



Passport 7400, 15000, 20000

Data Collection Guide

241-5701-611

Passport 7400, 15000, 20000

Data Collection Guide

Publication: 241-5701-611

Document status: Standard

Document version: 5.2S1

Document date: November 2003

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Printed in Canada

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Publication history

November 2003

5.2S1 Standard

General availability. Contains information on Passport 7400, Passport 15000, and Passport 20000 for the PCR 5.2 GA release.

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About this document

This document provides conceptual and procedural information on the Passport data collection system.

The following topics are discussed in this section:

- “Who should read this document and why” (page 11)
- “What you need to know” (page 11)
- “How this document is organized” (page 12)
- “What’s new in this document” (page 13)
- “Text conventions” (page 13)
- “Procedure conventions” (page 14)
- “Related documents” (page 16)
- “How to get more help” (page 17)

Who should read this document and why

This guide is for anyone who performs the following tasks for data collection on the Passport system:

- planning
- installing and provisioning
- operating and maintaining

What you need to know

This guide assumes that you understand the architecture and operation of Passport products. You also require basic UNIX knowledge.

You can acquire Passport product knowledge by reading 241-5701-030 *Passport 7400, 15000, 20000 Overview* or 241-5701-030 *Passport 7400, 15000, 20000 Overview*.

Before you operate and maintain Passport, make sure you understand the following:

- Passport concepts
 - Passport hardware and software
 - Passport installation, commissioning, and provisioning
 - Passport-to-Passport interworking
 - Passport-to-DPN-100 interworking (applicable to Passport 7400 series only)
- UNIX
 - UNIX workstations
 - UNIX operating system, its facilities, and commands
- standard network operations and maintenance activities
- Preside Multiservice Data Manager workstation concepts

How this document is organized

This document contains the following sections:

- “Understanding the Passport data collection system” (page 43)

This section contains conceptual information about the Passport data collection system, including information on agents, collectors, and spoolers.
- “Understanding statistics collection” (page 55)

This section describes Passport statistics, including information on the statistics collection process and statistics collection times.
- “Configuring the data collection system” (page 19)

This section contains procedural information on how to configure the Passport data collection system.

What's new in this document

There were no new features added to this document.

Other changes made to this document include the following:

- The procedure “Verifying that spooling is activated” (page 35) was added to this document.
- The procedure “Turning collector spooling on or off for each datatype” (page 24) was updated with information about setting the `agentQueueSize` to zero when the accounting or stats collector is set to off.
- For CR Q00672553, the section “Configuring the agent queue sizes for each LP and each datatype” (page 21) was updated to include agent queue size overrides for the 4pOC3ChSmIr FP.
- The section “Configuring the active alarm list” (page 30) was updated to show that the *activeAlarmList* feature is not maintained if the value of the *cpEquipmentProtection* attribute is changed from hot to cold prior to committing the view.

Text conventions

This document uses the following text conventions:

- `nonproportional spaced plain type`

Nonproportional spaced plain type represents system generated text or text that appears on your screen.

- **nonproportional spaced bold type**

Nonproportional spaced bold type represents words that you should type or that you should select on the screen.

- *italics*

Statements that appear in italics in a procedure explain the results of a particular step and appear immediately following the step.

Words that appear in italics in text are for naming.

- [optional_parameter]

Words in square brackets represent optional parameters. The command can be entered with or without the words in the square brackets.

- <general_term>

Words in angle brackets represent variables which are to be replaced with specific values.

Procedure conventions

This document uses the following procedure conventions:

- You can enter commands using full component and attribute names, or you can abbreviate them. The commands used in the procedures contain the full component and attribute names in the first instance. In the second instance, the component and attribute names are abbreviated. For more information on abbreviating component and attribute names, see *241-5701-060 Passport 7400, 15000, 20000 Components*. All component and attribute names are formatted in italics.
- The introduction of every procedure states whether you must perform the procedure in operational mode or provisioning mode. For more information on these modes, see “Operational mode” (page 14) or “Provisioning mode” (page 15).
- When you complete a procedure, you can verify your changes and activate them as the new node configuration. For more information on completing configuration changes and exiting provisioning mode, see “Activating configuration changes” (page 15).

Operational mode

Procedures contained within this document can either be performed in operational mode or provisioning mode. When you initially log into a Passport node, you are in operational mode. Passport uses the following command prompt when you are in operational mode:

```
#>
```

where:

is the current command number.

In operational mode, you work with operational components and attributes. In operational mode, you can do the following:

- list operational components and display operational attributes to determine the current operating parameters for the node
- control the state of parts of the node by locking and unlocking components
- set certain operational attributes and enter commands to perform diagnostic tests

Provisioning mode

To change from operational mode to provisioning mode, type the following command at the operator prompt:

```
start Prov
```

Only one user can be in provisioning mode at a time. Passport uses the following command prompt whenever you are in provisioning mode:

```
PROV #>
```

where:

is the current command number.

In provisioning mode, you work with the provisionable components and attributes that contain the current and future configurations of the node. You can add and delete components, and display and set provisionable attributes. For information on completing the configuration changes, exiting provisioning mode, and returning to operational mode, see “Activating configuration changes” (page 15).

For information on operational and provisionable attributes, see *241-5701-060 Passport 7400, 15000, 20000 Components*.

Activating configuration changes

Several procedures in this document ask that you complete the configuration changes. When you complete the configuration changes, you are activating the configuration changes, confirming that you want to activate them, and saving the changes. You are instructed to complete the configuration changes only at the end of procedures that you perform in provisioning mode.



CAUTION

Activating a provisioning view can affect service

Activating a provisioning view can result in a control processor (CP) reload or restart, causing all services on the Passport node to fail. See 241-5701-050 *Passport 7400, 15000, 20000 Commands* for more information.

Use the following procedure to activate configuration changes:

- 1 Verify that the provisioning changes you have made are acceptable:

```
check Prov
```

Correct any errors and verify the provisioning changes again.

- 2 If you want to store the provisioning changes in a file, save the provisioning view:

```
save Prov
```

- 3 If you want these changes as well as other changes made in the edit view to take effect immediately, activate, confirm, and commit the provisioning changes:

```
activate Prov
```

```
confirm Prov
```

```
commit Prov
```

- 4 End the provisioning session:

```
end Prov
```

Related documents

See the following documents for related information:

- 241-5701-045 *Passport 7400, 15000, 20000 Management System User Interface Guide*. This document provides conceptual information about the Passport management system user interface.
- 241-5701-050 *Passport 7400, 15000, 20000 Commands*. This document describes the commands you use to operate and maintain Passport.
- 241-5701-520 *Passport 7400, 15000, 20000 Troubleshooting and Testing*. This document provides conceptual and procedural information about troubleshooting the Passport system.

- *241-5701-600 Passport 7400, 15000, 20000 Configuration Guide*. This document provides conceptual and procedural information about configuring the Passport system.
- *NN10600-605 Passport - MDM Network Security: Operations*. This document provides conceptual and procedural information about setting up and maintaining security for the Passport system.
- *241-6001-100 Preside MDM Installer Guide*. This document provides instructions on installing and configuring a Preside Multiservice Data Manager.
- *241-6001-303 Preside MDM Administrator Guide*. This document provides conceptual and procedural information about setting up and configuring network access for a Preside Multiservice Data Manager.
- *241-6001-310 Preside MDM Server Reference Guide*. This document provides reference information on the Preside Multiservice Data Manager servers.
- For information on last minute updates, see the Release Notes for this PCR release. You receive this document with each software release.
- *Passport 15000 and 20000 Engineering Notes and Guidelines* provides performance specifications.

How to get more help

For information on training, problem reporting, and technical support, see the “Nortel Networks support services” section in the product overview document.

