device must not differ by more than major or minor level. The Rendezvous network continues to operate with mixed TIBCO Messaging Appliance versions up to one major or minor version difference in a deployed network.

Also, features available to devices running newer TIBCO Messaging Appliance releases do not work with devices running older releases that do not support those features.

Prerequisites

Before using the upgrade or the external backup and restore procedures in this chapter, ensure that the P-7500 systems have access to a remote server on the network for copying files.



Note. Remote server access is not required for the rollback, downgrade, or local file restore procedures.

Verify the IP connectivity between the systems and SFTP server using the `ping` User EXEC command:

```
ping ip-addr
```

where *ip-addr* is the IP address of the host you want to verify, specified in the dotted decimal notation form *nnn.nnn.nnn.nnn*.

Example:

```
tibco> ping 192.168.1.1
```

Ensure that sufficient disk space is available on the remote server to contain two weeks worth of backups. Generally, there should be twice as much storage available for backup as there is for the main configuration database file.



ALERT

ALERT! If your P-7500 system network is live, consider the timing of the upgrade downgrade, backup or restore with respect to system load and the locking out of essential services. Make sure that you understand the potential impact of any upgrade, downgrade, backup or restore configuration command before entering it to avoid unforeseen disruptions to customer service.

NOTICE

NOTICE: While being upgraded or downgraded, the P-7500 system is unavailable for a short time. All other systems should continue to operate at full capacity. All logs are preserved during an upgrade or downgrade.

Upgrading TIBCO Messaging Appliance Software

To install new TIBCO Messaging Appliance software from a remote server to the /loads subdirectory on your P-7500 system for software upgrade, follow this procedure:

1. Ensure that you have a remote server on the P-7500 system network to which you have IP connectivity.
2. Enter the show disk User EXEC command:

```
tibco> show disk
```

The displayed output should be:

```
Internal disks
Disk 1 administrative state: enabled
Disk 1 operational state:   up
Disk 2 administrative state: enabled
Disk 2 operational state:   up
RAID in fully redundant state
Reload required: no
```



ALERT

ALERT! If the displayed output of the show disk User EXEC command shows the RAID 1 protected disk drives to be in a non-redundant state (see example below), contact TIBCO for technical support and stop this software upgrade procedure immediately to prevent software corruption on the system.

```
tibco> show disk
Internal disks
Disk 1 administrative state: enabled
Disk 1 operational state:   up
Disk 2 administrative state: enabled
Disk 2 operational state:   recovering
RAID not in redundant state
Reload required: no
```

3. Enter the enable command at the User EXEC Level prompt:

```
tibco> enable
tibco#
```

The TMA P-7500 CLI is now in Privileged EXEC level.

4. To avoid a situation where the P-7500 system does not have valid TIBCO Messaging Appliance configuration data to start from, enter the following copy Privileged EXEC command to retain the current TIBCO Messaging Appliance configuration in the /configs subdirectory by making a local copy of it:

```
tibco# copy current-config /configs/old_version_preUpgradeCfg
```

where *old_version* is the version number of the current TIBCO Messaging Appliance software. Valid version values are of the form *w.x.y.z*, where *w*, *x*, *y* and *z* are decimal integers.

5. Enter the copy Privileged EXEC command to copy the latest TIBCO Messaging Appliance software from the remote server to the /loads subdirectory on the system:

```
tibco# copy scp://[username@]ip-addr/remote-pathname
/loads
```

where *username*, *ip-addr*, and *remote-pathname* point to where the new TIBCO Messaging Appliance software is located.

6. Enter this CLI command sequence to stop the Message Backbone VRF Interface (that is, lag 1):

```
tibco# configure
tibco(config)# interface 1/1/lag1
tibco(config-interface)# shutdown
tibco(config-interface)# exit
tibco(config)# exit
tibco# exit
tibco>
```

7. After successfully transferring the new TIBCO Messaging Appliance software to the /loads subdirectory, the administrator enters the boot Privileged EXEC command to upgrade the P-7500 system software to the new TIBCO Messaging Appliance software and activate it:

```
tibco# boot new_version
```

where *new_version* is the version number of the new TIBCO Messaging Appliance software to be activated.



ALERT

ALERT! The boot Privileged EXEC command causes a disruption in customer service when run since it restarts the system to activate the new TIBCO Messaging Appliance software. It is best to upgrade the P-7500 software at a time when a service disruption is of minimal impact to the clients on the messaging network.

8. The system restarts, using the new TIBCO Messaging Appliance software specified in [step 7](#).
9. Enter this CLI command sequence to start the Message Backbone VRF Interface (that is, lag 1):

```
tibco# configure
tibco(config)# interface 1/1/lag1
```

```
tibco(config-interface)# no shutdown
tibco(config-interface)# exit
tibco(config)# exit
tibco# exit
tibco>
```

You have completed this procedure

Rolling Back TIBCO Messaging Appliance Software

If there is a problem, TIBCO Messaging Appliance software on the P-7500 system can be rolled back to the previous version and configuration.

To rollback the P-7500 system to the previously running TIBCO Messaging Appliance software version, identified on the system as the backout load, follow this procedure:

1. To display and determine the current TIBCO Messaging Appliance software backout load available on the system, enter the `show version` CLI command:

```
tibco> show version
```

Observe the version value listed beside the Backout load heading near the bottom. This backout load is the previous TIBCO Messaging Appliance software version that was running before the last upgrade:

```
tibco> show version
```

Process	Release	Build date
CLI	8.7.0.0003	Mar 2 2011 09:55:36 UTC
DataplaneMgr	8.7.0.0003	Mar 2 2011 09:55:36 UTC
Controlplane	8.7.0.0003	Mar 2 2011 09:55:36 UTC
Managementplane	8.7.0.0003	Mar 2 2011 09:55:36 UTC

```
RVGD Version: 8.2.2 V2 2/5/2010
```

```
Current load is: tma_8.7.0.0003
```

```
Backout load is: tma_8.7.0.0002
```

```
Loads available on the router:
```

```
Load 1: tma_8.7.0.0002
```

```
Load 2: tma_8.7.0.0003
```

```
System uptime: 0d 15h 35m 53s
```

2. Enter the `enable` command at the User EXEC Level prompt:

```
tibco> enable
tibco#
```

The P-7500 CLI is now in Privileged EXEC level.

3. The administrator enters the boot Privileged EXEC command to rollback the TIBCO Messaging Appliance software on the P-7500 system to the backout load identified in [step 1](#) and activate it:

```
tibco# boot backout
```

where `backout` directs the P-7500 system to revert to and run the previous TIBCO Messaging Appliance software version that was running before the last upgrade.



ALERT

ALERT! The `boot` Privileged EXEC command causes a disruption in customer service when run since it restarts the system to activate the TIBCO Messaging Appliance software. It is best to rollback the system software at a time when a service disruption is of minimal impact to the clients on the messaging network.

4. The P-7500 system restarts, using the TIBCO Messaging Appliance software that was running before the last upgrade.

You have completed this procedure

Downgrading TIBCO Messaging Appliance Software

To downgrade to TIBCO Messaging Appliance software already installed on your P-7500 system, or to install old TIBCO Messaging Appliance software from a Secure File Transfer Protocol (SFTP) server to the /loads subdirectory on your P-7500 system for software downgrade, follow this procedure:

1. If installing old TIBCO Messaging Appliance software from a SFTP server, ensure that you have an SFTP server on the P-7500 system network to which you have IP connectivity.
2. To display and determine the current TIBCO Messaging Appliance software versions installed and available on the P-7500 system, enter the `show version` CLI command:

```
tibco> show version
```

Observe the version values listed under the `Loads` available on the system heading near the bottom:

```
tibco> show version
```

Process	Release	Build date
CLI	8.7.0.0003	Mar 2 2011 09:55:36 UTC
DataplaneMgr	8.7.0.0003	Mar 2 2011 09:55:36 UTC
Controlplane	8.7.0.0003	Mar 2 2011 09:55:36 UTC
Managementplane	8.7.0.0003	Mar 2 2011 09:55:36 UTC

```
RVGD Version: 8.2.2 V2 2/5/2010
```

```
Current load is: tma_8.7.0.0003
```

```
Backout load is: tma_8.7.0.0002
```

```
Loads available on the router:
```

```
Load 1: tma_8.7.0.0002
```

```
Load 2: tma_8.7.0.0003
```

```
System uptime: 0d 15h 35m 53s
```

3. Enter the `enable` command at the User EXEC Level prompt:

```
tibco> enable
tibco#
```

The P-7500 CLI is now in Privileged EXEC level.

4. To avoid a situation where the P-7500 system does not have a current TIBCO Messaging Appliance configuration to start from, enter this copy Privileged EXEC command to retain the current TIBCO Messaging Appliance configuration in the /configs subdirectory by making a local copy of it:

```
tibco# copy current-config
/configs/old_version_preDowngradeCfg
```

where *old_version* is the version number of the current TIBCO Messaging Appliance software. Valid version values are of the form *x.y.z*, where *x* and *z* are decimal integers, and *y* can be a mix of decimal integer and letter (for example, 4.0b.1).

5. To downgrade to TIBCO Messaging Appliance software versions already installed on the P-7500 system (as displayed through the `show version` CLI command in [step 2](#)), go to [step 7](#). Otherwise, to install old TIBCO Messaging Appliance software onto the system from a remote server, go to [step 6](#).
6. Enter this copy Privileged EXEC command to copy the old TIBCO Messaging Appliance software from the remote server to the `/loads` subdirectory on the system:

```
tibco# copy scp://[username@]ip-addr/remote-pathname
/loads
```

where *username*, *ip-addr*, and *remote-pathname* point to where the old TIBCO Messaging Appliance software is located.

7. The administrator enters the following `boot` Privileged EXEC command to downgrade the P-7500 system software to the old TIBCO Messaging Appliance software and activate it:

```
tibco# boot version
```

where *version* is the version number of the old TIBCO Messaging Appliance software to be activated. Valid version values are of the form *w.x.y.z*, where *w*, *x*, *y* and *z* are decimal integers.



ALERT

ALERT! The `boot` Privileged EXEC command causes a disruption in customer service because it restarts the system to activate the old TIBCO Messaging Appliance software. Choose a time for the downgrade when a service disruption will least impact the clients on the messaging network.

8. The P-7500 system restarts, using the TIBCO Messaging Appliance software version specified in [step 7](#).

You have completed this procedure.

Deleting TIBCO Messaging Appliance Software

To delete any version of TIBCO Messaging Appliance software already installed on your P-7500 system, with the exception of the TIBCO Messaging Appliance software identified on the system as either the current or backout load, follow this procedure:

1. To display and determine the current TIBCO Messaging Appliance software versions installed and available on the P-7500 system, enter the `show version` CLI command:

```
tibco> show version
```

Observe the version values listed under the `Loads` available on the system heading near the bottom:

```
tibco> show version
```

Process	Release	Build date
CLI	8.7.0.0003	Mar 2 2011 09:55:36 UTC
DataplaneMgr	8.7.0.0003	Mar 2 2011 09:55:36 UTC
Controlplane	8.7.0.0003	Mar 2 2011 09:55:36 UTC
Managementplane	8.7.0.0003	Mar 2 2011 09:55:36 UTC

```
RVGD Version: 8.2.2 V2 2/5/2010
```

```
Current load is: tma_8.7.0.0003
```

```
Backout load is: tma_8.7.0.0002
```

```
Loads available on the router:
```

```
Load 1: tma_8.7.0.0002
```

```
Load 2: tma_8.7.0.0003
```

```
System uptime: 0d 15h 35m 53s
```

2. Enter the `enable` command at the User EXEC Level prompt:

```
tibco> enable
tibco#
```

The P-7500 CLI is now in Privileged EXEC level.

3. To delete a TIBCO Messaging Appliance software version already installed in the `/loads` subdirectory on the P-7500 system (as displayed through the `show version` CLI command in [step 2](#)), enter this `delete-load` Privileged EXEC command:

```
tibco# delete-load version
```

where *version* is the version number of the TIBCO Messaging Appliance software to be deleted. Be careful not to specify the current or backout load

version number, because you should not delete these versions from your system.

You have completed this procedure.

Creating a Local Backup of Configuration Database Files

Manually creating a local backup of a configuration database file saves the latest configuration file pertaining to your user account in /configs/backup.

NOTICE

NOTICE: TIBCO recommends that you always create a local backup of your configuration database file after the system configuration is changed to ensure the most recent backup file available is always current.

To create a local backup of your configuration database file:

1. Enter the `enable` command at the User EXEC Level prompt:

```
tibco> enable
tibco#
```

The P-7500 CLI is now in Privileged EXEC level.

