

IBM® Tivoli® Netcool/OMNIbus Probe for
Nortel Preside EAI
4.0

Reference Guide
May 3, 2013



Note

Before using this information and the product it supports, read the information in [Appendix A, “Notices and Trademarks,”](#) on page 11.

Edition notice

This edition (SC23-7897-03) applies to version 4.0 of IBM Tivoli Netcool/OMNIbus Probe for Nortel Preside External Alarm Interface (EAI) and to all subsequent releases and modifications until otherwise indicated in new editions.

This edition replaces SC23-7897-02.

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Document control page

Use this information to track changes between versions of this guide.

The IBM Tivoli Netcool/OMNIBus Probe for Nortel Preside External Alarm Interface (EAI) documentation is provided in softcopy format only. To obtain the most recent version, visit the IBM® Tivoli® Information Center:

http://publib.boulder.ibm.com/infocenter/tivihelp/v8r1/index.jsp?topic=/com.ibm.tivoli.nam.doc/welcome_ptsm.htm

Table 1. Document modification history		
Document version	Publication date	Comments
SC23-7897-01	December 31, 2008	First IBM publication.
SC23-7897-02	March 31, 2011	Installation section replaced by “Installing probes” on page 2.
SC23-7897-03	May 3, 2013	Property name corrected in “Properties and command line options” on page 4.

Chapter 1. Probe for Nortel Preside EAI

The IBM Tivoli Netcool/OMNIBus Probe for Nortel Preside External Alarm Interface (EAI) is used to connect Nortel Preside element managers.

This guide contains the following sections:

- “Summary” on page 1
- “Installing probes” on page 2
- “Data acquisition” on page 2
- “Properties and command line options” on page 4
- “Elements” on page 6
- “Error messages” on page 9

Summary

Each probe works in a different way to acquire event data from its source, and therefore has specific features, default values, and changeable properties. Use this summary information to learn about this probe.

The following table provides a summary of the Probe for Nortel Preside EAI.

Table 2. Summary	
Probe target	Nortel Optical Network Manager (ONM) Applications Platform Release 11 (which contains the EAI interface)
Probe executable name	nco_p_nortel_eai
Package version	4.0
Probe supported on	For details of supported operating systems, see the following Release Notice on the IBM Software Support Website: https://www-304.ibm.com/support/docview.wss?uid=swg21412112
Properties file	\$OMNIHOME/probes/arch/nortel_eai.props
Rules file	\$OMNIHOME/probes/arch/nortel_eai.rules
Requirements	A currently supported version of IBM Tivoli Netcool/OMNIBus
Connection method	TCP/IP
Remote connectivity	The Probe for Nortel Preside EAI can connect to a device on a remote host. Details of the remote host are specified using the Host and Port properties in the properties file.
Multicultural support	Not Available
Peer-to-peer failover functionality	Available

Table 2. Summary (continued)	
IP environment	IPv4 and IPv6 The probe is supported on IPv6 when running on IBM Tivoli Netcool/OMNIBus V7.3.0, 7.3.1 and 7.4.0 on all UNIX and Linux operating systems.
Federal Information Processing Standards (FIPS)	IBM Tivoli Netcool/OMNIBus uses the FIPS 140-2 approved cryptographic provider: IBM Crypto for C (ICC) certificate 384 for cryptography. This certificate is listed on the NIST website at http://csrc.nist.gov/groups/STM/cmvp/documents/140-1/1401val2004.htm. For details about configuring Netcool/OMNIBus for FIPS 140-2 mode, see the <i>IBM Tivoli Netcool/OMNIBus Installation and Deployment Guide</i>.

Installing probes

All probes are installed in a similar way. The process involves downloading the appropriate installation package for your operating system, installing the appropriate files for the version of Netcool/OMNIBus that you are running, and configuring the probe to suit your environment.

The installation process consists of the following steps:

1. Downloading the installation package for the probe from the Passport Advantage Online website.

Each probe has a single installation package for each operating system supported. For details about how to locate and download the installation package for your operating system, visit the following page on the IBM Tivoli Knowledge Center:

http://www-01.ibm.com/support/knowledgecenter/SSSHTQ/omnibus/probes/all_probes/wip/reference/install_download_intro.html

2. Installing the probe using the installation package.

The installation package contains the appropriate files for all supported versions of Netcool/OMNIBus. For details about how to install the probe to run with your version of Netcool/OMNIBus, visit the following page on the IBM Tivoli Knowledge Center:

http://www-01.ibm.com/support/knowledgecenter/SSSHTQ/omnibus/probes/all_probes/wip/reference/install_install_intro.html

3. Configuring the probe.

This guide contains details of the essential configuration required to run this probe. It combines topics that are common to all probes and topics that are peculiar to this probe. For details about additional configuration that is common to all probes, see the *IBM Tivoli Netcool/OMNIBus Probe and Gateway Guide*.