Chapter 1

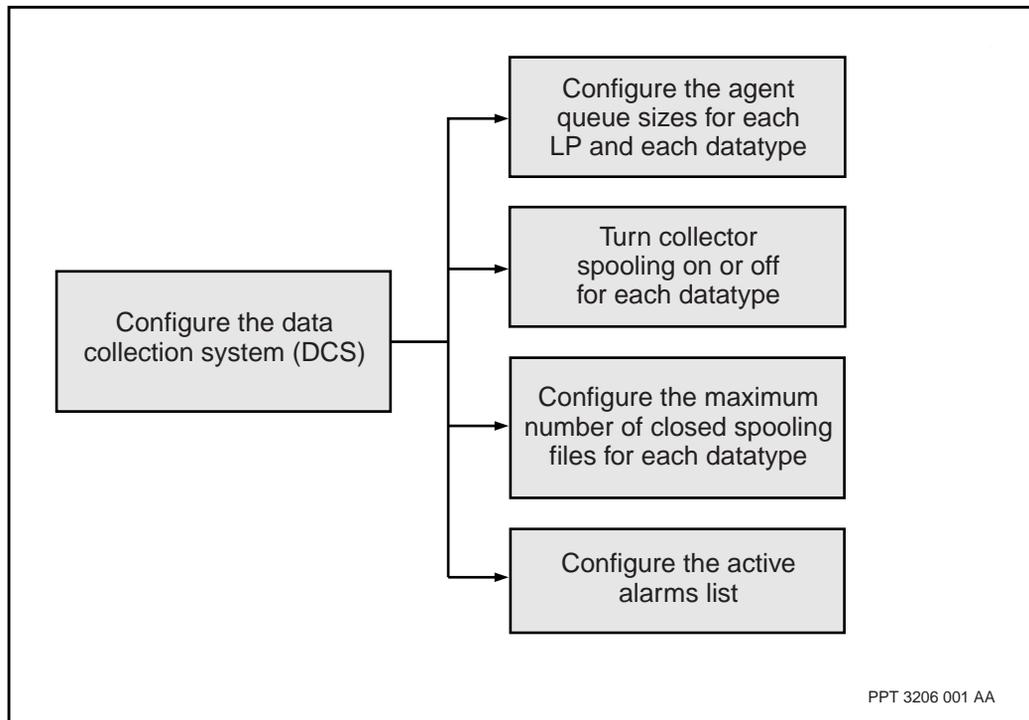
Configuring the data collection system

Configure the data collection system (DCS) to collect data about the operation of the Passport node and to store that data on the file system for future analysis.

Data collection system configuration task flow

This task flow shows you the sequence of procedures you perform to configure the data collection system. To link to any procedure, go to the list that follows the task flow.

Figure 1
Data collection system configuration task flow



Navigation links

- “Configuring the agent queue sizes for each LP and each datatype” (page 21)
- “Turning collector spooling on or off for each datatype” (page 24)
- “Configuring the maximum number of closed spooling files for each datatype” (page 27)
- “Configuring the active alarm list” (page 30)

Note: After you set up DCS logs, SNMP logs will also be visible as part of the DCS log stream. For more information on logging SNMP set requests see 241-5701-300 *Passport 7400, 15000, 20000 SNMP Guide*.

Configuring the agent queue sizes for each LP and each datatype

Change agent queue sizes at initial setup or when you identify new engineering requirements.

Prerequisites

- For guidelines on determining appropriate values for agent queue sizes, see *241-5701-615 Passport 7400, 15000, 20000 FP Configuration Reference*.



CAUTION

Risk of operational data loss

When its queue is full, the agent discards any additional operational data originating on the LP.

Procedure steps

- 1 Add a component to override the agent queue size for each data type you want to reset:

```
add Lp/<n> Eng DataStream/<datatype> Override
```
- 2 Set the maximum queue size for each data type:

```
set Lp/<n> Eng Ds/<datatype> Ov agentQueueSize <size>
```
- 3 Verify that you correctly configured the queue sizes:

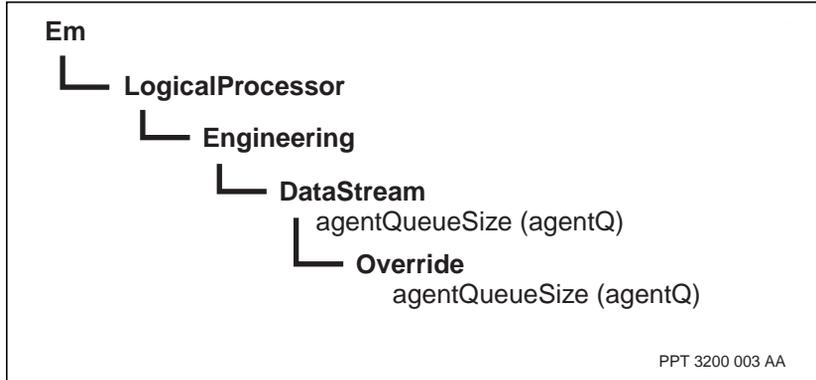
```
display LogicalProcessor/<n> Engineering DataStream/*
```

Variable definitions

| Variable | Value |
|------------|---|
| <n> | <p>The number of the LP.</p> <p>Add a <i>DataStream/log</i> component only to <i>Lp/0</i>. <i>Lp/0</i> is the only LP that supports the <i>DataStream/log</i> component since only control processors generate log data.</p> |
| <datatype> | <p>One of accounting, alarm, debug, log, rtstats, scn, stats, or trap</p> |
| <size> | <p>The maximum number of records the queue can hold.</p> <p>Set the size to 0 (zero) if you want the agent to discard all data of this type. A setting of 0 (zero) does not prevent applications from generating the data. If possible, configure the application so that it does not generate this unrequired data.</p> <p>If you want to collect a particular data type, do not set the queue size smaller than 20. Small queue sizes trigger queue threshold alarms more often than necessary.</p> <p>When using the 4pOC3ChSmlr FP, the following override queue sizes should be used:</p> <ul style="list-style-type: none"> • accounting: 0 for the FP • alarm: 1500 for the FP and 500 for the CP • scn: 1000 for the FP and 1500 for the CP <p>The default agent queue sizes are as follows:</p> <ul style="list-style-type: none"> • accounting: 10 000 records • alarm: 100 records • debug: 0 records • log: 50 records • rtstats: 0 records • scn: 200 records • stats: 0 records • trap: 50 records |

Procedure job aid

Figure 2
Configuring the agent queue sizes for each LP and each datatype
component hierarchy



Turning collector spooling on or off for each datatype

Configure the spooling option to specify whether or not a data type spools to the file system.

Prerequisites



CAUTION

Data can spool before NMIS session starts

If a spooler is set to on, data can begin spooling as soon as the control processor becomes active. If data that spools and appears in a user session (such as alarms) has already spooled before you log on, that data does not appear in your user session. For example, alarms that spool before you establish a user session are only spooled to disk and do not appear in your user session.

On rare occasions, the Preside Multiservice Data Manager Active Alarms display does not clear after a node reload if the spooler, local operator, telnet session, or SNMP agent logs in too quickly. Using the on-switch active alarm list feature will minimize, but not eliminate, these potential issues.



CAUTION

Risk of operational data loss

If a spooler containing data is set to off, the data currently held in the spooler queue is lost. Ensure that the spooler queue is empty before turning the spooler off.

Procedure steps

- 1 Ensure that the spooler queue is empty by displaying the queue statistics for the spoolers:

```
display Collector/* Spooler Statistics
```

- 2 Turn the spooling option on or off:

```
set Col/<datatype> Sp spool <setting>
```

- 3 If the spooler is set to off and the collection type is either accounting or stats, then configure the agentQueueSize for this data type on each Lp as zero:

```
set Lp/<n> Eng Ds/<datatype> Ov agentQueueSize 0
```

- 4 Verify that you have correctly configured the spooling option:

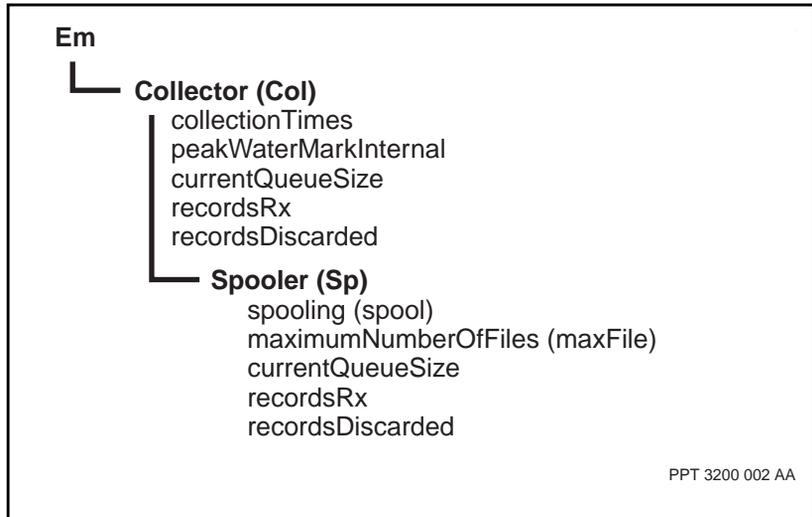
```
display Collector/<datatype>
```

Variable definitions

| Variable | Value |
|------------|---|
| <datatype> | One of accounting, alarm, debug, log, scn, or stats. |
| <n> | is the number of the Lp. |
| <setting> | On or off. If you want to spool the data type, use on. If you do not want to spool the data type, use off. The default settings for the spooling option are as follows: <ul style="list-style-type: none"> • accounting: on • alarm: on • debug: off • log: on • rtstats: off • scn: on • stats: on • trap: off |

Procedure job aid

Figure 3
Turning collector spooling on or off for each datatype component hierarchy



Configuring the maximum number of closed spooling files for each datatype

For each data type, you can set the maximum number of closed spooling files that Passport stores on its file system.