2. Enter the `backup` Privileged EXEC command to immediately create a manual local backup of your configuration database file on the P-7500 system:

```
tibco# backup
```



Note: CLI show commands may fail if run while the local backup is being created.

3. To confirm your local backup was created successfully, enter the `show backup` User EXEC command:

```
tibco> show backup
Schedule           : never
Max Backups        : 0
Previous Autobackup : N/A
Previous Backup     : Thu Mar 03 14:38:07 UTC
Backup Status      : Unchanged since previous backup
```

You have completed this procedure.

Scheduling Automatic Local Backups of Configuration Database Files

When you schedule a local backup of configuration database files on the P-7500 system, you automate the backup to occur regularly at a preset date, time, and location. No manual intervention is necessary to initiate the backup.

Scheduling local backups of configuration database files provides these advantages:

- automatically invokes a local backup at the scheduled date and time
- ensures that files are backed up regularly without fail
- saves you the overhead of remembering to take a manual local backup regularly
- frees up the system administrator to focus on other operational tasks

When to Schedule Local Backups

It is best to schedule backups at a time when people are not normally using the P-7500 system. Often, system administrators choose to perform backups at the close of the workday or later in the evening.

A backup can be scheduled daily, weekly or monthly. The frequency of changes to information is a good indicator of how often you need to back up data. If the frequency of data revisions is high, then a backup must be scheduled daily, so that potential loss of data is minimal.



Note: By default, no configuration database file backups are scheduled on the P-7500 system.

Scheduled Local Backup Procedure

To schedule automatic local backups of configuration database files on the P-7500 system:

1. Enter the `enable` command at the User EXEC Level prompt:

```
tibco> enable
tibco#
```

The P-7500 CLI is now in Privileged EXEC level.

2. Enter the `configure` command at the Privileged EXEC Level prompt:

```
tibco# configure
tibco(config)#
```

The P-7500 CLI is now in Global CONFIG level.

3. Enter the `schedule backup` Global CONFIG command to schedule automatic local backups of configuration database files on the P-7500 system:

```
tibco(config)# schedule backup [days days-of-week] times times-of-day
[max-backups max-backups]
```

where:

days-of-week is either the entry “daily”, or a list of named days from Sunday to Saturday separated by commas with no spaces, or a list of numbers from 0 to 6 representing the named days separated by commas with no spaces, where 0 is Sunday, 1 is Monday, on through to 6 for Saturday. Default is “daily”.

times-of-day is either the entry “hourly”, or a list of up to four times of day in the format hh:mm separated by commas without spaces, where hh is 0 to 23 representing hours, and mm is 0 to 59 representing minutes.

max-backups is the maximum number of scheduled backups to keep, from 1 to 25. When a new scheduled backup causes the number of backups to exceed the set maximum, the oldest backup file is deleted. Default is 5 backups if this parameter is not provided.



Note: The `no` version of this command deletes all automatic file backup schedules and returns the system to its default (that is, no scheduled backups).

For example, to schedule an automatic local backup for 3:00 am daily and then backup your configuration changes, enter:

```
tibco(config)# schedule backup days mon,tues,wed,thurs,fri
times 03:00 max-backups 10
This will change the backup schedule
Do you want to continue (y/n)? y
tibco(config)# exit
tibco# exit
tibco>
```

4. To confirm your scheduled local backup was assigned successfully, enter the `show backup` User EXEC command:

```
tibco> show backup
Schedule           : Mon,Tue,Wed,Thu,Fri 03:00
Max Backups        : 10
Previous Autobackup : N/A
Previous Backup     : Thu Mar 03 14:38:07 UTC
Backup Status       : Changed since previous backup
```

5. (Optional) To confirm your scheduled local backup was created at the assigned time, enter `dir configs` at the Privileged EXEC Level prompt:

```
tibco> enable
tibco# dir configs
-rw-rw-rw-      root      root 25749320 Dec 13 02:00 autobackup
-rw-rw-rw-      root      root 25749348 Dec 12 02:00 autobackup.1
-rw-rw-rw-      root      root 25749348 Dec 11 02:00 autobackup.2
-rw-rw-rw-      root      root 25749348 Dec 10 02:00 autobackup.3
-rw-rw-rw-      root      root   224004 Dec  1 09:53 backup
```

You have completed this procedure.

Backing Up a Configuration Database File to an External Server

When to Backup Externally

It is important that you backup configuration database files to an external remote server regularly to ensure that you have a set of backup files available in case your current configuration database becomes corrupted or otherwise unusable.

TIBCO recommends that you perform at least one configuration database backup to an external SFTP server daily. Furthermore, external backups should be done:

- before upgrading or downgrading
- before installing a service patch for installed P-7500 systems
- before making any major changes to the network hardware
- before deploying a large number of new network devices



ALERT

ALERT! At any point during the backup process, do not attempt to start, stop, or reset the P-7500 system or it might become corrupted or otherwise unusable.

Backing Up Using a CLI User Account

To backup a configuration database file to an external remote server from the P-7500 system using a CLI user account:

1. Ensure that you have a remote server on the system network to which you have IP connectivity.
2. Enter the `enable` command at the User EXEC Level prompt:

```
tibco> enable
tibco#
```

The P-7500 CLI is now in Privileged EXEC level.

3. Enter this copy Privileged EXEC command to copy the desired configuration database file to the remote server from the system:

```
tibco# copy current-config scp://[username@]ip-addr/remote-pathname
```

where *username*, *ip-addr*, and *remote-pathname* point to the location where the current configuration database file is copied onto the remote server.

You have completed this procedure.

Backing Up Using an SFTP User Account

Backing up a configuration database file to an external server from the P-7500 system can also be done using File Transfer user account created through the `username Global CONFIG` command.

For example:

```
[remote_machine]$ scp tma-8.7.0.0003-3mar2011.config  
pascal@192.168.129.82:/configs  
Password:
```

Restoring a Configuration Database File

When to Restore

Restoring a backup configuration database file may be necessary in a number of circumstances:

- to move management information from one system to another, for example to upgrade to a newer hardware platform
- if catastrophic hardware or software failure occurs, and network management must continue using alternate hardware
- to return configuration database information back to a system after performing a TIBCO Messaging Appliance software downgrade
- if the system databases are otherwise corrupted or their integrity is compromised, for example, from an accidental deletion by an operator

NOTICE

NOTICE: When restoring from a backup file, it is vitally important that the system on which the restore is being performed is identical to, and compatible with, that from which the backup was taken. In particular:

- the major version of TIBCO Messaging Appliance for the P-7500 being restored to must be the same as the system the backup was taken on
- the service patch level for the system being restored to must be the same as the system the backup was taken on
- there must be sufficient disk space on the system being restored to for the restored configuration database file
- the hardware configuration for the system being restored to must be the same as the system the backup was taken on, that is, the same set of blades must be installed in the same set of slots

Restoring From a Local Backup File

To restore a local backup configuration database file from on the P-7500 system:

1. Enter the `cd configs` User EXEC command to display and identify the backup file to be restored:

```
tibco> cd /configs
tibco> dir
-rw-rw----    admin solgroup    756311 Mar 03 14:38 backup
```

```
-rw-r----- pascal solgroup 756321 Mar 03 14:45
tma-8.7.0.0003-3feb2011.config
```

2. Enter the `enable` command at the User EXEC Level prompt:

```
tibco> enable
tibco#
```

The P-7500 CLI is now in Privileged EXEC level.

3. Enter this `reload` Privileged EXEC command to restore a manually created backup file and activate it:

```
tibco# reload config /configs/backup
```



Note: If left unspecified, the system is restarted with no change to the configuration database

4. The system restarts, and the configuration database file that was previously backed up is restored.

You have completed this procedure.



ALERT

ALERT! The `reload` command causes a disruption in customer service because it restarts the system to restore the backup configuration database file. Choose a time when a service disruption will least impact the clients on the messaging network.

Restoring From a Remote Server

To restore a backup configuration database file from a remote server to the P-7500 system:

1. Ensure that you have a remote server on the system network to which you have IP connectivity
2. Enter the `enable` command at the User EXEC Level prompt:

```
tibco> enable
tibco#
```

The P-7500 CLI is now in Privileged EXEC level.

3. Enter this `copy` Privileged EXEC command to copy the desired backup file from the remote server to the `/configs` subdirectory on the system:

```
tibco# copy scp://[username@]ip-addr/remote-pathname /configs/
config-file
```

where:

username point to the location where the backup configuration database file is located on the remote server.
ip-addr
remote-pathname
config-file is where to place the backup configuration database file on the system.

4. After successfully transferring the backup file to the `/configs` subdirectory, enter this `reload` Privileged EXEC command to restore the backup file and activate it:

```
tibco# reload config config-file
```

where *config-file* is the location from where to retrieve the system's configuration database file on restart.



Note: If left unspecified, the local current configuration database file is used.

5. The system restarts, and the configuration database file that was previously backed up is loaded onto the system and restored.

You have completed this procedure.



ALERT

ALERT! The `reload` command causes a disruption in customer service because it restarts the system to restore the backup configuration database file. Choose a time when a service disruption will least impact the clients on the messaging network.

Chapter 2 **Hardware Maintenance**

This chapter describes the TIBCO Messaging Appliance P-7500 system hardware maintenance procedures.

Topics

- *[Hot Swapping Power Supplies, page 24](#)*
- *[Replacing Disk Drives, page 29](#)*
- *[Replacing the Fan Tray, page 43](#)*
- *[Replacing NAB-0801ET with NAB-0210EM, page 47](#)*
- *[Replacing Blades in FEC CHS-FC1040-01-B or CHS-FC0140-01-A, page 51](#)*
- *[Replacing Blades in FEC CHS-FC1040-01-C or CHS-FC0140-01-B, page 55](#)*
- *[Replacing Systems In Deployed Active/Active Redundancy Pairs, page 63](#)*

Hot Swapping Power Supplies

This section describes how to hot swap the AC power supply in a P-7500 system. Hot swapping allows you to add or remove a power supply without powering down the system.

The P-7500 system accommodates up to four hot-swappable AC power supplies in bays at the rear of the unit. Each power supply provides up to 650W of power. Two installed power supplies meet the P-7500 requirements. The other installed power supplies provide redundancy, load sharing, and increased system availability. They can be removed without directly affecting P-7500 system operation.



ALERT

ALERT! If your P-7500 system is running with redundant power supplies installed and one is found to be defective, TIBCO recommends that you leave the defective power supply in the system until the replacement unit arrives to ensure that correct airflow is maintained in the system.

This section contains the following topics:

- [Safety Precautions on page 25](#)
- [Tool and Equipment Requirements on page 26](#)
- [Removing a Power Supply on page 26](#)
- [Installing a Power Supply on page 27](#)
- [Troubleshooting on page 28](#)

Use this information in conjunction with the safety information contained herein and the safety guidelines listed in *TIBCO Messaging Appliance P-7500 Hardware Installation*.

If you have questions or need help, contact your TIBCO engineer.

Safety Precautions

For your safety, before hot swapping P-7500 power supplies, review all safety warnings in this section.



WARNING

WARNING! To avoid the risk of personal injury or death from electric shock, before performing any of the following power supply procedures, unplug the power cord from the power source outlet on AC units to ensure that power is removed.



CAUTION

CAUTION! Wear protective gloves when hot swapping the power supply to keep from being burned. Under full load conditions the power supply can be very hot.



ALERT

ALERT! To prevent equipment damage from electrostatic discharge, always ensure that the system chassis is electrically connected to earth ground. Always follow ESD prevention procedures when removing and replacing power supplies. Use an antistatic wrist strap, or another antistatic device. If no wrist strap or mat is available, ground yourself by touching the metal part of the chassis.



ALERT

ALERT! If your system is running with redundant power supplies installed and one is found to be defective, TIBCO recommends that you leave the defective power supply in the P-7500 system until the replacement unit arrives to ensure that correct airflow is maintained in the system.