Data acquisition

Each probe uses a different method to acquire data. Which method the probe uses depends on the target system from which it receives data.

The Probe for Nortel Preside EAI is a unidirectional interface that resynchronizes historical data with the element manager at configurable intervals. The Nortel EAI sends the probe all network events and network element messages in real time. The probe processes these events and forwards them to the ObjectServer.

Data acquisition is described in the following topics:

- [“Peer-to-peer failover functionality” on page 3](#)
- [“Probe operation” on page 3](#)

- [“Hash tables” on page 4](#)
- [“EAI target failover processing” on page 4](#)

Peer-to-peer failover functionality

The probe supports failover configurations where two probes run simultaneously. One probe acts as the master probe, sending events to the ObjectServer; the other acts as the slave probe on standby. If the master probe fails, the slave probe activates.

While the slave probe receives heartbeats from the master probe, it does not forward events to the ObjectServer. If the master probe shuts down, the slave probe stops receiving heartbeats from the master and any events it receives thereafter are forwarded to the ObjectServer on behalf of the master probe. When the master probe is running again, the slave probe continues to receive events, but no longer sends them to the ObjectServer.

Example property file settings for peer-to-peer failover

You set the peer-to-peer failover mode in the properties files of the master and slave probes. The settings differ for a master probe and slave probe.

Note : In the examples, make sure to use the full path for the property value. In other words replace \$OMNIHOME with the full path. For example: /opt/IBM/tivoli/netcool.

The following example shows the peer-to-peer settings from the properties file of a master probe:

```
Server      : "NCOMS"
RulesFile   : "master_rules_file"
MessageLog  : "master_log_file"
PeerHost    : "slave_hostname"
PeerPort    : 6789 # [communication port between master and slave probe]
Mode        : "master"
PidFile     : "master_pid_file"
```

The following example shows the peer-to-peer settings from the properties file of the corresponding slave probe:

```
Server      : "NCOMS"
RulesFile   : "slave_rules_file"
MessageLog  : "slave_log_file"
PeerHost    : "master_hostname"
PeerPort    : 6789 # [communication port between master and slave probe]
Mode        : "slave"
PidFile     : "slave_pid_file"
```

Probe operation

The probe connects to the Nortel EAI as a TCP/IP client. If the connection fails or if the connection is not made within the time specified by the **ConnectionTimeout** property, the probe waits for the amount of time specified by the **PauseTime** property before trying the connection again.

Once connected, the probe waits for the first heartbeat message from the interface. It expects to receive the first heartbeat within the time specified by the **EAIHeartbeatTimeout** property. If the probe does not receive a heartbeat message within this time, it disconnects from the interface, waits for the time specified by the **PauseTime** property and reconnects to the interface. If the probe receives the first heartbeat message within this time, it then waits to receive subsequent heartbeat messages. If the **EAIHeartbeatTimeout** property is set to 0, the probe does not wait for the first heartbeat message from the interface.

After receiving the first heartbeat, the probe expects to receive either a new alarm or a heartbeat message within the time specified by the **EAIHeartbeatInterval** property. If the probe does receive an alarm or a heartbeat message within this time, it restarts the connection to the interface or starts failover processing. You can control the number of times the probe restarts the connection using the

RestartOnIdleTimeout property. If this property is set to 0, the probe makes unlimited attempts to reconnect to the interface. If this property is set to 1, the probe disconnects from the interface and does not attempt to reconnect. If this property is set to a value greater than 1, the probe makes this number of reconnection attempts (minus one) to the device before exiting.

Note : You cannot place logs on an NFS mounted file system.

Hash tables

When the probe receives raise and clear alarms for network elements, it adds the corresponding type, name, and shelf type for the network element to the alarm data. This data comes from a lookup hash table that is populated from data in the network element enrollment alarms. As a key to this lookup table, the probe uses a concatenation of the IP address, type identifier, and network element identifier. You can specify the maximum size of the hash table that the probe uses to store this information by setting the **HashTableSize** property.

EAI target failover processing

The Probe for Nortel Preside EAI allows for failover processing between the primary Nortel Preside server and a failover server. This functionality is configured using the **EAIRestartOnIdleTimeout**, **EAITargetFailover**, **EAITargetFailoverPort** and **EAITargetFailoverHost** properties. If the probe fails to receive a heartbeat from the primary server for the number of times specified by the **EAIRestartOnIdleTimeout** property and the **EAITargetFailover** property is set to 1, the probe automatically disconnects from the primary Nortel Preside server and connects instead to the backup server specified by the **EAITargetFailoverHost** and **EAITargetFailoverPort** properties.