Prerequisites

- For guidelines on determining appropriate values for maximum closed spooler files, see *Passport 15000 and 20000 Engineering Notes and Guidelines*.



CAUTION

Risk of data loss and service interruption

If you set the spooler to keep an unlimited number of files, the disk can fill up with data files. When the disk is full, data records are lost because Passport cannot save new data files. Passport also cannot support file system redundancy and cannot always perform necessary functions when the active disk is full. If you use this setting, carefully monitor disk usage.

Procedure steps

- 1 Display the current maximum file settings for all data types:

```
display Col/* Sp maxFile
```
- 2 Specify the maximum number of files to be kept on disk for each data type:

```
set Col/<datatype> Sp maxFile <number>
```
- 3 Verify the new maximum file settings:

```
display Collector/* Spooler maxFile
```

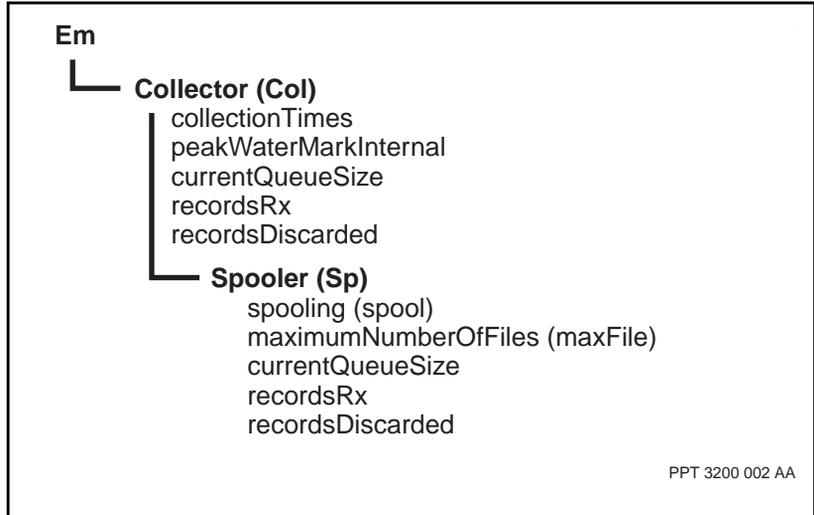
Variable definitions

| Variable | Value |
|------------|---|
| <datatype> | One of accounting, alarm, debug, log, scn, or stats. |
| <number> | <p>The number of files to be kept on disk (any integer between 1 and 200).</p> <p>If you want to keep an unlimited number of files, enter 0 (zero). However, carefully monitor disk usage when using the unlimited setting.</p> <p>The default maximums are as follows:</p> <ul style="list-style-type: none">• accounting: 200 files• alarm: 20 files• debug: 2 files• log: 10 files• scn: 10 files• stats: 200 files |
| | |

Procedure job aid

Figure 4

Configuring the maximum number of closed spooling files for each datatype component hierarchy



Configuring the active alarm list

Configure the active alarm list (AAList) to enable a running list of all active alarms that have been raised, but not yet cleared.

Prerequisites

- For guidelines on determining an appropriate value for the AAList maximum list size, see *Passport Engineering Notes and Guidelines*.
- Ensure that the proper Preside Multiservice Data Manager server setup for utilization of Active Alarm lists has been completed. Refer to 241-6001-310 *Preside MDM Server Reference Guide* for details.

Procedure steps

- 1 Add the *activeAlarmList* feature directly to the feature list associated with the control processor (CP):

```
set sw logicalProcessorType/<y> fl activeAlarmList
```

The *activeAlarmList* feature is not maintained for the standby CP if the operator changes the *cpEquipmentProtection* attribute (under the *Shelf* component) from hot to cold before committing the view in which the *activeAlarmList* feature has been added.

- 2 Complete the configuration changes. See “Activating configuration changes” (page 15).
- 3 Optionally, you can override the automatically supplied default value for the *maxListSize* attribute of the *activeAlarmList* component on the LP:

```
add lp/<x> eng activeAlarmList  
add lp/<x> eng activeAlarmList override  
set lp/<x> eng activeAlarmList override maxListSize  
<list_size>
```

Note: The default value assigned to the maximum size of the AAList is 100. To see the current size of the AAList, as well as other AAList statistics, display the attributes for the *activeAlarmList* component:

```
display lp/<x> eng activeAlarmList
```

- 4 Using step 1 to remove the AAList results in a shelf-wide outage. To disable the AAList without impacting service, you can disable the *activeAlarmList* component for each provisioned logical processor (LP):

```
add lp/<x> eng activeAlarmList
```

```

add lp/<x> eng activeAlarmList override
set lp/<x> eng activeAlarmList override maxListSize
disabled

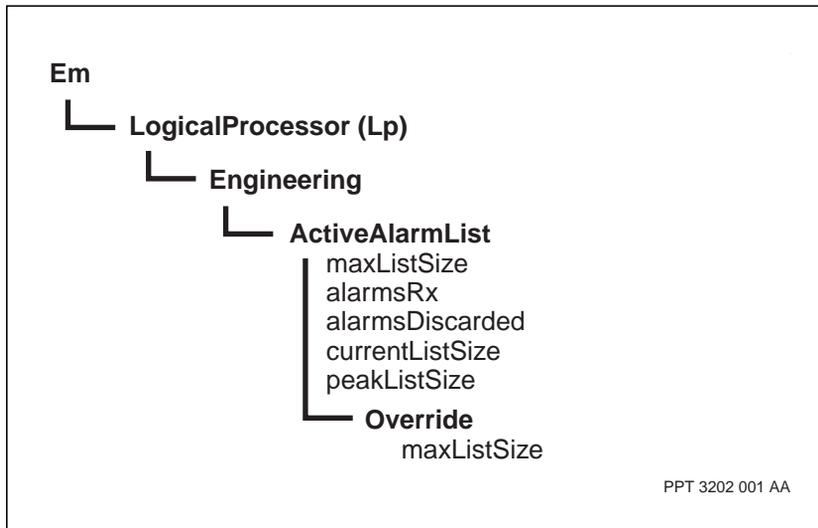
```

Variable definitions

| Variable | Value |
|-------------|--|
| <x> | The instance value of the logical processor (LP). |
| <y> | The instance value of the logical processor type. |
| <list_size> | <p>The maximum size of the AAList on the LP. The possible values are:</p> <ul style="list-style-type: none"> any integer from 10 to 200 disabled (this indicates that active alarms are not stored on this LP) autoConfigured (this automatically supplies a maximum list size which is equal to the value of the <i>maxListSize</i> attribute associated with the <i>activeAlarmList</i> component) unlimited (no list size limit is imposed) |
| | |

Procedure job aid

Figure 5
Configuring the active alarm list component hierarchy



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Chapter 2

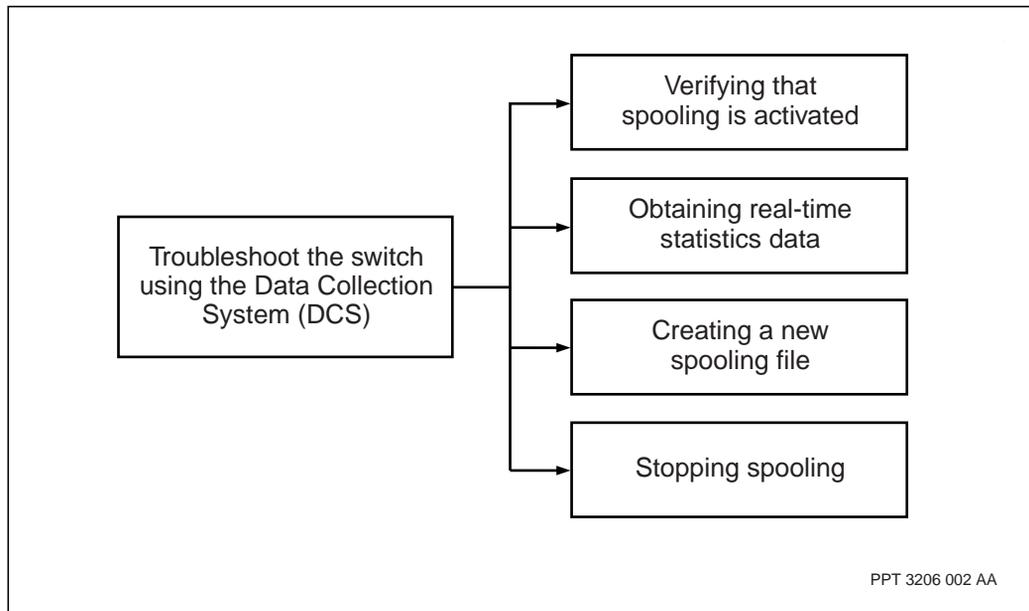
Troubleshooting the switch using the data collection system

Use the data collection system (DCS) to troubleshoot the operation of the Passport node.