Tool and Equipment Requirements

The following tools and equipment are required to remove and install a power supply in a P-7500 system:

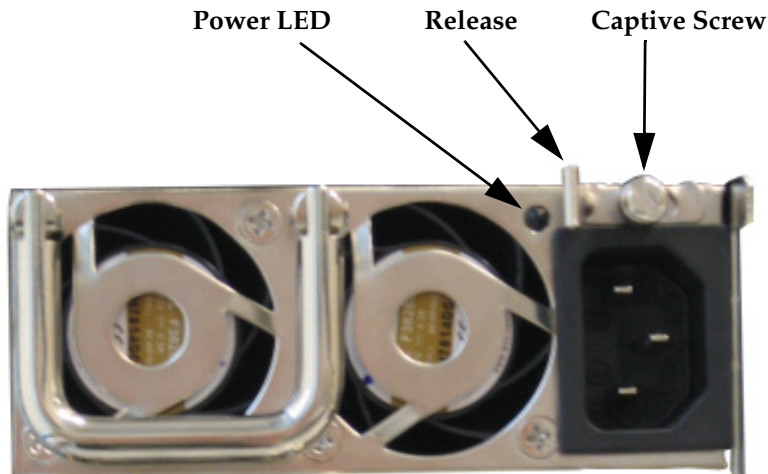
- Protective gloves
- Electrostatic discharge wrist strap
- Antistatic mat
- Replacement power supply (supplied by TIBCO)

Removing a Power Supply

To remove a power supply:

1. Ground yourself by using an antistatic wrist strap or other device.
2. Put on protective gloves to keep from being burned by a hot power supply.
3. Facing the rear of the P-7500 system chassis, identify the failed power supply by checking the bay that it is installed in, and checking that the Power LED on the power supply is off (refer to [Figure 1](#)).

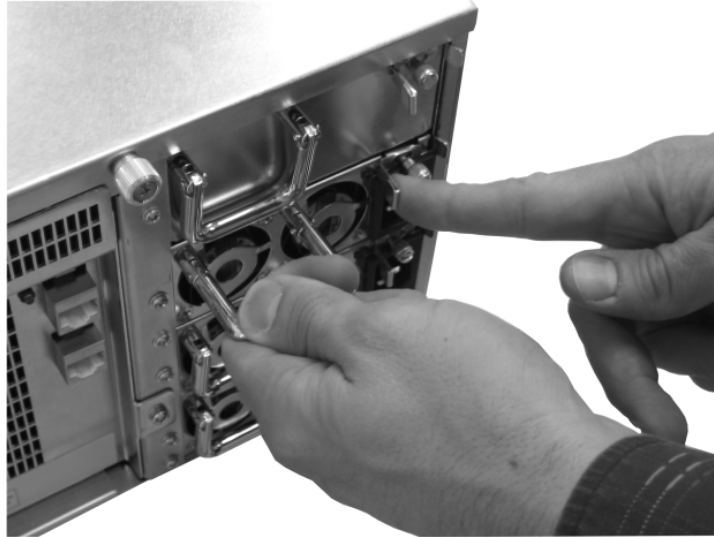
Figure 1 Power Supply LED Location



4. Unplug the power cable from the power connector to ensure that power is removed.
5. Loosen by hand the captive screw located above the power connector.

6. Grasp the metal handle on the power supply and firmly pull to slide the failed power supply out of the bay while holding the release located at the top right of the power supply (refer to [Figure 2](#)).

Figure 2 Removing Power Supply from Chassis



7. Return the failed power supply to TIBCO.
8. Install a replacement power supply as described in [Installing a Power Supply on page 27](#).

You have completed this procedure.

Installing a Power Supply

To install the P-7500 power supplies:

1. Allow the power supplies to reach room temperature before installing.
2. Ground yourself by using an antistatic wrist strap or other device.
3. Inspect the power supply for damage.

Make sure that the pins and electrical connections are not damaged.

4. Align the power supply within the bottom right-hand chassis slot, and gently slide it in.
5. Push the power supply into place until you feel its edge connector mate securely with the connector on the backplane (refer to [Figure 3](#)).

Figure 3 Inserting a Power Supply



6. Tighten by hand the captive screw located above the AC-input power connector to secure the power supply in the chassis slot.

You have completed this procedure.

Troubleshooting

If you encounter problems with the hot-swapped power supply installation, check these items:

1. With the power on, is the blue power LED on the front panel on?
 - If not, check the input or source, system circuit breaker, and the power supply cable.
 - If the blue power LED is still off, the problem might be a power supply failure.
2. Does the system shut down after being on a short time?
 - If the system temperatures rise rapidly, the system overheats and shuts itself down due to insufficient air flow. Monitor the system temperatures and chassis fan status by entering the `show environment` User EXEC command.
 - Ensure that the chassis fans are working.
 - Ensure that the chassis intake and exhaust vents are clear.

Replacing Disk Drives

This section describes how to replace a failed disk drive in a P-7500 system by first shutting it down and removing it, then installing a new disk drive.

Each P-7500 system comes with two disk drives pre-installed in drive bays on the left side of the system. The disk drives are pre-configured as a RAID 1 array.

This section contains the following topics:

- [Safety Precautions on page 29](#)
- [Tool and Equipment Requirements on page 29](#)
- [Shutting Down a Failed Disk Drive on page 30](#)
- [Removing a Failed Disk Drive on page 31](#)
- [Installing a New Disk Drive on page 34](#)

Safety Precautions

For your safety, before replacing P-7500 disk drives, review the following safety warning.



ALERT! To prevent equipment damage from electrostatic discharge, always ensure that the P-7500 chassis is electrically connected to earth ground. Always follow ESD prevention procedures when removing and replacing power supplies. Use an antistatic wrist strap, or another antistatic device. If no wrist strap or mat is available, ground yourself by touching the metal part of the chassis.

Tool and Equipment Requirements

The following tools and equipment are required to remove and install a disk drive in a P-7500 system:

- Electrostatic discharge wrist strap
- Antistatic mat
- Replacement disk drive (supplied by TIBCO)

Shutting Down a Failed Disk Drive

To shut down a failed disk drive:

1. Enter the `enable` command at the User EXEC Level prompt:

```
tibco> enable
tibco#
```

The P-7500 CLI is now in Privileged EXEC level.

2. (Recommended) As a precaution, create a local backup of the configuration database files on the P-7500 system and then store the backup file on an external remote server:
 - a. Ensure that you have a remote server on the P-7500 network to which you have IP connectivity.
 - b. Enter the `backup` Privileged EXEC command to immediately create a manual local backup of your configuration database file on the P-7500 system:

```
tibco# backup
```



Note: CLI show commands may fail if run while the local backup is being created.

(Optional) To confirm your local backup was created successfully, enter the `show backup` User EXEC command.

- c. Enter the `copy` Privileged EXEC command to copy the desired configuration database file to the remote server from the P-7500 system:

```
tibco# copy current-config
scp://[username@]ip-addr/remote-pathname
```

where *username*, *ip-addr*, and *remote-pathname* point to the location where the current configuration database file is copied onto the remote server.

3. Confirm that the disk drive is in failure by entering the `show disk` User EXEC command:

```
tibco# show disk
```

An example display from `show disk` with a failed disk drive is:

```
Internal disks
Disk 1 administrative state: enabled
Disk 1 operational state:   failed
Disk 2 administrative state: enabled
Disk 2 operational state:   up
RAID not in redundant state
Reload required: no
```

4. Write down which disk drive is in failure: disk 1 or disk 2.

In the example in [step 3](#), disk 1 is in failure.

5. Enter the configure command at the Privileged EXEC level prompt:

```
tibco# configure
tibco(config)#
```

The P-7500 CLI is now in Global CONFIG level.

6. Enter the hardware command at the Global CONFIG level:

```
tibco(config-hardware)#
```

The P-7500 CLI is now in the Hardware CONFIG level.

7. Enable the new disk drive using the disk no shutdown Hardware CONFIG command:

```
tibco(config-hardware)# disk {1|2} no shutdown
```

where {1|2} specifies 1 or 2 for the number of the new disk drive.

The CLI responds with this line:

```
ALERT: This configuration change will not take effect until the
router is restarted. Please restart the router using the
"reload" command.
```

8. Enter the reload Privileged EXEC command to restart the system:

```
tibco(config-hardware)# exit
tibco(config)# exit
tibco# reload
```

The CLI responds with this line:

```
This command will cause a reboot of the system
Do you want to continue (y/n)?
```

You have completed this procedure.

Removing a Failed Disk Drive

To remove a failed disk drive:

1. Ground yourself by using an antistatic wrist strap or other device.
2. Remove the faceplate by firmly pulling the faceplate off and away from the front of the chassis.
3. Locate the disk drive you want to remove, based on the information from the show disk User EXEC command (refer to [Shutting Down a Failed Disk Drive on page 30](#)).

4. To remove a disk drive, perform these steps:



ALERT

ALERT! Do not attempt to remove a disk drive before completing the previous disk shutdown procedure. Removing a disk drive from a P-7500 system without performing the disk shutdown procedure results in service interruption and/or data loss. Refer to [Shutting Down a Failed Disk Drive on page 30](#).

- a. Release the drive latch by turning the thumbscrews on the right (refer to [Figure 4](#)).

Figure 4 Unscrewing Hard Drive Latch



- b. Pull the drive latch to the left to the full open position (refer to [Figure 5](#)).

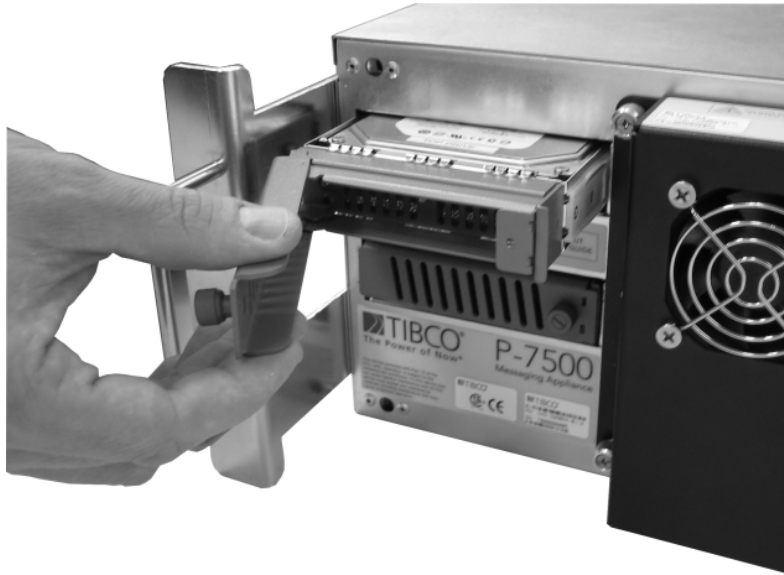
Figure 5 Using the Hard Drive Latch



The disk drive is now released from the system drive bay.

- c. Holding the drive latch, pull the disk drive completely out of the system drive bay (refer to [Figure 6](#)).

Figure 6 Removing the Hard Drive



5. Return the failed disk drive to TIBCO.
- You have completed this procedure.

Installing a New Disk Drive

To install either a new CHS-HDD250-01-A or CHS-SSD080-01-A disk drive, perform the following procedure:

ALERT

ALERT! Use only a new TIBCO-approved replacement disk drive for this procedure. Attempting to use an existing disk drive from another P-7500 or any other source may result in communication problems, data loss, or both. Furthermore, never replace a CHS-HDD250-01-A disk drive with a CHS-SSD080-01-A disk drive, or vice versa.

1. Ground yourself by using an antistatic wrist strap or other device.

2. Release the drive latch on the new TIBCO-approved disk drive by turning the thumbscrews on the right.
3. Pull the drive latch to the left to the full open position (refer to [Figure 7](#)).

Figure 7 Disk Drive with Open Latch (CHS-HDD250-01-A Shown)



4. For P-7500 systems with disk drive CHS-SSD080-01-A, perform the following sub-steps (otherwise go to [step 5](#)):
 - a. Open the lid on the disk drive by using your thumbs to slide the lid forward from the front ([Figure 8](#)).

Figure 8 Opening the Lid on Disk Drive CHS-SSD-080-01-A



- b. Gently lift the lid upward to reveal the disk drive carrier and failed Solid State Drive (SSD) ([Figure 9](#)).

Figure 9 Lifted Lid on Disk Drive CHS-SSD-080-01-A



- c. Remove the failed SSD from the rail inside the disk drive carrier.
- d. Take the new SSD from its package.
- e. Set the new SSD flat onto the bottom of the rail inside the disk drive carrier, label side up, oriented as shown in [Figure 10](#).

Figure 10 Setting the New SSD Inside the Disk Drive Carrier



- f. Gently push the lid down.
- g. Close the lid on the disk drive by using your thumbs to slide the lid backward to the front until it clicks back into place (Figure 11).