Note : If the **EAIRestartOnIdleTimeout** property is set to 0, the probe will wait indefinitely for heartbeats from the primary server regardless of the setting of the **EAITargetFailover** property.

Properties and command line options

You use properties to specify how the probe interacts with the device. You can override the default values by using the properties file or the command line options.

The following table describes the properties and command line options specific to this probe. For information about default properties and command line options, see the *IBM Tivoli Netcool/OMNIBus Probe and Gateway Guide*, (SC14-7530).

Table 3. Properties and command line options		
Property name	Command line option	Description
ConnectionTimeout <i>integer</i>	<code>-connectiontimeout</code> <i>integer</i>	Use this property to specify the time (in seconds) the probe waits without response before considering a connection unsuccessful. The default is 10.
EAIHeartbeat Interval <i>integer</i>	<code>-eaiheartbeat interval</code> <i>integer</i>	Use this property to specify the time (in seconds) within which the probe expects to receive a heartbeat message if it has received no alarms. The default is 70.

Table 3. Properties and command line options (continued)

Property name	Command line option	Description
EAIHeartbeat Timeout <i>integer</i>	-eaiheartbeat timeout <i>integer</i>	Use this property to specify the time (in seconds) within which the probe expects to receive the first heartbeat message from the interface. The default is 5.
EAIRestartOnIdle Timeout <i>integer</i>	-eairestartonidle timeout <i>integer</i>	Use this property to indicate the number of successive heartbeats that the probe fails to receive from the interface before exiting: 0: The probe receives unlimited heartbeats. 1: The probe receives no heartbeats. >1: The number of heartbeats (minus 1) that the probe receives. The default is 1.
EAIResyncInterval <i>integer</i>	-eairesyncinterval <i>integer</i>	Use this property to specify the time (in seconds) that the probe waits before sending a resynchronization request. The default is 86400. Note : If this property is set to 0, the probe never sends a resynchronization request.
EAITargetFailover <i>integer</i>	-eaitargetfailover <i>integer</i>	Use this property to specify whether the probe attempts to connect to the failover server if the number of missed heartbeats specified by the EAIRestartOnIdleTimeout is exceeded: 0: The probe never attempts to connect a failover server. 1: The probe attempts to connect to the failover server if the primary server becomes idle and the EAIRestartOnIdleTimeout property is set to a value greater than 0. The default is 1.
EAITargetFailover Host <i>string</i>	-eaitargetfailover hostname <i>string</i>	Use this property to specify the name of the failover host to which the probe connects if the Failover property is set to 1. The default is "".

Table 3. Properties and command line options (continued)

Property name	Command line option	Description
EAITargetFailover Port <i>integer</i>	<code>-eaitargetfailover portnumber integer</code>	Use this property to specify the port to which the probe connects on the remote server if the Failover property is set to 1. The default is 30005.
HashTableSize <i>integer</i>	<code>-hashtablesizes integer</code>	Use this property to specify the maximum size of the hash table that the probe uses to locate entries in the lookup tables. The default is 5013.
HostName <i>string</i>	<code>-host string</code>	Use this property to specify the name of the host to which the probe connects. The default is localhost.
PauseTime <i>integer</i>	<code>-pausetime integer</code>	Use this property to specify the time (in seconds) that the probe waits before attempting to reconnect to the system. The default is 10.
PortNumber <i>integer</i>	<code>-portnumber integer</code>	Use this property to specify the port to which the probe connects on the remote server. The default is 30005.

Elements

The probe breaks event data down into tokens and parses them into elements. Elements are used to assign values to ObjectServer fields; the field values contain the event details in a form that the ObjectServer understands.

The elements that the Probe for Nortel Preside EAI generates depends on the type of message sent by the EAI. The EAI sends the following message types:

- `enroll_ne`: Generated when network elements are enrolled in the Nortel EAI system
- `ne_name`: Generated when a network element has been renamed
- `ne_type`: Generated when the type of a network element has changed
- `raise_alarm`: Generated when an alarm has been generated for a network element
- `clear_alarm`: Generated when an alarm has been cleared
- `alarm_ak`: Generated when an alarm has been acknowledged

The elements that the probe generates for each message type are described in the following topics:

- [“Elements common to all message types” on page 7](#)
- [“Elements generated for enroll_ne messages” on page 7](#)
- [“Elements generated for ne_name messages” on page 7](#)
- [“Elements generated for clear_alarm and alarm_ak messages” on page 8](#)
- [“Elements generated for raise_alarm messages” on page 8](#)

Elements common to all message types

The following table describes the elements that the Probe for Nortel Preside EAI generates for all message types.