Troubleshooting the switch using the data collection system task flow

This task flow shows you the sequence of procedures you perform to troubleshoot the switch using the data collection system. To link to any procedure, go to the list that follows the task flow.

Figure 6
Troubleshooting the switch using the data collection system task flow



Navigation links

- “Verifying that spooling is activated” (page 35)
- “Obtaining real-time statistics data” (page 36)
- “Creating a new spooling file” (page 38)
- “Stopping spooling” (page 40)

Verifying that spooling is activated

Verify that spooling is activated to determine which types of data are being spooled to the disk.

Prerequisites

- Perform this procedure in provisioning mode.

Procedure steps

- 1 Display the spooling attribute to determine the types of data being spooled to the disk.

```
display collector/* spooler spooling
```

A value of "on" for each datatype indicates that spooling is activated for that type.

Obtaining real-time statistics data

Use this procedure only when troubleshooting the switch. Nortel Networks recommends that this procedure be performed by a GNPS representative.

Prerequisites

- To perform this procedure, your `userId` must have a minimum scope of device and a minimum impact of service.

Procedure steps

- 1 Add an *Override* component to the LP:

```
add LogicalProcessor/<n> Engineering DataStream/
rtstats Override
```

- 2 Set the maximum agent queue size for the LP:

```
set LogicalProcessor/<n> Engineering DataStream/
rtstats Override agentQueueSize <size>
```

- 3 Verify your configuration of PMs collection:

```
display LogicalProcessor/<n> Engineering DataStream/
rtstats
```

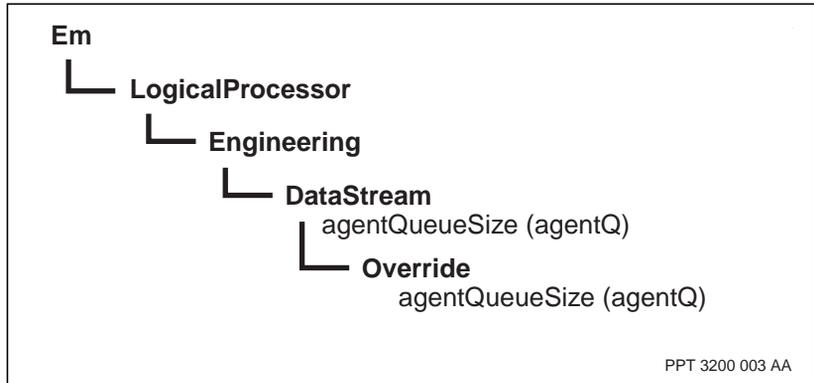
Variable definitions

| Variable | Value |
|----------|---|
| <n> | The number of the LP. |
| <size> | The maximum number of records in the queue. Use a value between 20 and 200, depending on the number of applications configured on that LP to generate records. The typical setting is 100. |
| | |

Procedure job aid

Figure 7

Obtaining real-time statistics data component hierarchy



Creating a new spooling file

Create a new spooling file when you want to retrieve the latest set of data of a particular data type.

Once Passport creates a new spooling file, it closes the open spooling file. You can retrieve only closed spooling files. Once the spooling file is closed, you can retrieve the latest set of data for analysis.

Procedure steps

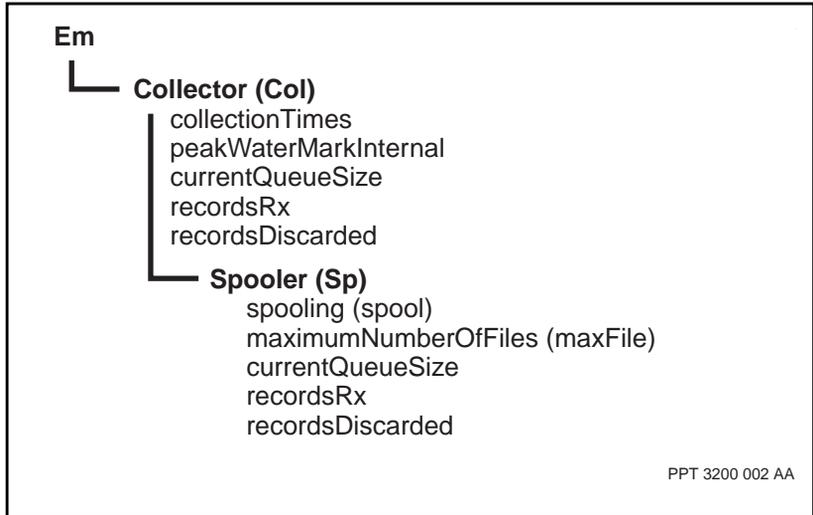
- 1 Create the new spooling file.
`newfile Col/<datatype> Sp`
- 2 Optionally, transfer closed files to another location for analysis using the MDP.

Variable definitions

| Variable | Value |
|------------|--|
| <datatype> | One of accounting, alarm, debug, log, scn, or stats. |
| | |

Procedure job aid

Figure 8
Creating a new spooling file component hierarchy



Stopping spooling

Stop spooling data to a collector when you want to be able to test a CP's disk or to aid in troubleshooting accounting records. You can stop spooling either temporarily (spooling will resume if the power goes off and back on again) or permanently (until you turn it back on).

Procedure steps

- 1 To stop spooling temporarily, lock the spooler:

```
lock Col/<datatype> Spooler
```

- 2 To stop spooling permanently, set the agent queue size to 0:

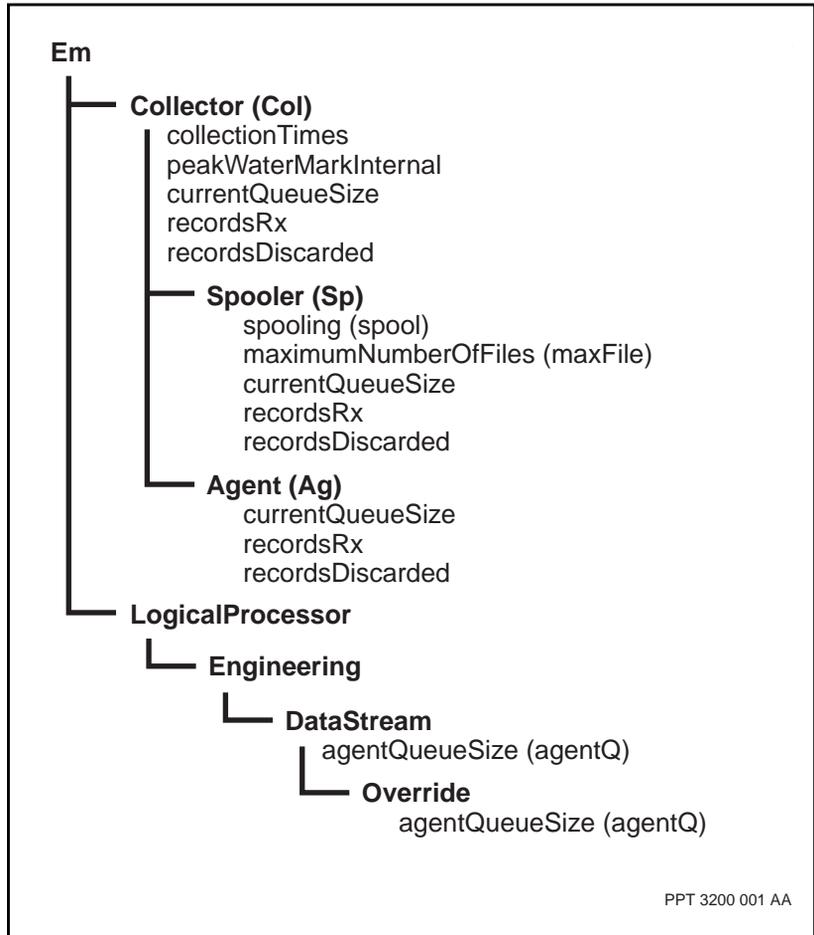
```
set lp/<n> Eng DataStream/<datatype> Override  
agentQueueSize 0
```

Variable definitions

| Variable | Value |
|------------|--|
| <datatype> | One of accounting, alarm, debug, log, scn, or stats. |
| <n> | The number of the LP. |
| | |

Procedure job aid

Figure 9
Stopping spooling component hierarchy



PPT 3200 001 AA

Chapter 3

Understanding the Passport data collection system

The Passport data collection system (DCS) (*Collector* component) collects the data generated for troubleshooting, performance tuning, and billing. The DCS either:

- sends the data to an external network management system for analysis
- spools it to the file system (for example, accounting data)
- or both (for example, alarms data)

The Passport DCS consists of agents, collectors, and spoolers. Agents reside on each processor card to gather data records from the services running on the processor card. On each processor card, there is one agent for each type of data, represented by *Agent (Ag)* subcomponents. The agents of a particular data type send their data records to a collector (one for each data type), which resides on the active control processor (CP). The collectors are represented by instances of the *Collector (Col)* component. The collectors then send the data records to the network management interfaces, the spoolers, the SNMP agents, or all three. The spoolers are represented by *Spooler (Sp)* subcomponents.