Figure 11 Closed Lid on Disk Drive CHS-SSD-080-01-A



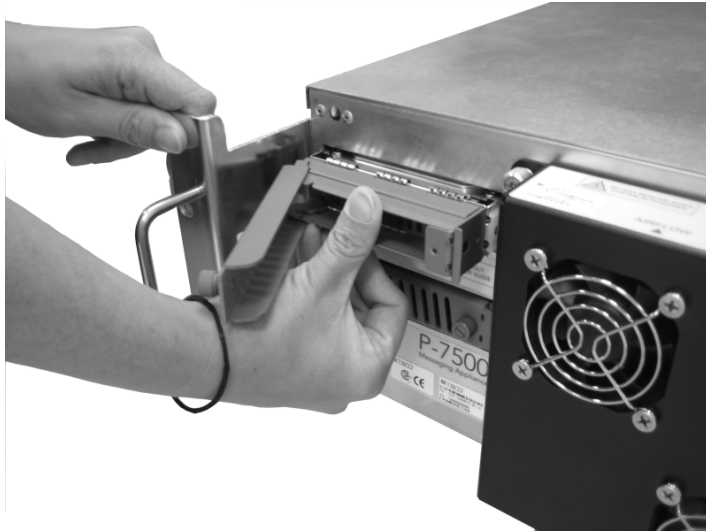
5. Insert the disk drive into the system drive bay (refer to [Figure 12](#)).



ALERT

ALERT! Always install the new disk drive into the vacant bay. Moving the operational disk drive to the vacant bay can result in communication problems and/or data loss within the P-7500 system.

Figure 12 Inserting Disk Drive into the System Drive Bay



6. Push the drive latch to the right to the closed position until it clicks.
The new disk drive is now locked into the system bay.
7. To replace the faceplate, perform the following sub-steps:



ALERT

ALERT! Carefully follow these steps when replacing the faceplate. Failure to do so can result in an accidental restart of the P-7500, which can cause data loss.

- a. Position the faceplate over the fan tray so that the bezel (front) aligns with the front of the chassis.
- b. Align the four male push pins in the four corners of the faceplate with the female receptacles on the chassis (refer to [Figure 13](#)).

Figure 13 Installing the Faceplate



- c. Press firmly in on the faceplate until the push pins engage, and the faceplate is flat against the front of the chassis.
8. Enable the new disk drive using the `disk no shutdown` Hardware CONFIG command:


```
tibco(config-hardware)# disk <1 or 2> no shutdown
```

 where <1 or 2> specifies 1 or 2 for the number of the new disk drive.
9. Confirm that the new disk drive is in waiting for rebuild mode by entering the `show disk` User EXEC command:


```
tibco> show disk
```

 An example display from `show disk` with a waiting-for-rebuild disk is:


```
Internal disks
Disk 1 administrative state: enabled
Disk 1 operational state:   waiting-for-rebuild
Disk 2 administrative state: enabled
Disk 2 operational state:   up
RAID not in redundant state
Reload required: no
```
10. Enter the **exit** command twice:


```
tibco(config-hardware)# exit
tibco(config)# exit
tibco#
```

 The P-7500 CLI is now in Privileged EXEC level.
11. Enter the `admin` command at the Privileged EXEC level prompt:

```
tibco# admin
tibco(admin)#
```

The P-7500 CLI is now in Admin EXEC level.

12. Start rebuilding the new disk drive by entering the `rebuild` Disk Admin EXEC command:

```
tibco(admin)# disk
tibco(admin-disk)# rebuild
```

13. To shorten the time required for the disk rebuild, enter the `rebuild-speed high` Disk Admin EXEC command, then `y` for yes to continue:

```
tibco(admin-disk)# rebuild-speed high
Changing the disk rebuild time may impact performance of the
router.
This should only be done if the router is not passing traffic.
Do you want to continue (y/n)? y
```

14. Confirm that the new disk drive is recovering by entering the `show disk` User EXEC command:

```
tibco(admin-disk)# exit
tibco(admin)# show disk
```

An example display from `show disk` with a recovering disk drive is:

```
Internal disks
Internal disks
Disk 1 administrative state: enabled
Disk 1 operational state:   recovering
Disk 2 administrative state: enabled
Disk 2 operational state:   up
      RAID not in redundant state
      Reload required: no
```

After the system disk rebuild and recovery process is complete, you see a CLI banner and Admin EXEC Level prompt on your computer screen similar to:

```
#####
CLEAR: Disk 1 is up
#####
tibco(admin)#
```

You have completed this procedure.

Replacing the Fan Tray

This section describes how to replace a fan tray in a P-7500 system by shutting the system down, removing the failed fan tray, installing a new fan tray, and then powering on the system.

This section contains the following topics:

- [“Safety Precautions” on page 43](#)
- [“Tools and Equipment Requirements” on page 43](#)
- [“Step 1: Turning Off Power to the System” on page 44](#)
- [“Step 2: Removing the Faceplate and Failed Fan Tray” on page 44](#)
- [“Step 3: Installing the Fan Tray and Faceplate” on page 45](#)
- [“Step 4: Turning On Power to the System” on page 46](#)

Safety Precautions

For your safety, before replacing a fan tray in a P-7500 system, review the following safety warning.



ALERT

ALERT! To prevent equipment damage from electrostatic discharge, always ensure that the P-7500 system chassis is electrically connected to earth ground. Always follow ESD prevention procedures when removing and replacing power supplies. Use an antistatic wrist strap or another antistatic device. If no wrist strap or mat is available, ground yourself by touching the metal part of the chassis.

Tools and Equipment Requirements

- Electrostatic discharge wrist strap
- Antistatic mat
- Replacement fan tray (supplied by TIBCO)

Step 1: Turning Off Power to the System

To turn off power to the P-7500 system, enter the **power-down** Privileged EXEC command:

```
tibco# power-down
```



ALERT

ALERT! Notify the appropriate personnel to ensure that all traffic to and from P-7500 systems is stopped before issuing the **power-down** Privileged EXEC command. Otherwise, the **power-down** command will cause a disruption in customer service when run.

Step 2: Removing the Faceplate and Failed Fan Tray

To remove the failed fan tray, use the following procedure:

1. Pull firmly on the faceplate until the push pins disengage, and the faceplate separates from the front of the chassis.
2. Hand loosen the four captive thumbscrews in each corner of the fan tray, and pull firmly on the fan tray to separate its male power connector from the female chassis connector (refer to Figure 14).

Figure 14 Removing the Fan Tray



You have completed this procedure.

Step 3: Installing the Fan Tray and Faceplate

To install a new fan tray and faceplate on the P-7500 system, perform the following steps:

1. Position the fan tray assembly so that the four thumbscrews and rear power connector align with the front of the chassis (refer to Figure 15).

Figure 15 Installing the Fan Tray



2. Press firmly on the fan tray until its male power connector engages with the female chassis connector.
3. Hand tighten the four captive thumbscrews in each corner of the fan tray to seat it firmly against the chassis.
4. Position the faceplate over the installed fan tray so that the bezel (front) aligns with the front of the chassis.
5. Align the four male push pins in the four corners of the faceplate with the female receptacles on the chassis.
6. Press firmly in on the faceplate until the push pins engage, and the faceplate is flat against the front of the chassis (refer to Figure 16).

Figure 16 Installing the Faceplate



You have completed this procedure.

Step 4: Turning On Power to the System

After issuing the **power-down** Privileged EXEC command, use a paper clip to press the 1/0 button on the front panel of the P-7500 system to turn power back on to the system (refer to Appendix A “Connections, LEDs, and Specifications” of *TIBCO Messaging Appliance P-7500 Hardware Installation* for location and details on the 1/0 button).



Note. The P-7500 system does not restart automatically after this command is run.

Alternately, use Wake On LAN (WOL) to turn power back on to the P-7500 system through a WOL magic packet (refer to “Turning On Power to the System Using Wake On LAN” in Chapter 1 of *TIBCO Messaging Appliance P-7500 Operations Guide* for details).

Replacing NAB-0801ET with NAB-0210EM

This section describes how to replace the 8-port GigE Network Acceleration Blade (NAB-0801ET) with the 2-port 10GigE NAB (NAB-0210EM) in deployed TIBCO Messaging Appliance P-7500 systems.

This section contains the following topics:

- [Safety Precautions on page 29](#)
- [Tool and Equipment Requirements on page 29](#)
- [Making the Required Routing Interface Changes on page 48](#)
- [Removing NAB-0801ET and Installing NAB-0210EM on page 49](#)

Safety Precautions

Before replacing a P-7500 NAB, review the following safety warning.



ALERT! To prevent equipment damage from electrostatic discharge, always ensure that the P-7500 chassis is electrically connected to earth ground. Always follow ESD prevention procedures when removing and replacing P-7500 system blades. Use an antistatic wrist strap, or another antistatic device. If no wrist strap or mat is available, ground yourself by touching the metal part of the chassis.

Tool and Equipment Requirements



ALERT! Before you replace NAB-0801ET with NAB-0210EM, enter the show version User EXEC command to determine the current version of P-7500 software that is running, and ensure the P-7500 system is running a version that supports the NAB-0210EM. If it is not, upon switching the NABs and powering the system back on, a FATAL log is generated indicating the problem, and the system fails to start. If this occurs, contact TIBCO for technical support.

The following tools and equipment are required to replace NAB-0801ET with NAB-0210EM in a P-7500 system:

- Electrostatic discharge wrist strap
- Antistatic mat
- Antistatic packaging for NAB-0801ET
- NAB-0210EM (ordered from TIBCO)

Making the Required Routing Interface Changes



ALERT

ALERT!. To replace NAB-0801ET with NAB-0210EM, you must ensure beforehand that the routing interface for the P-7500 system is configured only on NAB port 1/1/1, NAB port 1/1/2, or lag1.

Furthermore, before switching from the 8-port to 2-port NAB, all ports (that is, 1/1/1 through 1/1/8) must be decommissioned from lag1, and all independent IP interfaces for NAB ports 1/1/3 through 1/1/8 under the Message Backbone VRF must be shut down and deleted. If they are not, upon switching the NABs and powering the system back on, a FATAL log is generated indicating the problem, and the system fails to start. If this occurs, contact TIBCO for technical support.

Upon completing the initial software configuration procedure described in *TIBCO Messaging Appliance P-7500 Getting Started*, the physical interfaces on NAB-0801ET are all configured as lag1 by default through the setup Privileged EXEC command.

Enter the show interface User EXEC command to determine the current routing interface configuration on the P-7500 system, and make the applicable routing interface changes required for NAB-0210EM as outlined in the above alert, as well as any other interface configuration changes required for your network.

For example:

- To decommission NAB ports 1/1/1 through 1/1/8 from lag1:

```
tibco(config)# interface 1/1/lag1
tibco(config-interface)# no member 1/1/1
tibco(config-interface)# no member 1/1/2
tibco(config-interface)# no member 1/1/3
tibco(config-interface)# no member 1/1/4
tibco(config-interface)# no member 1/1/5
tibco(config-interface)# no member 1/1/6
tibco(config-interface)# no member 1/1/7
tibco(config-interface)# no member 1/1/8
tibco(config-interface)# exit
```

- To shut down and delete independent IP interfaces (primary, backup, and static) for NAB ports 1/1/3 through 1/1/8 under the Message Backbone VRF:

```
tibco(config)# ip vrf msg-backbone
tibco(config-ip-vrf)# interface 1/1/3:1 primary
tibco(config-ip-vrf-interface)# shutdown
tibco(config-ip-vrf-interface)# exit
tibco(config-ip-vrf)# no interface 1/1/3:1 primary
tibco(config-ip-vrf)# interface 1/1/3:1 backup
tibco(config-ip-vrf-interface)# shutdown
tibco(config-ip-vrf-interface)# exit
tibco(config-ip-vrf)# no interface 1/1/3:1 backup
tibco(config-ip-vrf)# interface 1/1/3:1 static
tibco(config-ip-vrf-interface)# shutdown
tibco(config-ip-vrf-interface)# exit
tibco(config-ip-vrf)# no interface 1/1/3:1 static
```

(repeat the above command sequence for ports 1/1/4 through 1/1/8)

Removing NAB-0801ET and Installing NAB-0210EM

Upon completing the applicable system routing interface changes required for NAB-0210EM and your network, as described in “Making the Required Routing Interface Changes” on page 48, remove NAB-0801ET and install NAB-0201EM in its place as follows:

1. Follow the blade replacement procedure in [“Replacing Blades in FEC CHS-FC1040-01-B or CHS-FC0140-01-A” on page 51](#) for P-7500 systems equipped with FEC CHS-FC1040-01-B or CHS-FC0140-01-A.
2. Follow the blade replacement procedure in [“Replacing Blades in FEC CHS-FC1040-01-C or CHS-FC0140-01-B” on page 55](#) for P-7500 systems equipped with FEC CHS-FC1040-01-C or CHS-FC0140-01-B.

You have completed this procedure.