<i>Table 4. Elements common to all message types</i>	
Element name	Element description
\$Additional_Text	This element contains the data that remains after a message has been tokenized, if the probe parses a message that contains too many fields.
\$Ec_ip_addr	This element displays the IP address of the external computer.
\$Ec_type	This element displays the type of external computer.
\$Msg_type	This element displays the type of message.
\$Ne_id	This element displays identifier of the network element.

Elements generated for enroll_ne messages

The following table describes the elements that the Probe for Nortel Preside EAI generates for enroll_ne messages.

<i>Table 5. Elements generated for enroll_ne messages</i>	
Element name	Element description
\$Comms	This element indicates whether communication to the node is currently active.
\$Ne_name	This element displays the name of the network element.
\$Ne_type	This element displays the type of network element.
\$Shelf_type	This element displays the identifier of the shelf type.
\$Tx_rate	This element displays the transmission rate of the network element.

Elements generated for ne_name messages

The following table describes the elements that the Probe for Nortel Preside EAI generates for ne_name messages.

<i>Table 6. Elements generated for ne_name messages</i>	
Element name	Element description
\$Ne_name	This element displays the name of the network element.

Elements generated for ne_type messages

The following table describes the elements that the Probe for Nortel Preside EAI generates for ne_type messages.

Table 7. Elements generated for ne_type messages	
Element name	Element description
\$Ne_type	This element displays the type of network element.

Elements generated for clear_alarm and alarm_ak messages

The following table describes the elements that the Probe for Nortel Preside EAI generates for clear_alarm and alarm_ak messages.

Table 8. Elements generated for clear_alarm and alarm_ak messages	
Element name	Element description
\$Alarm_id	This element displays the identifier of the alarm.

Elements generated for raise_alarm messages

The following table describes the elements that the Probe for Nortel Preside EAI generates for raise_alarm messages.

Table 9. Elements generated for raise_alarm messages	
Element name	Element description
\$Ack_alarm	This element indicates whether the alarm has been acknowledged.
\$Alarm_id	This element displays the identifier of the alarm.
\$Alarm_impact	This element displays the impact of the fault causing the alarm.
\$Alarm_type	This element displays the type of alarm.
\$Clfi	This element displays the Common Language Facility Identifier (CLFI) for facility alarms.
\$Frame_id	This element displays the identifier for the frame that contains the network element.
\$Frame_name	This element displays the name of the frame that contains the network element.
\$Prov_change	This element indicates whether the alarm is due to a change in provisioning.
\$Reason_text	This element displays the description of the alarm defined by the network element.

Table 9. Elements generated for raise_alarm messages (continued)	
Element name	Element description
\$Secondary_cpg	This element displays the secondary equipment associated with the alarm.
\$Severity	This element displays the severity of the alarm.
\$Shelf_id	This element displays the identifier for the shelf that contains the network element.
\$Shelf_posn	This element displays the position of the network element on the shelf.
\$Slot	This element displays the slot numbers for the cards associated with the alarm.
\$Subslot	This element displays the subslot numbers for the cards associated with the alarm.
\$Thold_count	This element contains the actual value of the measure that has exceeded the threshold for threshold-crossing alarms.
\$Thold_setting	This element contains the threshold that has been exceeded for threshold-crossing alarms.
\$Thold_x	This element indicates whether the alarm is a threshold-crossing alarm.
\$Time	This element displays the time of the alarm.
\$Unit_id	This element displays the identification information about the network element.

Error messages

Error messages provide information about problems that occur while running the probe. You can use the information that they contain to resolve such problems.

The following table describes the error messages specific to this probe. For information about generic error messages, see the *IBM Tivoli Netcool/OMNIBus Probe and Gateway Guide*, (SC14-7530).

Table 10. Error messages		
Error	Description	Action
Failed to connect - <i>string</i>	The ObjectServer appears to be unavailable.	Check that the ObjectServer is running, that the interfaces file on the system where the probe is installed has an entry for it, and that there is no networking problem between the two systems.

Table 10. Error messages (continued)

Error	Description	Action
Failed to create and set element \$(element) - <i>name</i>	The probe is unable to create an element.	Contact IBM Support.
Failed to create network element hash table of size <i>bytes</i> entries	There is not enough memory available.	Make more memory available.
Failed to initialize - <i>string</i> Failed to read from socket - <i>string</i> Failed to send event to the ObjectServer - <i>string</i> Session create failed - <i>string</i> Failed to create network element hash table of size <i>number</i> elements	This is an internal error.	Contact IBM Support.
Failed to process event - <i>string</i>	The probe was unable to process the alert against the rules file.	Contact IBM Support.
Failed to read from socket Failed to select socket for reading	This is an internal error.	Contact IBM Support.

Appendix A. Notices and Trademarks

This appendix contains the following sections:

- Notices
- Trademarks

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