The network management interfaces either display records during operator sessions (local and telnet interfaces) or send records to Preside Multiservice Data Manager workstations (fast management information protocol (FMIP) interface). The spoolers (one for each data type) format the data and save it on the file system.

Each collector, agent, and spooler has a queue to hold data records until it can process them. If a queue fills up, the DCS starts to discard records. You can review the current number of records in the queue (*currentQueueSize*), the number of records received (*recordsRx*), and the number of records discarded (*recordsDiscarded*) for each collector, agent, and spooler.

For more details on the DCS, see 241-5701-030 *Passport 7400, 15000, 20000 Overview*. For procedures on configuring and monitoring the DCS, see “Configuring the data collection system” (page 19).

Agent queue sizes

Each LP has its own agent queue size settings. If you do not change the agent queue sizes of an LP, it uses the default queue size for each of its data types.

If necessary, you can adjust the size of an agent queue by setting the *agentQueueSize* attribute of the *Engineering DataStream Override* subcomponent for the logical processor for that agent.

For example, if you need to collect statistics for performance monitoring on an LP, you must change the agent queue size for statistics data from its default of 0 (all statistics data is discarded) to a value such as 100 on the LP.

An agent can discard information of a particular data type if the queue size is too small for the amount of data sent to it. To find out how much data, if any, an agent has discarded, display the data collection queue statistics. With this information, you can select a more appropriate queue size for that data type. However, you must be careful not to overload system resources with high queue size settings.

Spooled data files

You can turn the spooling of a particular data type on and off by setting the *spooling* attribute of its *Spooler* component.

You can turn data collection on and off for a particular data type on an LP. To turn data collection on, set the LP’s *agentQueueSize* attribute to a non-zero value.

You cannot turn spooling on for trap or rtstats data. If you want to stop spooling accounting or stats data, you must either lock its spooler, or set its agent queue size to 0 (zero) for all LPs (see “Stopping spooling” (page 40)).

A spooler discards records if its spooling option is turned off while the spooler still contains records.

Setting a spooler to off has the same immediate effect as locking it (see the lock command in 241-5701-050 *Passport 7400, 15000, 20000 Commands*). However, when a processor restarts, a locked spooler becomes unlocked but keeps its original spooling setting of either on or off.

Location of spooling files

When turned on, the spooled files are located in the following directories:

```
/spooled/closed/<data_type>
```

```
/spooled/opened/<data_type>
```

where:

<data_type> is one of alarm, log, accounting, debug, scn, or stats.

File name format

The name format for spooled data files is as follows:

```
ppc_<data_type>.<YYYY><MM><DD>T<hh><mm><ss>.<XXX>  
.<nodeid>
```

where:

<data type> is one of alarm, log, accounting, debug, scn, trap, or stats.

<YYYY> is the four-digit year the system opened the file.

<MM> is the month (01–12) the system opened the file.

<DD> is the day (01–31) the system opened the file.

<hh> is the hour (00–23) the system opened the file.

<mm> is the minute (00–59) the system opened the file.

<ss> is the second (00–59) the system opened the file.

<xxx> is the sequence number (000–999) the system automatically generated when it opened the file.

<nodeid> is the value of the nodeID attribute of the Mod component at the time the system opened the file.

Timestamps

Timestamps associated with spool files can be correctly interpreted as follows:

- the timestamp provided by the file system indicates the last time data was received by the file. However, in the case of an empty file it will indicate the time the file was created.
- the timestamp embedded in the name of the file indicates the time a file was created.

Open and closed spooling files

There are two types of spooling files: open and closed. An open spooling file is a file in which Passport is currently writing new data records. Passport automatically closes open spooling files, moves them to the closed directory, and creates a new open spooling file in the opened directory

- when an open spooling file reaches its maximum size (approximately 0.5 Mbyte)
- if a file system is disabled or locked
- at 00:00 hours (midnight), regardless of the file size

You can manually close a spooling file using the *newFile Col Sp* command. See 241-5701-050 *Passport 7400, 15000, 20000 Commands* for information on the *newFile Col Sp* command.

For example, if the MDP is going to run at a certain time (to transfer closed accounting files to a billing host) and a large spooling file is still open, you can close that file to include in the file transfer. See 241-6001-309 *Preside MDM Management Data Provider User Guide* for details on the MDP.

**CAUTION****Risk of CP restart**

Do not delete open spooled data files because it can cause the CP to restart.

Maximum spooling file sizes

The maximum size for an accounting spool file is approximately 2.0 MB. The maximum size for all other types of spool files is approximately 0.5 MB. There is no such restriction for other types of data.

Maximum number of closed spooling files

You can limit the number of closed data files stored on the file system by setting the *maximumNumberOfFiles* attribute of a *Spooler* component.

When the number of files reaches the maximum, Passport discards the oldest closed file to make room for a new file. If you set the maximum to equal 0, there is no limit to the number of closed data files stored on the file system.

In most cases, if you set a new maximum that is lower than the number of closed files currently on the disk, Passport discards the oldest closed files until only the new maximum number of files remain. For example, if you currently have 200 closed files on the disk and you set the maximum number of files to 125, Passport discards 75 of the oldest closed files.

If you try to set a new maximum for a data type and there are already over 250 closed files on the disk, Passport does not discard any files. Instead, Passport operates as if it is keeping an unlimited number of files. For example, you have 400 closed files on the disk because you set the maximum number of files to 0 (unlimited). You now change the maximum to 200. Passport ignores the new maximum and continues to keep an unlimited number of files. Passport generates an alarm to warn you of this situation.

This behavior prevents large amounts of system resources from being used to delete closed files. You need to remove the closed files using the Management Data Provider (MDP) to get Passport to enforce the new maximum. See 241-6001-309 *Preside MDM Management Data Provider User Guide* for details.

Removing spooled data files

To remove spooled files from the file system, Nortel Networks recommends that you use the management data provider (MDP). MDP provides necessary reformatting of the data in the files as well as interfaces to hosts that analyze the data files. See 241-6001-309 *Preside MDM Management Data Provider User Guide* for further details.

Note: MDP does not support retrieval and processing of debug data files.



CAUTION

Nortel Networks recommends you remove files from the node on a regular basis. You can do this by using the Management Data Provider to retrieve the files and then delete them. It is very important that you do this before the maximum number of files on the disk is reached.

Active alarm list

The active alarm list (AAList) is an on-switch list that contains, at any specific time, a list of all active alarms that have been raised, but not yet cleared, on a Passport. The AAList is used to improve the accuracy and completeness of fault reporting when connected to a Preside Multiservice Data Manager. Each running card, whether it be a function processor (FP) or a control processor (CP), maintains its own list of active alarms.

Note: The AAList can only be used by a Preside Multiservice Data Manager. For any other NMIS sessions (for example, Telnet and Local port), AAList functionality is not supported.