ALERT

ALERT! To replace NAB-0801ET with NAB-0210EM, you must ensure beforehand that the routing interface for the P-7500 system is configured only on NAB port 1/1/1, NAB port 1/1/2, or lag1.

Furthermore, before switching from the 8-port to 2-port NAB, all ports (that is, 1/1/1 through 1/1/8) must be decommissioned from lag1, and all independent IP interfaces for NAB ports 1/1/3 through 1/1/8 under the Message Backbone VRF must be shut down and deleted. If they are not, upon switching the NABs and powering the system back on, a FATAL log is generated indicating the problem, and the system fails to start. If this occurs, contact TIBCO for technical support.

Replacing Blades in FEC CHS-FC1040-01-B or CHS-FC0140-01-A

This section describes how to replace system blades in deployed P-7500 systems equipped with FEC CHS-FC1040-01-B or CHS-FC0140-01-A.

This section contains the following topics:

- [“Safety Precautions” on page 51](#)
- [“Tool and Equipment Requirements” on page 51](#)
- [“Step 1: Removing the FEC from the System Chassis” on page 52](#)
- [“Step 2: Removing System Blades from the FEC” on page 53](#)
- [“Step 3: Installing Replacement Blades into the FEC and FEC Back into the System Chassis” on page 54](#)

Safety Precautions

Before replacing a P-7500 NAB, review the following safety warning.



ALERT

ALERT! To prevent equipment damage from electrostatic discharge, always ensure that the P-7500 chassis is electrically connected to earth ground. Always follow ESD prevention procedures when removing and replacing P-7500 system blades. Use an antistatic wrist strap, or another antistatic device. If no wrist strap or mat is available, ground yourself by touching the metal part of the chassis.

Tool and Equipment Requirements

The following tools and equipment are required to replace system blades in deployed P-7500 systems equipped with FEC CHS-FC1040-01-B or CHS-FC0140-01-C:

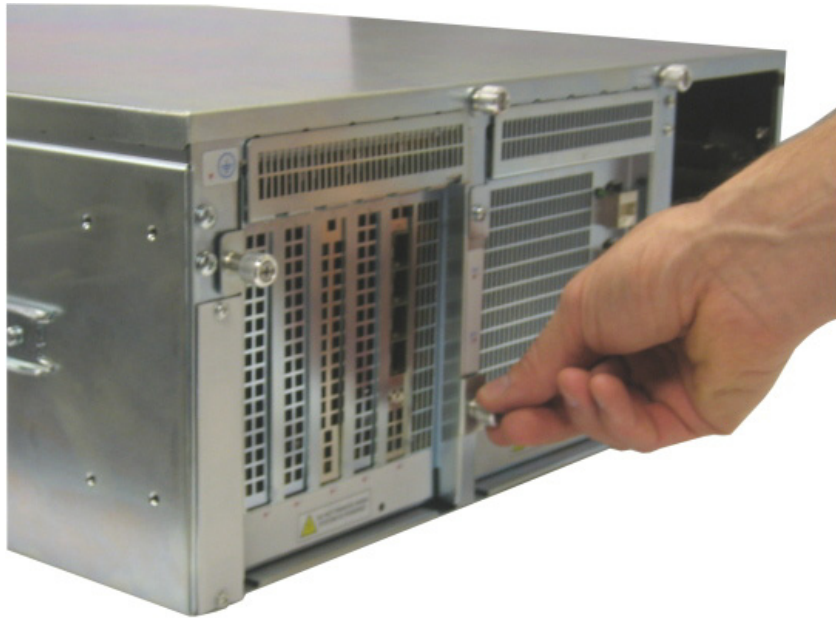
- Electrostatic discharge wrist strap
- Antistatic mat
- replacement system blade (ordered from TIBCO)

Step 1: Removing the FEC from the System Chassis

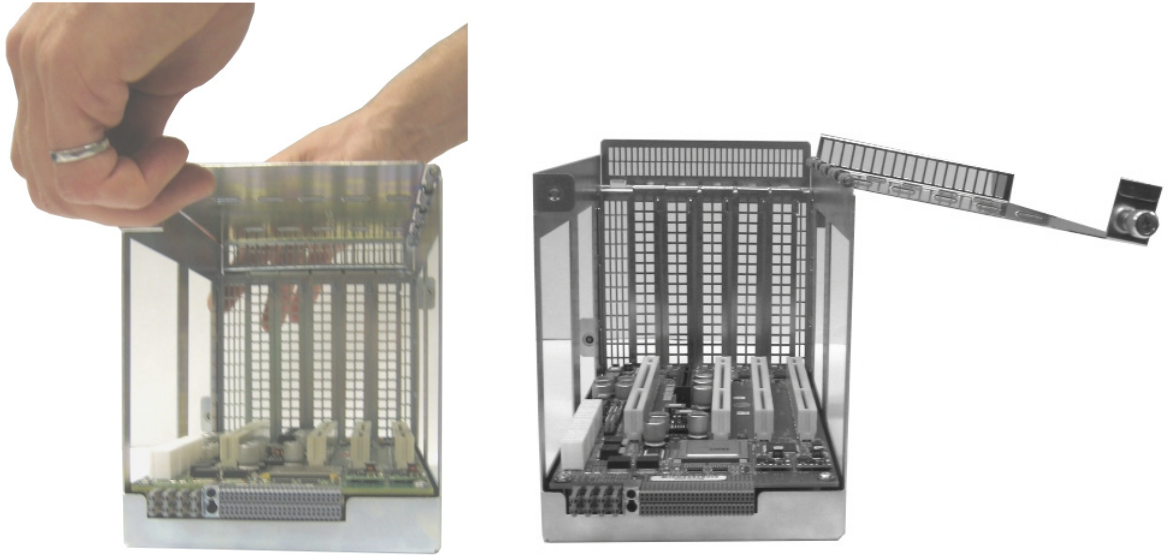
Perform these steps to remove the populated FEC CHS-FC1040-01-B or CHS-FC0140-01-A from the P-7500 system chassis:

1. Enter the **power-down** Privileged EXEC command to turn off power to the system:
`tibco# power-down`
2. Loosen by hand the two captive thumbscrews in the upper left and lower right corner of the FEC located within the Fabric Housing 1 or 2 opening at the rear of the system chassis (refer to [Figure 17](#)).

Figure 17 Loosening the FEC from the Chassis



3. Gently pull outward on the FEC until its male power connector disengages with the female chassis connector at the rear and slide the FEC straight out from the Fabric Housing 1 or 2 opening.
4. Place the FEC on a flat, stable, static-free surface.
5. Looking from the rear of the FEC, loosen the thumbscrew in the upper left hand corner, then pull back slightly on the top lid and flip it over to the right (refer to [Figure 18](#)).

Figure 18 Opening the FEC

You have completed this procedure.

Step 2: Removing System Blades from the FEC

Perform these steps to remove the system blades to be replaced from FEC CHS-FC1040-01-B or CHS-FC0140-01-A:

1. To determine the correct location of the blade to be replaced, refer to [Table 3](#) for the valid blade slot assignments supported for FEC CHS-FC1040-01-B or FEC CHS-FC0140-01-A, as applicable.

Table 3 Valid Blade Slot Assignments for FEC in Fabric Housing 1

Blade Type	Valid Blade Slots
NAB-0210EM	1/1
NAB-0801ET	1/1 and 1/2
Topic Routing Blade (TRB)	1/3

2. Pull up firmly on the blade to be replaced, until it is fully removed from the backplane connector.

Avoid touching the solder side of the blade, pin connectors, or any exposed components.

3. Place the removed blade in antistatic packaging.

You have completed this procedure.

Step 3: Installing Replacement Blades into the FEC and FEC Back into the System Chassis

Upon completing the removal of the blade to be replaced from FEC CHS-FC1040-01-B or CHS-FC0140-01-A:

1. Install the replacement blade into the FEC, and in turn the populated FEC back into the P-7500 system, by following the system blade and FEC installation procedure in *TIBCO Messaging Appliance P-7500 Hardware Installation* ("[Step 6: Install the System Blades and FEC \(FEC CHS-FC1040-01-B or CHS-FC0140-01-A Only\)](#)" on page 42).
2. Press the 1/0 button on the front panel of the P-7500 system, located on the right-hand side below the LEDs, to turn power back on to the system.
3. Monitor the LEDs on the front of the P-7500 system to verify that it is powering up properly.
4. Verify that the Green LED located in the upper right-hand corner of each power supply is on.
5. The CLI **login** prompt displays on your management console screen:

```
TIBCO Messaging Appliance P-7500. System Software Version
8.7.0.0003
```

```
Copyright 2011 TIBCO Software, Inc. All rights reserved.
```

```
tibco>
```

You have completed this procedure.

Replacing Blades in FEC CHS-FC1040-01-C or CHS-FC0140-01-B

This section describes how to replace system blades in deployed P-7500 systems equipped with FEC CHS-FC1040-01-C or CHS-FC0140-01-B.

This section contains the following topics:

- [“Safety Precautions” on page 55](#)
- [“Tool and Equipment Requirements” on page 55](#)
- [“Step 1: Removing the FEC from the System Chassis” on page 56](#)
- [“Step 2: Removing System Blades from the FEC” on page 58](#)
- [“Step 3: Installing Replacement Blades into the FEC” on page 59](#)
- [“Step 4: Installing the FEC Back into the System Chassis” on page 61](#)

Safety Precautions

Before replacing a P-7500 NAB, review the following safety warning.



ALERT

ALERT! To prevent equipment damage from electrostatic discharge, always ensure that the P-7500 chassis is electrically connected to earth ground. Always follow ESD prevention procedures when removing and replacing P-7500 system blades. Use an antistatic wrist strap, or another antistatic device. If no wrist strap or mat is available, ground yourself by touching the metal part of the chassis.

Tool and Equipment Requirements

The following tools and equipment are required to replace system blades in deployed P-7500 systems equipped with FEC CHS-FC1040-01-C or CHS-FC0140-01-B:

- No. 1 Phillips head screwdriver
- Electrostatic discharge wrist strap
- Antistatic mat
- replacement system blade (ordered from TIBCO)

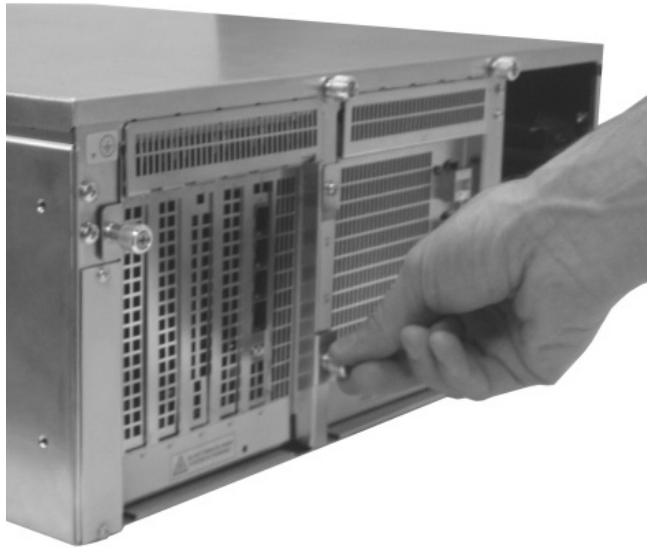
Step 1: Removing the FEC from the System Chassis

Perform these steps to remove the populated FEC CHS-FC1040-01-C or CHS-FC0140-01-B from the P-7500 system chassis:

1. Enter the **power-down** Privileged EXEC command to turn off power to the P-7500 system:

tibco# power-down
2. Loosen by hand the two captive thumbscrews in the upper left and lower right corner of the FEC located within the Fabric Housing 1 or 2 opening at the rear of the P-7500 system chassis (refer to [Figure 19](#)).

Figure 19 Loosening the FEC from the Chassis



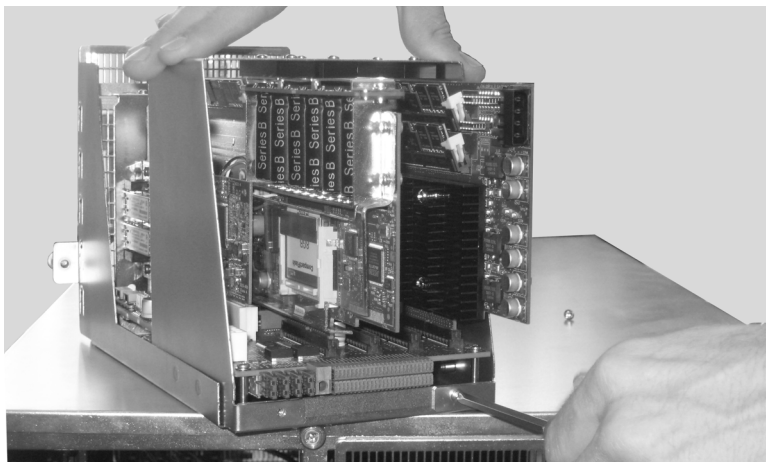
ALERT

ALERT! To prevent damage to the system blades, do not twist FEC CHS-FC1040-01-C or CHS-FC0140-01-B when pulling it out of the Fabric Housing opening. Always pull the FEC straight out of the opening, without twisting, until it completely clears the chassis.

3. Gently pull outward on the FEC until its male power connector disengages with the female chassis connector at the rear and slide the FEC straight out from the Fabric Housing 1 or 2 opening.
4. Place the FEC on a flat, stable, static-free surface.

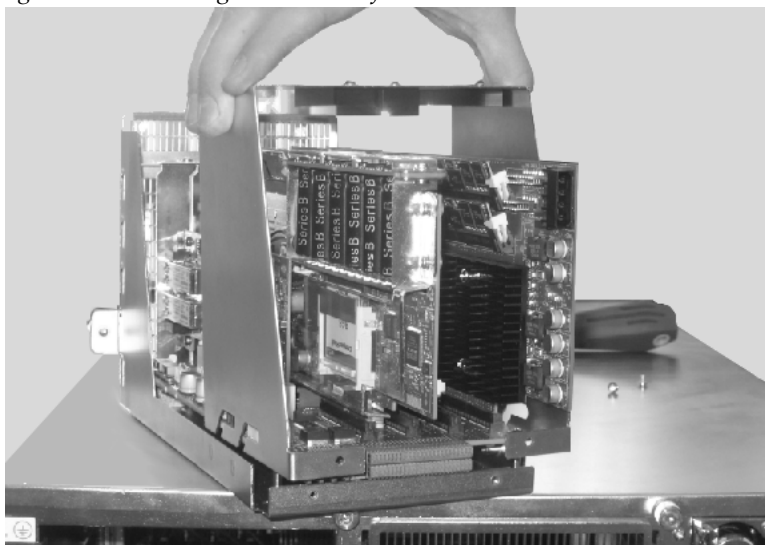
5. Looking from the rear of the FEC, loosen and remove the two screws from the bottom of the metal brace using a No. 1 Phillips screwdriver (refer to Figure 20).

Figure 20 Removing Screws from Bottom of Metal Brace



6. Carefully remove the metal brace from the FEC by gently pulling it forward slightly from the top while lifting it up so that it clears the chassis and blades (refer to Figure 21).

Figure 21 Removing Metal Brace from FEC CHS-FC1040-01-C or CHS-FC1040-01-B



You have completed this procedure.

Step 2: Removing System Blades from the FEC

Perform these steps to remove the system blades to be replaced from FEC CHS-FC1040-01-C or CHS-FC0140-01-B:

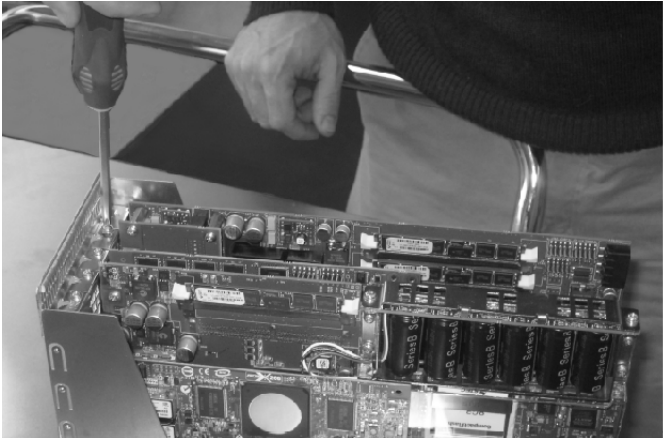
1. To determine the correct location of the blade to be replaced, refer to [Table 4](#) for the valid blade slot assignments supported for FEC CHS-FC1040-01-C or FEC CHS-FC0140-01-B, as applicable.

Table 4 Valid Blade Slot Assignments for FEC in Fabric Housing 1

Blade Type	Valid Blade Slots
NAB-0210EM	1/1
NAB-0801ET	1/1 and 1/2
Topic Routing Blade (TRB)	1/3

2. Using a No. 1 Phillips screwdriver, loosen and remove the screw holding down the blade to be replaced in the FEC (refer to Figure 22).

Figure 22 Removing Hold-Down Screw from Blade in the FEC



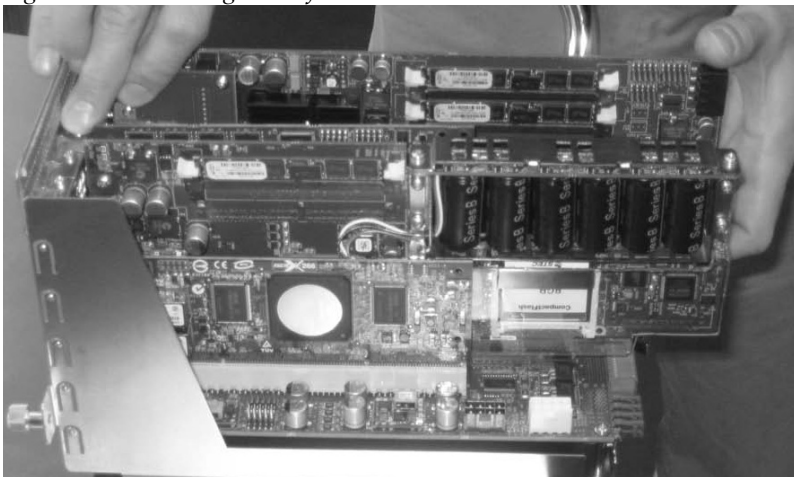
**ALERT**

ALERT! Do not use excessive force to remove the blade from the FEC. Excessive force may damage the FEC, blade, or both.

3. Pull up firmly on the blade to be replaced, until it is fully removed from the backplane connector (refer to Figure 23).

Avoid touching the solder side of the blade, pin connectors, or any exposed components.

Figure 23 Removing Blade from the FEC



4. Place the removed blade in antistatic packaging.

You have completed this procedure.

Step 3: Installing Replacement Blades into the FEC

Upon completing the removal of the blade to be replaced from FEC CHS-FC1040-01-C or CHS-FC0140-01-B, install the replacement blade as follows:

1. Carefully align the connector edge of the blade with the desired FEC backplane connector.
2. Push down firmly on the system blade until it is fully seated in the backplane connector (refer to Figure 24).

Figure 24 Seating Blade in the FEC



3. Facing the front of the FEC, install the two provided SFP modules into the SFP module ports on the ADB faceplate.

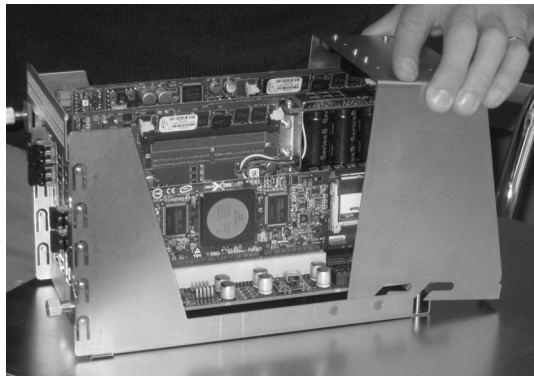
Refer to [“Inserting and Removing SFP+ Modules”](#) in Chapter 3 of *TIBCO Messaging Appliance P-7500 Hardware Installation*.

4. (NAB-0210EM Only) Facing the front of the FEC, install the two provided SFP+ modules into the SFP+ module ports on the NAB faceplate.

Refer to [“Inserting and Removing SFP+ Modules”](#) in Chapter 3 of *TIBCO Messaging Appliance P-7500 Hardware Installation*.

5. When you have installed the replacement system blades, carefully slide the metal brace back into place in the FEC so that the grooves on the bottom of the brace engage with the FEC base until the brace is flush with the rear of the FEC (refer to [Figure 25](#)).

Figure 25 Installing Metal Brace into FEC CHS-FC1040-01-C or CHS-FC0140-01-B



6. Using a No. 1 Phillips screwdriver, secure the bottom of the metal brace to the FEC using the two screws removed in Step 1 (refer to [Figure 20](#)).

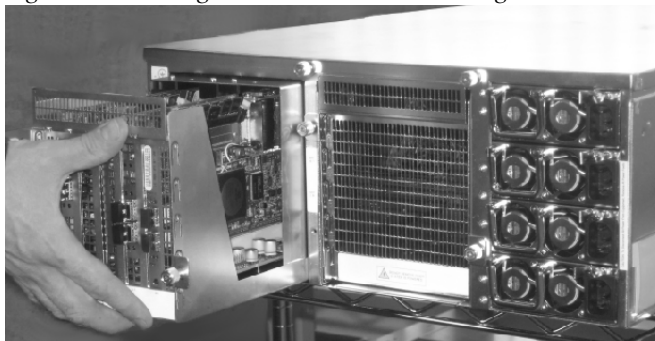
You have completed this procedure.

Step 4: Installing the FEC Back into the System Chassis

Perform the following steps to install the populated FEC CHS-FC1040-01-C or CHS-FC0140-01-B into the P-7500 system chassis:

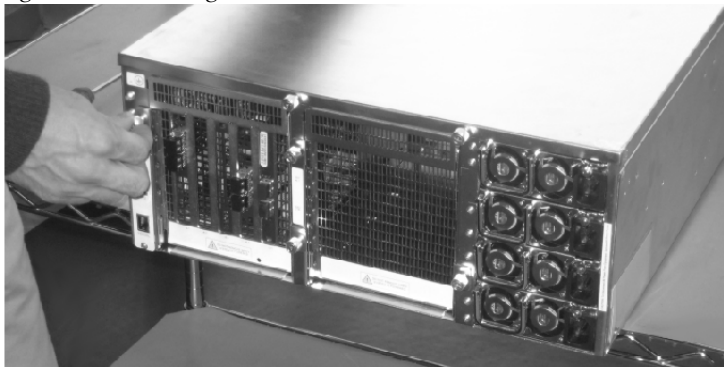
1. Position and align the FEC within the Fabric Housing 1 opening found at the rear of the chassis (refer to [Figure 26](#)).

Figure 26 Placing FEC in the Fabric Housing



2. Gently slide the FEC inward and press firmly until its male power connector engages with the female chassis connector at the rear of the Fabric Housing 1 opening.
3. Hand tighten the two captive thumbscrews in the upper left and lower right corner of the FEC to seat it firmly against the chassis (refer to [Figure 27](#)).

Figure 27 Securing the FEC in the Chassis



4. Press the 1/0 button on the front panel of the P-7500 system, located on the right-hand side below the LEDs, to turn power back on to the system.
5. Monitor the LEDs on the front of the P-7500 system to verify that it is powering up properly.
6. Verify that the Green LED located in the upper right-hand corner of each power supply is on.
7. The CLI **login** prompt displays on your management console screen:

```
TIBCO Messaging Appliance P-7500. System Software Version  
8.7.0.0003
```

```
Copyright 2011 TIBCO Software, Inc. All rights reserved.
```

```
tibco>
```

You have completed this procedure.

Replacing Systems In Deployed Active/Active Redundancy Pairs

This section describes in general terms how to replace a failed P-7500 system in a deployed active/active redundancy pair.

This section contains the following topics:

- [“Safety Precautions” on page 63](#)
- [“Tool and Equipment Requirements” on page 63](#)
- [“Procedure” on page 64](#)

Safety Precautions

For your safety, before replacing a failed P-7500 system in a deployed active/active redundancy pair, review the following safety warning.



ALERT

ALERT! To prevent equipment damage from electrostatic discharge, always ensure that the P-7500 system chassis is electrically connected to earth ground. Always follow ESD prevention procedures when removing and replacing system blades. Use an antistatic wrist strap, or another antistatic device. If no wrist strap or mat is available, ground yourself by touching the metal part of the chassis.

Tool and Equipment Requirements

The following tools and equipment are required to replace a P-7500 system in a deployed active/active redundancy pair:

- Electrostatic discharge wrist strap
- Antistatic mat
- Antistatic packaging for replaced P-7500 system
- Replacement P-7500 system (ordered from TIBCO)

Procedure

Perform the following general steps to replace a failed P-7500 system in a deployed active/active redundancy pair:



Note. If you require further assistance, or if you have any questions regarding this procedure, contact TIBCO for technical support.