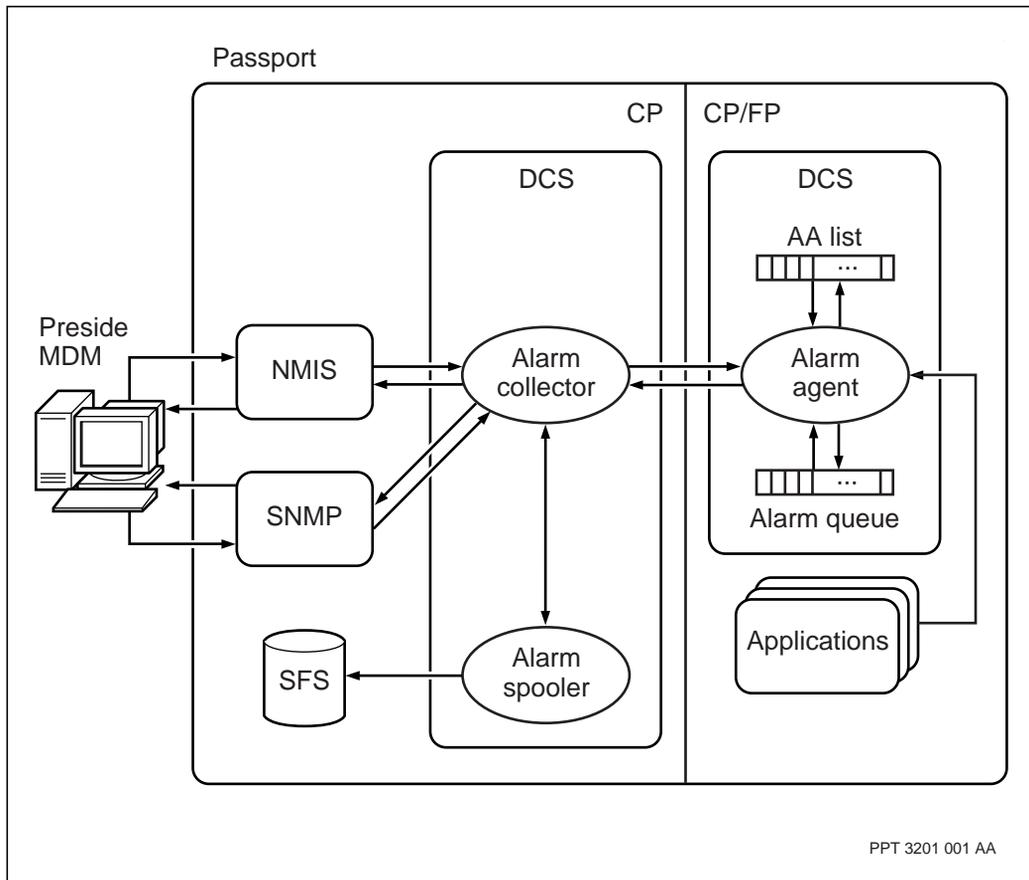
When a unique SET alarm (an alarm that has a unique component name and NTP index field) is generated, the alarm agent adds it to both the AAList and the alarm queue. Through a replay command, all SET alarms contained in the AAList can be replayed to the Preside Multiservice Data Manager. These SET alarms remain in the AAList until one of the following conditions occurs:

- an operator manually clears the SET alarm.
- a matching CLR alarm is received (this results in the SET alarm being removed from the AAList).

- a hierarchical CLR alarm against a specific component is received (this results in all alarms associated with that component, as well as any descendant subcomponents, being removed from the AAList).
- a successive SET alarm is received (this replaces the original SET alarm with the newer SET alarm).
- a card is reset (this clears the AAList from that card completely)

Refer to the figure “AAList architecture” (page 50) for a graphical representation of this process. For more information on the replay command, refer to 241-5701-050 *Passport 7400, 15000, 20000 Commands*. For information on how the AAList is utilized by the Preside Multiservice Data Manager, refer to 241-6001-303 *Preside MDM Administrator Guide*.

Figure 10
AAList architecture



The *activeAlarmList* feature must be configured in order to enable the AAList. For information on configuring the AAList, refer to “Configuring the active alarm list” (page 30).

Types of data

The Passport DCS collects the following types of data:

- “Accounting data” (page 51)
- “Statistics data” (page 51)

- “Real-time statistics data” (page 51)
- “Alarm data” (page 52)
- “State change notification data” (page 53)
- “Log data” (page 53)
- “Debug data” (page 53)
- “Trap data” (page 53)

Accounting data

You use accounting data for billing the users of your network. If you are using accounting data, see the following documents:

- 241-6001-309 *Preside MDM Management Data Provider User Guide*
- 241-5701-650 *Passport 7400, 15000, 20000 Accounting Fundamentals*
- 241-6001-806 *Preside MDM MDP Data Formats Reference Guide*

By default, accounting data collection is turned on. Accounting data always spools to the file system. You cannot direct accounting data to a network management interface.

Statistics data

You use statistics data for mid-term to long-term network planning and engineering. If you are using statistics data, see 241-6001-309 *Preside MDM Management Data Provider User Guide*.

By default, statistics data collection is turned off. If you turn it on, it spools to the file system. You cannot direct statistics data to a network management interface.

Real-time statistics data

You use real-time statistics data to identify resource utilization and problem areas in the system.

By default, real-time statistics data collection is turned off.

Note: Synonymous terms for real-time statistics include “Network Traffic Management” (NTM), and “performance measurements” (PMs).

Alarm data

Alarm data is essential to provide thorough real-time surveillance of the node. You can also use this data for post-processing and analysis of downtime and other service-affecting problems. For detailed information about each alarm, see 241-5701-500 *Passport 6400, 7400, 15000, 20000 Alarms*.

By default, alarm data is turned on and goes to the local and telnet network management interfaces. You can also provision it to go to the simple network management protocol (SNMP) agent as enterprise management information base (MIB) traps. In addition, you can send alarms to Preside Multiservice Data Manager through the FMIP interface. Alarm data also spools to the file system. Keep alarm data collection turned on to ensure you have sufficient information to troubleshoot problems.

State change notification data

Network management uses state change notification (SCN) data to update the network model. The network model is a repository of network configuration information that a number of Preside Multiservice Data Manager applications use.

By default, SCN data collection is turned on and spools to the file system.

Log data

You use operator log data to monitor the operator command activity on a node. Only the CP (Lp/0) generates log data.

By default, log data is turned on and spools to the file system.

Debug data

Passport generates debug data for debugging purposes under application-specific circumstances. Debug data also includes automatically generated information about critical faults and recoverable errors for each processor. Nortel Networks support personnel can use this critical fault and recoverable error information for troubleshooting.

By default, debug data collection is turned off and does not spool to the file system. If you turn it on, debug data can do the following:

- go to the local or telnet network management interfaces
- be spooled to the file system

Trap data

Traps allow for real-time SNMP management of your node. For further information on SNMP traps, see 241-5701-300 *Passport 7400, 15000, 20000 SNMP Guide*.

The collector can only send standard MIB trap data to the SNMP agent, which is independent of data collection agents. By default, the DCS sends trap data to the SNMP agent.

Chapter 4

Understanding statistics collection

The data collection system (DCS) collects the following types of performance measurements:

- statistics
- real-time statistics

Statistics and real-time statistics help you perform network engineering and long-term planning activities. These performance measurements allow you to verify the network design against the real performance of the network.

See the following sections for more information on statistics:

- “Statistics” (page 55)
- “Real-time statistics” (page 59)
- “Collected statistics and real-time statistics records” (page 63)
- “Spooled statistics records” (page 64)

For procedures related to statistics and real-time statistics, see the following:

- “Obtaining real-time statistics data” (page 36)

Statistics

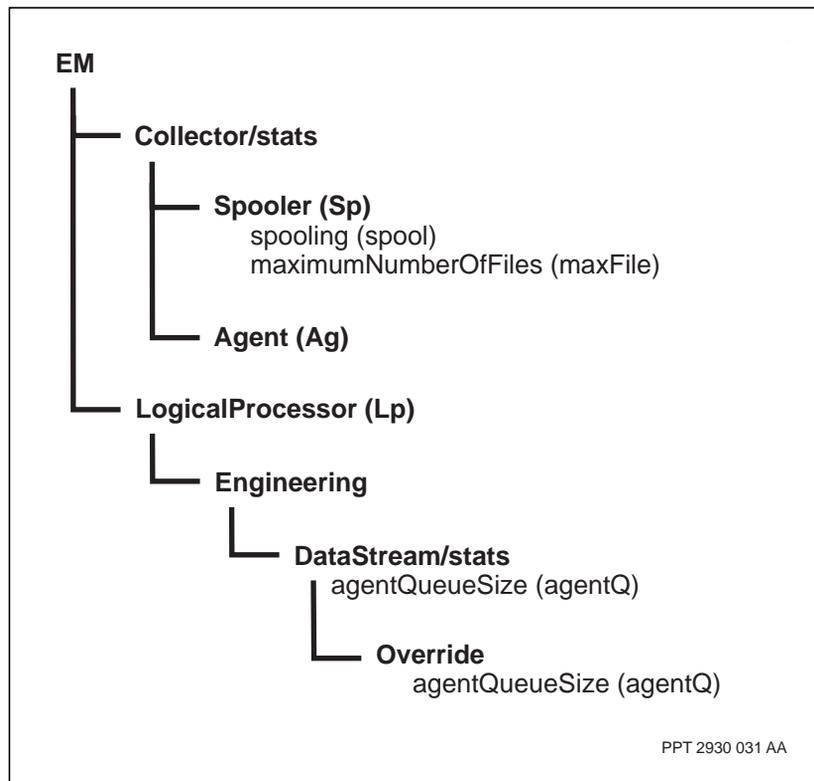
When properly configured, the DCS collects the statistics records and spools them to disk. Once on disk, you can remove statistics files using the management data provider (MDP). See 241-6001-309 *Preside MDM Management Data Provider User Guide* for details.