ALERT

ALERT! When replacing a failed P-7500 system in a deployed active/active redundancy pair, do NOT physically connect the Network Acceleration Blade (NAB) in the replacement system to the network before you are instructed to in step 3. of the procedure.

1. Either restore the configuration from the system being replaced onto the replacement system from a backup configuration file through the copy Privileged EXEC command, or manually configure the replacement system to match the configuration of the system being replaced.
2. Enter the power-down Privileged EXEC command to turn off power to the replacement P-7500 system:

```
tibco# power-down
```



Note. The P-7500 system does not restart automatically after this command is run.

3. Connect the NAB in the replacement P-7500 system to the network.
4. Use a paper clip to press the 1/0 button on the front panel of the P-7500 system to turn power back on to the system (refer to Appendix A “Connections, LEDs, and Specifications” of *TIBCO Messaging Appliance P-7500 Hardware Installation* for location and details on the 1/0 button).

Alternately, use Wake On LAN (WOL) to turn power back on to the P-7500 system through a WOL magic packet (refer to “Turning On Power to the System Using Wake On LAN” in Chapter 1 of *TIBCO Messaging Appliance P-7500 Operations Guide* for details).

You have completed this procedure.

Chapter 3

TIBCO Messaging Appliance P-7500 Monitoring and Troubleshooting

This chapter describes how to use the TIBCO Messaging Appliance P-7500 Command Line Interface (CLI) to troubleshoot problems by displaying summary screens of IP network status, and how to use the P-7500 CLI to monitor the P-7500 system status.

Topics

- [*Displaying IP Networking Status, page 66*](#)
- [*Monitoring TIBCO Messaging Appliance P-7500 Status, page 70*](#)

Displaying IP Networking Status

In some instances the administrator may be experiencing problems with connectivity in the underlying TCP/IP network. This applies to setting up connections between the P-7500 system and clients, or establishing a Secure Shell (SSH) connection to the P-7500 system for the purpose of entering the CLI. If the latter is the case, the administrator must use the serial port located on the rear panel of the P-7500 system to enter the CLI to perform troubleshooting.

The first status check to perform is to determine the health of the Ethernet interface(s) which connect the P-7500 system to the rest of the network. To do this, run the `show interface` and `show ip vrf msg-backbon` User EXEC commands from the CLI.

For example:

```
tibco> show interface
Interface: 1/1/lag1
  MAC address: 00:50:c2:44:b4:d0
  Mode: Active-Backup
  Enabled: yes
  Rx pkts:           88916           Rx bytes:           5838515
  Tx pkts:           20458           Tx bytes:           1310094

  Configured members: 1/1/1, 1/1/2
  Available members:  1/1/1
  Operational members: 1/1/1
  Primary member:     1/1/1

Interface: eth1
  MAC address: 00:15:17:4d:25:f0
  Enabled: yes
  Rx pkts:           57514           Rx bytes:           4803312
  Tx pkts:           3251            Tx bytes:           1221086
  Link detected: yes
  Media type: N/A

Interface: eth2
  MAC address: 00:15:17:4d:25:f1
  Enabled: yes
  Rx pkts:           11248           Rx bytes:           719872
  Tx pkts:           0              Tx bytes:           0
  Link detected: yes
  Media type: N/A

Interface: 1/1/1
  MAC address: 00:50:c2:44:b4:d0
  Enabled: yes
  Rx pkts:           88918           Rx bytes:           5838756
  Tx pkts:           20458           Tx bytes:           1310094
```

Link detected: yes
Media type: 10G Base-SR

Interface: 1/1/2
MAC address: 00:50:c2:44:b4:d1
Enabled: yes
Rx pkts: 0 Rx bytes: 0
Tx pkts: 0 Tx bytes: 0
Link detected: no
Media type: 10G Base-SR

tibco> show ip vrf msg-backbone
VRF: msg-backbone
Number of interfaces: 2

Status Flags: R=Redundancy, A=Admin, P=Physical
Status Values: U=Up, D=Down

Interface	V Router	IP Address	Status			#Conn	#Frag
			R	A	P		
1/1/lag1:1	primary	192.168.164.182/19	U	U	U	1	0
1/1/lag1:2	backup	192.168.164.183/19	U	U	U	0	0

Number of global routes: 1

Destination	Gateway	Network Mask	Interface
default	192.168.160.1	0.0.0.0	1/1/lag1:1

Number of per interface default routes: 0

Phy-Interface	Gateway	Interface
-----	-----	-----

tibco> show ip vrf management
VRF: management
Number of interfaces: 3

Status Flags: R=Redundancy, A=Admin, P=Physical
Status Values: U=Up, D=Down, N=Not Applicable

Interface	V Router	IP Address	Status		
			R	A	P
eth1:1	static	192.168.129.82/20	N	U	U
eth2:1	primary	192.168.163.182/19	N	U	U
eth2:2	backup	192.168.163.183/19	N	U	U

Number of global routes: 0

Destination	Gateway	Network Mask	Interface
default	192.168.128.1	0.0.0.0	eth1:1

In the output, the administrator can verify that the IP address and mask of the P-7500 Management VRF interface (that is, eth1) and Message Backbone VRF interface (that is, lag 1 in this example) are as expected, and that the interface status is displayed as enabled and running. The statistics displayed can also be used to diagnose the health of the interface.

Displaying IP Route Information

Next, the administrator can run the `show ip route` User EXEC command to view all the IP route information in the global IP routing table on the P-7500 system.

For example:

```
tibco> show ip route

VRF: management

Destination      Gateway          Network Mask    Interface
-----
default          192.168.128.1   0.0.0.0         eth1:1

VRF: msg-backbone

Global Route:

Destination      Gateway          Network Mask    Interface
-----
default          192.168.160.1   0.0.0.0         1/1/lag1:1

Per Interface Default Route:

Phy-Interface    Gateway          Interface
-----
```

In the output, the administrator can verify that the configured IP routes on the P-7500 system are as expected.

Testing Connectivity

The administrator can then enter the ping User EXEC command to troubleshoot and trace network connectivity.

For example, to test connectivity through the P-7500 Management VRF interface, that is, eth1:

```
tibco> ping 192.168.128.1
PING 192.168.128.1 (192.168.128.1) 56(84) bytes of data.
64 bytes from 192.168.128.1: icmp_seq=0 ttl=64 time=0.579 ms
64 bytes from 192.168.128.1: icmp_seq=1 ttl=64 time=0.489 ms
64 bytes from 192.168.128.1: icmp_seq=2 ttl=64 time=0.580 ms
64 bytes from 192.168.128.1: icmp_seq=3 ttl=64 time=0.557 ms
--- 192.168.128.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3001ms
rtt min/avg/max/mdev = 0.489/0.551/0.580/0.040 ms, pipe 2
tibco>
```

For example, to test connectivity through the Message-Backbone VRF interface on the Network Acceleration Blade (NAB) VRF interface, that is, lag1:

```
tibco> ping msg-backbone:192.168.160.1
PING 192.168.160.1 56(84) bytes of data.
64 bytes from 192.168.160.1: icmp_seq=1 ttl=64 time=0.479ms
64 bytes from 192.168.160.1: icmp_seq=2 ttl=64 time=0.476ms
64 bytes from 192.168.160.1: icmp_seq=3 ttl=64 time=0.486ms
64 bytes from 192.168.160.1: icmp_seq=4 ttl=64 time=0.636ms
--- 192.168.160.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 4000ms
rtt min/avg/max/mdev = 0.476/0.519/0.636/0.040 ms
```

Monitoring TIBCO Messaging Appliance P-7500 Status

The administrator has a number of commands available to monitor and troubleshoot the state of the P-7500 systems within the network:

- `show process` — displays system process information on the P-7500 system to monitor CPU usage
- `show memory` — displays details on the local memory usage on the P-7500 system to monitor memory usage
- `show disk` — displays details on the local disk usage on the P-7500 system to monitor local disk usage
- `show environment` — displays environmental data on the P-7500 system

show process

If all links are up, the administrator runs the `show process` User EXEC command on any given P-7500 system to investigate whether any processes are using excessive CPU time and acting as a bottleneck:

```
tibco> show process [pid pid]
```

where:

`pid` asks to show detailed process information for one system process. Entering no `pid` number displays detailed process information for all system processes.

`pid` is the process identifier number

An example display from `show process` is:

```
tibco> show process
top - 15:04:26 up 16:14,  2 users,  load average: 4.31, 3.87, 3.23
Tasks: 145 total,  2 running, 143 sleeping,  0 stopped,  0 zombie
Cpu0  :  3.3% us, 12.1% sy,  0.0% ni, 84.5% id,  0.1% wa,  0.0% hi,  0.0% si
Cpu1  :  0.0% us,  0.0% sy,  0.0% ni, 100.0% id,  0.0% wa,  0.0% hi,  0.0% si
Cpu2  :  0.0% us,  0.1% sy,  0.0% ni, 99.9% id,  0.0% wa,  0.0% hi,  0.0% si
Cpu3  :  0.0% us,  0.3% sy,  0.0% ni, 99.7% id,  0.0% wa,  0.0% hi,  0.0% si
Cpu4  :  0.0% us,  0.0% sy,  0.0% ni, 100.0% id,  0.0% wa,  0.0% hi,  0.0% si
Cpu5  :  0.0% us,  0.0% sy,  0.0% ni, 100.0% id,  0.0% wa,  0.0% hi,  0.0% si
Cpu6  :  0.0% us,  0.0% sy,  0.0% ni, 100.0% id,  0.0% wa,  0.0% hi,  0.0% si
Cpu7  :  0.0% us,  0.0% sy,  0.0% ni, 100.0% id,  0.0% wa,  0.0% hi,  0.0% si
Mem: 16164516k total, 4611724k used, 11552792k free,  50212k buffers
Swap: 2007992k total,  0k used, 2007992k free,  591276k cached

  PID USER      PR  NI  VIRT  RES  SHR  S  %CPU  %MEM    TIME+  COMMAND
 31069 root        10   -5     0     0     0  D   2.0   0.0   0:00.33 md3_resync
     1 root        15    0 1748   592  504  S   0.0   0.0   0:01.92 init
     2 root        RT    0     0     0     0  S   0.0   0.0   0:00.00 migration/0
```

3	root	34	19	0	0	0	S	0.0	0.0	0:00.17	ksoftirqd/0
4	root	RT	0	0	0	0	S	0.0	0.0	0:00.00	watchdog/0
5	root	RT	0	0	0	0	S	0.0	0.0	0:00.00	migration/1
6	root	34	19	0	0	0	S	0.0	0.0	0:00.00	ksoftirqd/1
7	root	RT	0	0	0	0	S	0.0	0.0	0:00.00	watchdog/1
8	root	RT	0	0	0	0	S	0.0	0.0	0:00.00	migration/2
9	root	34	19	0	0	0	S	0.0	0.0	0:00.00	ksoftirqd/2
10	root	RT	0	0	0	0	S	0.0	0.0	0:00.00	watchdog/2
11	root	RT	0	0	0	0	S	0.0	0.0	0:00.00	migration/3
12	root	34	19	0	0	0	S	0.0	0.0	0:00.00	ksoftirqd/3
13	root	RT	0	0	0	0	S	0.0	0.0	0:00.00	watchdog/3
14	root	RT	0	0	0	0	S	0.0	0.0	0:00.00	migration/4

show memory

If all links are up, the administrator runs the show memory User EXEC command on any given P-7500 system to investigate whether memory usage is near maximum limits and acting as a bottleneck:

```
tibco> show memory
```

Memory (KB):

	Total	Used	Free	Buffers	Cached

Physical					
Memory	16164516	4611196	11553320	50324	591280
Low	310648	121224	189424		
High	15853868	4489972	11363896		
Swap	2007992	0	2007992		
Subscriptions					
Memory	1572864	1	1572863		

IPC Buffers:

Buffer		# Buffers			Memory (KB)		
Pool	Size (B)	Total	Used	Free	Total	Used	Free

0	256	8192	2	8190	2048	1	2047
1	1928	75000	0	75000	141210	0	141210
2	10240	1024	0	1024	10240	0	10240
3	102400	450	0	450	45000	0	45000
4	1048576	10	0	10	10240	0	10240
5	10485760	1	0	1	10240	0	10240

Physical memory usage: 24.87%
Subscription memory usage: 0.00%

NAB Buffers:

Slot	NAB Buffer Load Factor

1/1	0%

Event Threshold	Set Value	Clear Value
-----------------	-----------	-------------

-----	-----	-----
Physical Memory (%)	80	60
Subscriptions Memory (%)	80	60
NAB Buffer Load Factor (%)	80	60

show disk

If all links are up, the administrator runs the `show disk` User EXEC command on any given P-7500 system to investigate whether disk capacity on the P-7500 is near maximum limits and acting as a bottleneck:

```
tibco> show disk [detail]
```

where `detail` asks to show detailed information on the status of local disk use and the RAID drives.