By default, the DCS does not collect statistics data. The agent queue size for statistics data is set to 0 (zero), which causes the agent to discard all statistics data.

The figure “Statistics collection components and attributes” (page 56) illustrates the data collection components and attributes that collect Passport statistics. The document 241-5701-060 *Passport 7400, 15000, 20000 Components* contains a description of each component and identifies whether or not Passport generates a record for it.

For additional guidelines on setting these parameters, see *Passport Engineering Notes and Guidelines*.

Figure 11
Statistics collection components and attributes



Collection process

Passport network planning and engineering statistics flow through the DCS.

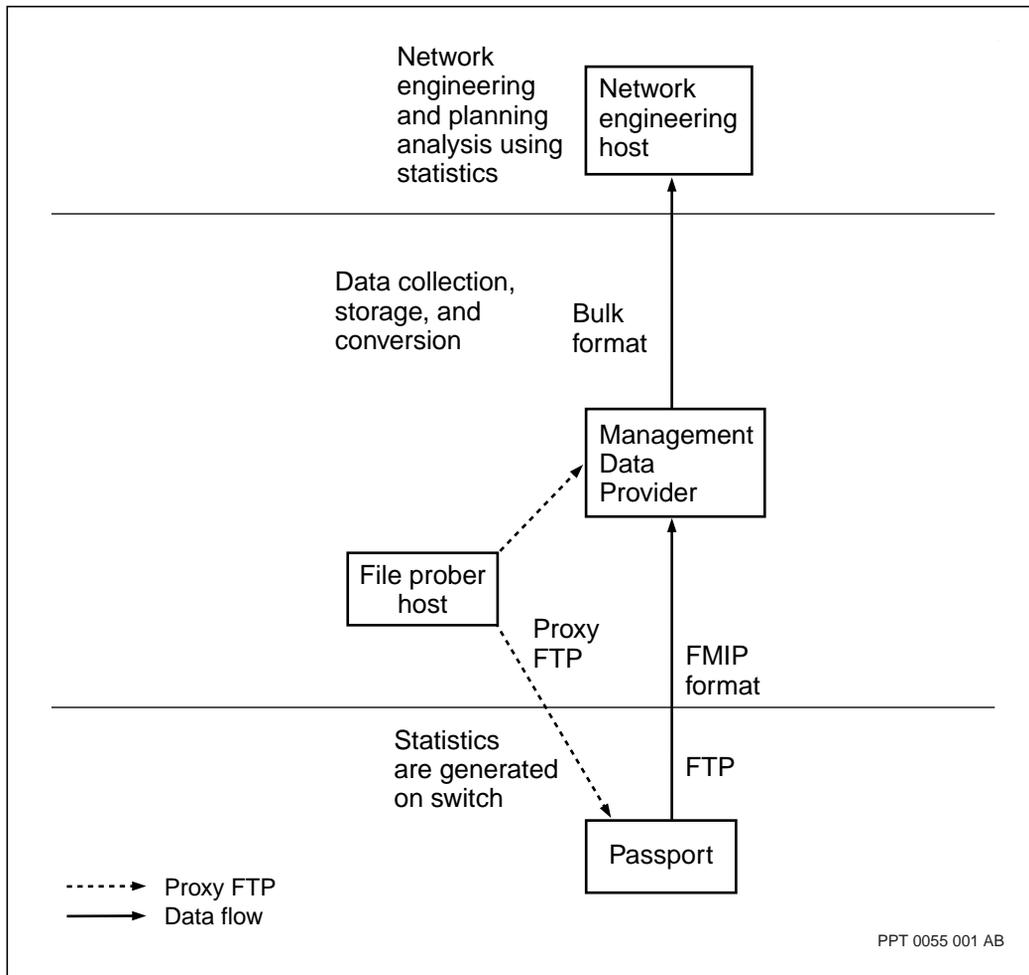
The file prober host is a scheduled UNIX cron job that transfers data from Passport to a storage site. The file prober transfers closed statistics files to the MDP spool directory using proxy file transfer protocol (FTP). A file, stored in your local home directory on the file prober host, logs the session. By default, if the file transfer is successful, the file prober host deletes the closed statistics files from the Passport node.

The MDP retrieves and converts Passport statistics data before transferring it to the network engineering host. The MDP receives the statistics from Passport in file management information protocol (FMIP) format and converts them into bulk format (a form of ASCII/EBCDIC) before storing them.

Once the MDP has converted and stored the collected data, it transfers the data to the network engineering host. The network engineering host uses Passport statistics data for network engineering and planning analysis.

The figure “Network statistics flow” (page 58) shows the flow of statistics through the system.

Figure 12
Network statistics flow



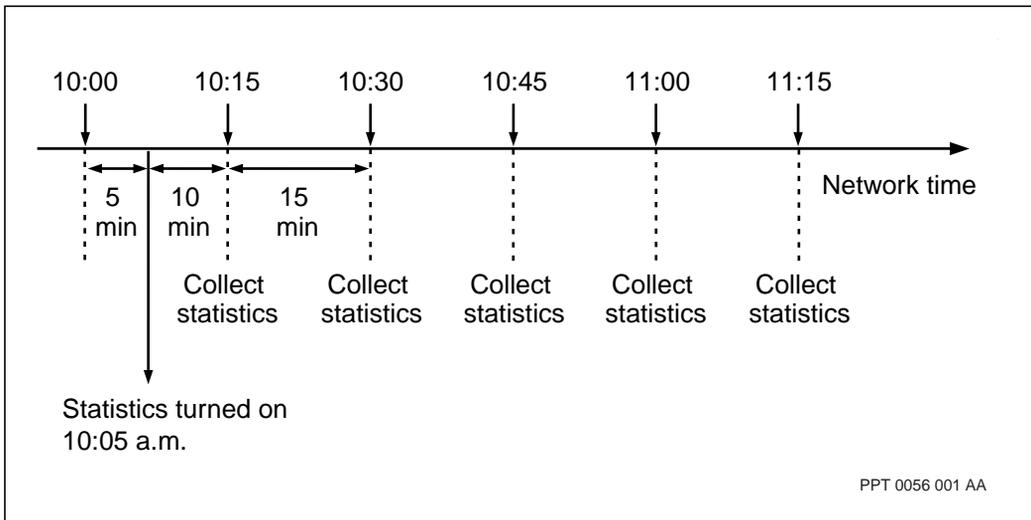
Note: The file prober and the MDP hosts can coexist on the same workstation, provided the workstation has sufficient resources and network connectivity.

Collection times

The Passport system collects statistics every 15 minutes, starting on the hour. The collection times are synchronized with network time (Coordinated Universal Time) throughout a Passport network. The figure “Collection times of Passport statistics” (page 59) illustrates the collection times.

When statistics collection begins, the first collection interval can be less than 15 minutes. For example, if statistics collection begins at 10:05 a.m., at 10:15 a.m. the Passport system collects statistics for the time interval between 10:00 a.m. and 10:15 a.m. After this time, the system collects statistics at 15-minute intervals.

Figure 13
Collection times of Passport statistics



Real-time statistics

Real-time statistics cannot be spooled to a disk. They are requested through the network management interface system (NMIS), local operator, telnet, or FMIP sessions. The DCS collects the values of particular attributes and sends them to the NMIS, local operator, telnet, or FMIP sessions that have requested them.