An example display from `show disk detail` is:

```
tibco> show disk detail
Filesystem      1K-blocks      Used Available Use% Mounted on
/dev/md2        19236244      954220  17304876   6% /
/dev/md1         101018        8327    87475    9% /boot
/dev/md6        199811600    23031608 166630136  13% /usr/sw
none            8082256         0    8082256   0% /dev/shm
Personalities : [raid1]
md1 : active raid1 disk 2_1[1] disk 1_1[0]
      104320 blocks [2/2] [UU]

md3 : active raid1 disk 2_3[1] disk 1_3[0]
      19542976 blocks [2/2] [UU]

md5 : active raid1 disk 2_5[1] disk 1_5[0]
      2008000 blocks [2/2] [UU]

md6 : active raid1 disk 2_6[1] disk 1_6[0]
      202997184 blocks [2/2] [UU]

md2 : active raid1 disk 2_2[1] disk 1_2[0]
      19542976 blocks [2/2] [UU]

unused devices: <none>
Disk rebuild speed low
```

show environment

The administrator runs the `show environment` User EXEC command on any given P-7500 system to investigate whether it and any installed modules such as the NAB are operating within expected technical specifications:

```
tibco> show environment
```

The following is sample output for the `show environment` User EXEC command from a P-7500 system. The data below comes from these sources:

- the main board
- the NAB
- the TRB

The reported voltage values from the P-7500 main board are determined by the thresholds listed in [Table 5](#), which are set in the P-7500 and are not user-changeable. The possible values for the last column are OK, LowWarning, LowCritical, HighWarning, and HighCritical.

The the reported values from the NAB are determined by the thresholds listed in [Table 6](#), which are set in the blade and are not user-changeable.

```
tibco> show environment
```

Mainboard

Voltage:

BB +1.5V	1.469 volts	OK
BB +1.5V AUX	1.498 volts	OK
BB +1.5V ESB	1.490 volts	OK
BB +1.8V	1.803 volts	OK
BB +12V AUX	12.090 volts	OK
BB +3.3V	3.302 volts	OK
BB +3.3V STB	3.320 volts	OK
BB +5V	5.044 volts	OK

Temperature:

CPU1 Therm Margin	-55.000 degrees C
CPU2 Therm Margin	-60.000 degrees C
Chassis Temp.	29.000 degrees C

Fan speed:

Chassis Fan 1	0 RPM	LowCrit
Chassis Fan 2	8057 RPM	
Chassis Fan 3	7971 RPM	
Chassis Fan 4	7886 RPM	
Chassis Fan 5	8229 RPM	
Chassis Fan 6	8057 RPM	

Power system status:

Power Redundancy	yes
------------------	-----

Slot 1/1: Network Acceleration Blade

Temperature:

NPU Core Temp	51.000 degrees C
---------------	------------------

Slot 1/2: empty

Slot 1/3: empty

Slot 1/4: empty

Slot 1/5: Topic Routing Blade

Threshold Values for Main Board Voltage Parameters

Table 5 Parameter Values for Main Board Voltage

Parameter	Threshold Values
BB +1.5V	LowCritical = +1.357V
	LowWarning = +1.388V
	HighWarning = +1.615V
	HighCritical = +1.646V
BB +1.8V	LowCritical = +1.657V
	LowWarning = +1.688V
	HighWarning = +1.915V
	HighCritical = +1.946V
BB +12V	LowCritical = +10.912V
	LowWarning = +11.098V
	HighWarning = +12.896V
	HighCritical = +13.144V
BB +3.3V	LowCritical = +2.993V
	LowWarning = +3.062V
	HighWarning = +3.543V
	HighCritical = +3.629V
BB +5V	LowCritical= +4.524V
	LowWarning = +4.628V
	HighWarning = +5.382V
	HighCritical = +5.486V

Threshold Values for Network Acceleration Blade Parameters

Table 6 *Parameter Values for Network Acceleration Blade*

Parameter	Threshold Values
NPU Core Temp	HighWarning = +90.000°C
	HighCritical = +110.000°C

Appendix A TIBCO Enterprise-specific MIB

The TIBCO Enterprise-specific MIB defines both the environmental and routing data included as MIB objects for the TIBCO Messaging Appliance P-7500 system and its components. Environmental data includes fan speeds, temperatures, and voltage levels from the main board sensors and the temperature sensors on the Topic Routing Blade (TRB). Routing data includes counters related to message processing and client data.

MIB objects represent each P-7500 system component and the status of the components. The enterprise-specific definitions contain the object identifiers (OIDs) that are used by the TIBCO enterprise-specific MIB to identify platform and chassis components. The specific objects are listed in [Table 7](#), [Table 8](#), and [Table 9](#), according to their MIB group.

For a downloadable version of the TIBCO Enterprise-specific MIB supported by the TIBCO Messaging Appliance P-7500 software, contact your TIBCO engineer.

Table 7 MIB Objects in tmaSystemInfo Group

ASN.1 OID	Description
tmaCPU[1..8]Utilization	The overall percentage utilization of the given CPU in the system over a five second interval
tmaCPUAvgUtilization	The average percentage utilization of all CPUs in the system over a five second interval
tmaRootDiskPartitionUtilization	The overall percentage utilization of the root disk partition in the system
tmaDiskPartitionUtilization	The overall percentage utilization of the usr/tmaace mount point partition in the system
tmaMemoryUtilization	The overall percentage utilization of the system memory

Table 8 MIB Objects in tmaMessageStats Group

ASN.1 OID	Description
tmaMessagesIn	The number of messages received by the system from all publishers and systems

Table 8 MIB Objects in *tmaMessageStats* Group

ASN.1 OID	Description
tmaIngressMessagesDiscarded	The number of messages discarded at the ingress by the system
tmaEgressMessagesDiscarded	The number of messages discarded at the egress by the system
tmaEgressDiscardsTransmitCongestion	The number of transmit congestion egress discards
tmaIngressMessagesCurrentRate	The current number of messages received per second by the system based on a one second sample
tmaIngressMessagesAverageRate	The average number of messages received per second by the system based on a 60 second load interval
tmaEgressMessagesCurrentRate	The current number of messages sent per second by the system based on a one second sample
tmaEgressMessagesAverageRate	The average number of messages sent per second by the system based on a 60 second load interval
tmaControlMessagesReceived	The number of control messages received by the system
tmaDataMessagesReceived	The number of data messages received by the system
tmaTotalMessagesReceived	The number of control and data messages received by the system
tmaControlMessagesSent	The number of control messages sent by the system
tmaDataMessagesSent	The number of data messages sent by the system
tmaTotalMessagesSent	The number of control and data messages sent by the system

Table 9 MIB Objects in *tmaClientStats* Group

ASN.1 OID	Description
tmaConnections	The number of connections in the system
tmaSubscriptions	The number of subscriptions in the system

Environmental data is stored in a table within the `tmaaceEnvInfo` group. The columns and their types are listed in [Table 10](#). Each environmental sensor occupies one row in [Table 10](#).

Table 10 Columns in the `tmaEnvInfoTable`

ASN.1 OID	Type	Description
<code>sensorFabric</code>	INTEGER (0..2147483647)	The fabric expansion cartridge that the sensor is contained within. If the sensor is on the main board, the <code>sensorSlot</code> value is 0.
<code>sensorSlot</code>	INTEGER (0..2147483647)	The slot that the sensor is contained within. If the sensor is on the main board, the <code>sensorSlot</code> value is 0.
<code>sensorType</code>	SensorType	The type of sensor
<code>sensorIndex</code>	INTEGER (0..2147483647)	The unique index of the sensor relative to the <code>sensorType</code> and <code>sensorSlot</code>
<code>sensorDesc</code>	DisplayString	A description of the sensor function
<code>sensorValue</code>	INTEGER	The integral value of the sensor. The units for the value are dependent on the <code>sensorType</code> .
<code>sensorUnits</code>	DisplayString	The units of the sensor value

The choice of a particular `sensorType` determines the `sensorUnits` of the `sensorValue`, as shown in [Table 11](#).

Table 11 `sensorUnits` for `sensorValue` Column in `tmaEnvSensorTable`

sensorType	Units
<code>voltage</code>	millivolts
<code>temperature</code>	degrees Celsius
<code>fanSpeed</code>	RPM
<code>componentPresence</code>	Boolean (no := 0, yes := 1)
<code>utilization</code>	percentage
<code>physicalMemory</code>	Kilobyte
<code>physicalCPUs</code>	integer

Table 11 *sensorUnits for sensorValue Column in tmaEnvSensorTable*

sensorType	Units
activeHardware	Boolean (no := 0, yes := 1)

Variable definitions for SNMPv3 notifications in the TIBCO Enterprise-specific MIB are defined in the tmaaceNotificationVariables group. The variables and their types are listed in [Table 12](#).

Table 12 *Variables in TIBCO MIB Notifications*

ASN.1 OID	Type	Description
tmaTriggerName	DisplayString	Name of the sensor that triggered the trap
tmaTriggerValue	INTEGER	Value of the sensor when trap was triggered
tmaInstance Number	INTEGER	Instance number of the sensor when the trap was triggered
tmaSlotNumber	INTEGER	The system slot in which a blade is located. Slots correspond to the values displayed from the CLI using the show hardware User EXEC level command.
tmaFabric Number	INTEGER	The Fabric Expansion Cartridge in which a blade is located. Fabric Expansion Cartridges correspond to the values displayed from the CLI using the show hardware User EXEC level command.

The definitions for each SNMPv3 notification in the TIBCO Enterprise-specific MIB are listed in [Table 13](#).

Table 13 *Definitions for Notifications in the TIBCO MIB*

Notification	Description
tmaDiskUtilizationHighNotification	This notification is emitted when the disk-utilization value rises above the set threshold value
tmaDiskUtilizationHighNotification Clear	This notification is emitted when the disk-utilization value returns to a level below the clear threshold value
tmaConnectionsHighNotification	This notification is emitted when the number of connections rises above the set threshold value

Table 13 Definitions for Notifications in the TIBCO MIB

Notification	Description
tmaConnectionsHighNotificationClear	This notification is emitted when the number of connections fall below the clear threshold value
tmaSubscriptionsHighNotification	This notification is emitted when the number of subscriptions and filters rises above the set threshold value
tmaSubscriptionsHighNotificationClear	This notification is emitted when the number of subscriptions and filters fall below the clear threshold value
tmaVoltageHighNotification	This notification is emitted when the voltage level rises above the upper set threshold value
tmaVoltageHighNotificationClear	This notification is emitted when the voltage level returns to normal levels
tmaVoltageLowNotification	This notification is emitted when the voltage level falls below the lower set threshold value
tmaVoltageLowNotificationClear	This notification is emitted when the voltage level returns to normal levels
tmaTemperatureHighNotification	This notification is emitted when the temperature level rises above the upper set threshold value
tmaTemperatureHighNotificationClear	This notification is emitted when the temperature level returns to normal values
tmaTemperatureLowNotification	This notification is emitted when the temperature level falls below the lower set threshold value
tmaTemperatureLowNotificationClear	This notification is emitted when the temperature level returns to normal values
tmaFanSpeedHighNotification	This notification is emitted when the fan speed rises above the upper set threshold value
tmaFanSpeedHighNotificationClear	This notification is emitted when the fan speed returns to normal operational values
tmaFanSpeedLowNotification	This notification is emitted when the fan speed falls below the lower set threshold value

Table 13 Definitions for Notifications in the TIBCO MIB

Notification	Description
tmaFanSpeedLowNotificationClear	This notification is emitted when the fan speed returns to normal operational values
tmaRedundantSupplyNotification	The notification is sent when one of the power modules fails
tmaRedundantSupplyNotification Clear	The notification is sent when one of the power modules return to normal operation
tmaRedundantDiskNotification	This notification is emitted when the disks are not fully redundant, due to disk shutdown, disk failure, or incomplete RAID synchronization
tmaRedundantDiskNotificationClear	This notification is emitted when the disks change state from non-redundant to redundant
tmaIngressMessageRateNotification	This notification is emitted when the aggregate ingress message rate exceeds the set threshold value
tmaIngressMessageRateNotification Clear	This notification is emitted when the aggregate ingress message rate falls below the clear threshold value
tmaEgressMessageRateNotification	This notification is emitted when the aggregate egress message rate exceeds the set threshold value
tmaEgressMessageRateNotification Clear	This notification is emitted when the aggregate egress message rate falls below the clear threshold value