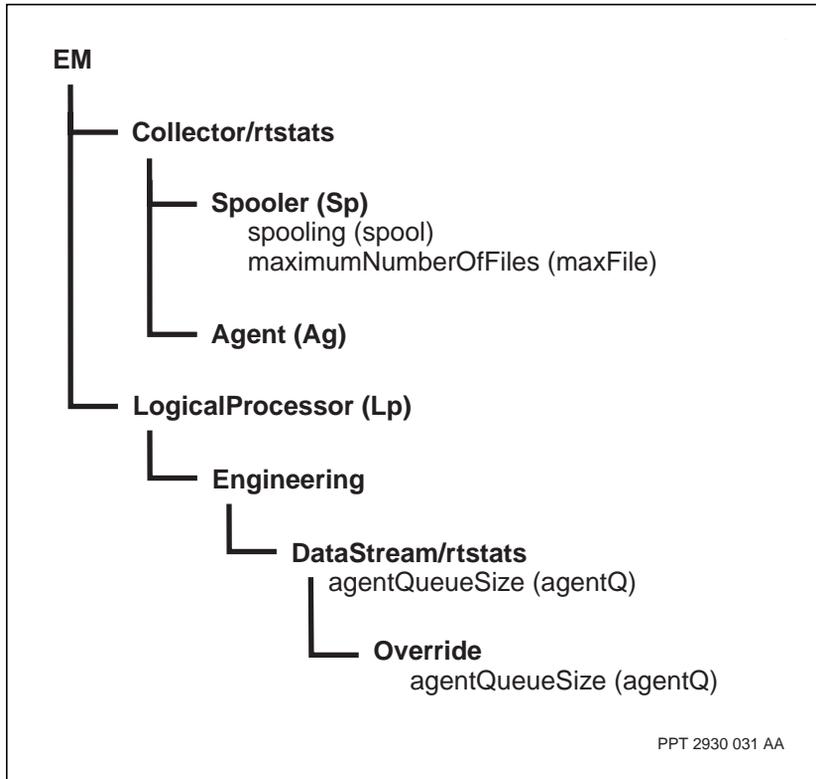
By default, the data collection system (DCS) does not collect real-time statistics data. The maximum agent queue size for real-time statistics data is set to 0 (zero), which causes the agent to discard this type of data. The enabling of the real-time statistics data collection is usually part of the initial installation of the Passport switch. If you need to reset the maximum agent queue size for real-time statistics data for a logical processor after its been enabled as part of a troubleshooting procedure, use the agent queue size value for the *rtstats* attribute to determine the maximum number of performance measurement records in the queue.

Real-time statistics are defined for specific use in the Passport for Succession VToA context. Thus, allowing the collection of such data on the Passport 15000 is always done in conjunction with the MDM application, PMSP, and any other application processing real-time statistics data (on both the SDM and the network management application layer).

Note: Synonymous terms for real-time statistics include “Network Traffic Management” (NTM), and “performance measurements” (PMs).

The figure “Real-time statistics collection components and attributes” (page 61) illustrates the data collection components and attributes that collect Passport real-time statistics. The document 241-5701-060 *Passport 7400, 15000, 20000 Components* contains a description of each component and identifies whether or not Passport generates a record for it.

Figure 14
Real-time statistics collection components and attributes



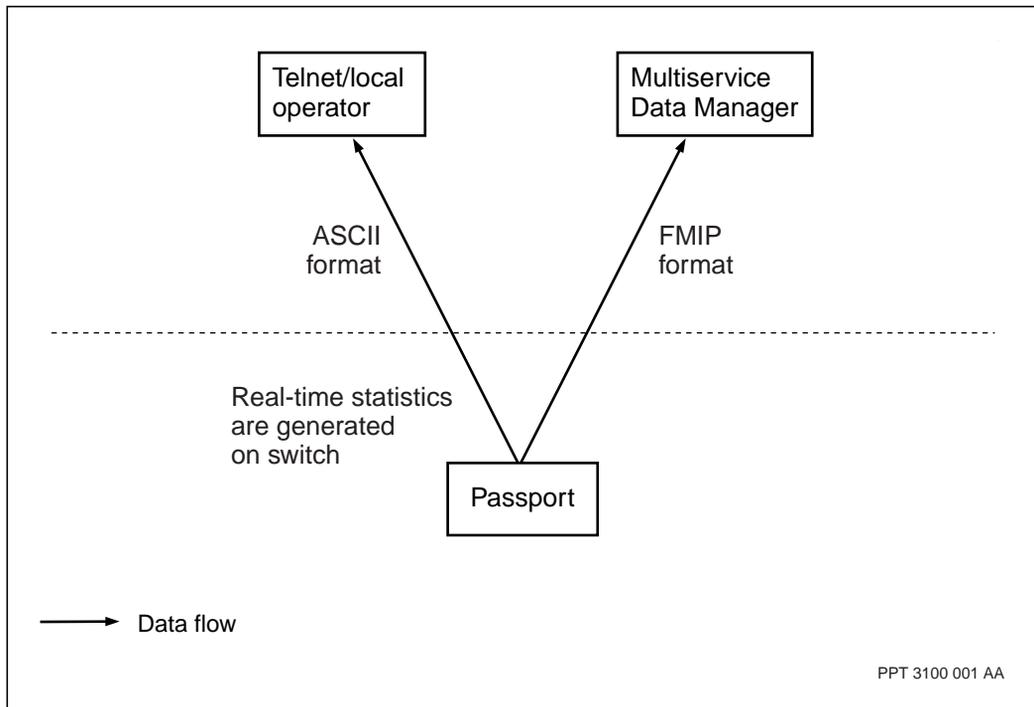
Collection process

Passport network planning and engineering real-time statistics flow through the DCS to the NMIS, local operator, telnet, or FMIP sessions, which can request them.

The figure “Network real-time statistics flow” (page 62) shows the flow of real-time statistics through the system.

Note: Synonymous terms for real-time statistics include “Network Traffic Management” (NTM), and “performance measurements” (PMs).

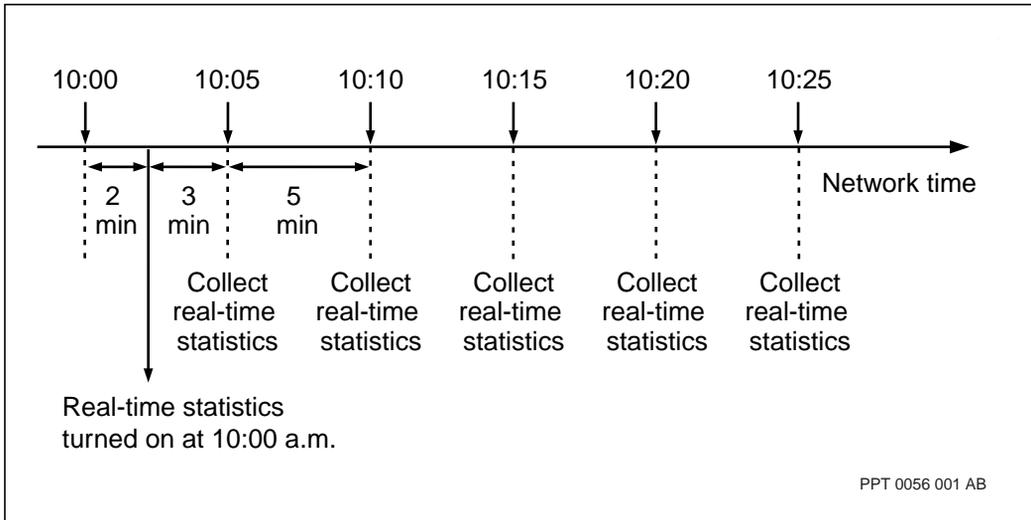
Figure 15
Network real-time statistics flow



Collection times

The Passport system collects real-time statistics every 5 minutes, starting on the hour. The collection times are synchronized with network time (UTC) throughout a Passport network. The figure “Collection times of Passport real-time statistics” (page 63) illustrates the collection times.

Figure 16
Collection times of Passport real-time statistics



Collected statistics and real-time statistics records

At a predetermined time, Passport generates a statistics and real-time statistics record for each component that has statistics and real-time statistics. Each statistics and real-time statistics record contains the following information:

- name of the component
- customer ID of the component
- date and time
- statistics for the component

The statistics and real-time statistics collected for a component depend on the component. For example, the statistics collected for each *Lp* component include:

- cardNumber
- cardStatus
- cpuUtilAvg

- `cpuUtilAvgMin`
- `cpuUtilAvgMax`

You can find detailed information about the statistics collected in the statistics record for each type of component in 241-5701-060 *Passport 7400, 15000, 20000 Components*.

Note: Synonymous terms for real-time statistics include “Network Traffic Management” (NTM), and “performance measurements” (PMs).

Spooled statistics records

Statistics records spool to the statistics files on the Passport disk. These files are in a directory structure similar to other types of spooled data. Each statistics record contains statistics data for one component. Spooled statistics files close at midnight each day and whenever:

- a file is larger than 500 kbytes
- the statistics spooler receives a `newFile Col Sp` command
- the active control processor (CP) resets, restarts, or reboots
- the file system service is disrupted (for example, the file system is in a locked state)

Note: Real-time statistics cannot be spooled.

Passport 7400, 15000, 20000 Data Collection Guide

Release 5.2

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Publication: 241-5701-611
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

