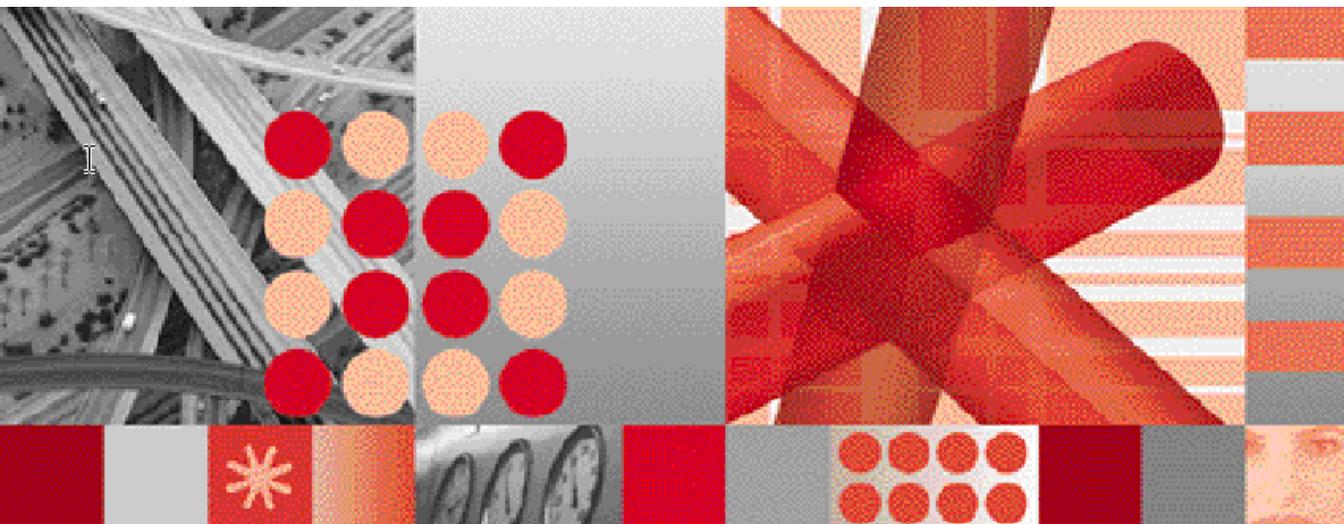


4.0.3066



Reference Guide

Publication Date: June 20, 2007



Note

Before using this information and the product it supports, read the information in Appendix A. "Notices" on page 19.

This edition applies to 4.0.3066 of Netcool/OMNIbus Probe for Ericsson OSS-RC (SC23-7664-00) and to all subsequent releases and modifications until otherwise indicated in new editions.

This edition replaces SC23-6023-00.

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Document control page

The Netcool/OMNIbus Probe for Ericsson OSS-RC documentation is provided in softcopy format only. To obtain the most recent version, visit the IBM Tivoli Netcool Information Center:

<http://publib.boulder.ibm.com/infocenter/tivihelp/v8r1/index.jsp>

Table 1. *Document modification history*

Document version	Publication date	Comments
SC23-6023-00	March 16, 2007	First IBM publication.
SC23-7664-00	June 20, 2007	Patch version and release updated. Resynch property added.

Probe for Ericsson OSS-RC

The Ericsson Operation and Support System-Radio and Core (OSS-RC) is an element manager for the Ericsson 3G core network. The Probe for Ericsson OSS-RC connects to Ericsson OSS-RC versions 2.x, 3.x, 4.x, RANOS, and CNOSS using the 3GPP standard CORBA interface.

This probe supports 3GPP version 3.2.0.

This guide contains the following sections:

- *Summary*
- *Supported platforms*
- *Basic configuration*
- *Data acquisition*
- *Properties and command line options*
- *Elements*
- *Error messages*
- *ProbeWatch messages*

Summary

Table 2 provides a summary of the Probe for Ericsson OSS-RC.

Table 2. *Summary*

Probe target	Ericsson OSS-RC version 2.x, 3.x, 4.x, RANOS, and CNOSS
Probe executable name	nco_p_ericsson_oss_rc
Patch number	4.3
Probe supported on	Solaris, HP-UX
Properties file	\$OMNIHOME/probes/arch/ericsson_oss_rc.props
Rules file	\$OMNIHOME/probes/arch/ericsson_oss_rc.rules
Requirements	<p>A currently supported version of IBM Tivoli Netcool/OMNIBus.</p> <p>Java JRE 1.5</p> <p>probe-compatibility-3.x (for IBM Tivoli Netcool/OMNIBus 3.6 only)</p> <p>probe-nonnative-base-1_0</p> <p>probe-visibroker-support</p> <p>Note: The Visibroker patch is not available on the support site. To obtain this patch, you must contact IBM Technical Support.</p>
Connection method	CORBA
Remote connectivity	Yes
Licensing	Electronic licensing is no longer implemented in IBM Tivoli products. All IBM Tivoli products now use the IBM software licensing process.
Internationalization	Not available
Peer-to-peer failover functionality	Available
IP environment	IPv4 and IPv6

Supported platforms

For details of the versions of Solaris, and HP-UX on which this probe is supported, see the following page on the IBM Tivoli Netcool Information Center:

http://publib.boulder.ibm.com/infocenter/tivihelp/v8r1/index.jsp?topic=/com.ibm.netcool_OMNIBus.doc/Supported_Platforms.htm

Basic configuration

This section describes the basic configuration requirements for the Probe for Ericsson OSS-RC.

Installation requirements

Before running the probe, you must install the JDK 1.5 runtime libraries and the latest IBM Tivoli Netcool OMNIBus patches in the following order:

1. `probe-nonnative-base-1_0`
2. `probe-visibroker-support`



Note: These patches are available from the IBM Tivoli Netcool Information Center, with the exception of the VisiBroker patch. To obtain the VisiBroker patch, you must contact IBM Support.

Updating the rules file

The Probe for Ericsson OSS-RC is supplied with a lookup table (`Corba_3gpp_V320.lookup`). This file is installed in the following location:

```
$OMNIHOME/probes/includes/
```

This file is referenced in the rules file by the following command:

```
include "../includes/Corba_3gpp_V320.lookup"
```



Note: `$OMNIHOME` cannot be used in the paths to the lookup files. You must enter the full path to the IBM Tivoli Netcool/OMNIBus installation directory.

Data acquisition

The Probe for Ericsson OSS-RC connects to Ericsson OSS-RC through a Common Object Request Broker Architecture (CORBA) interface. CORBA is an Object Management Group specification that provides a standard interface definition between objects in a distributed environment; that is, it allows applications to communicate with one another regardless of where they are located or who has designed them.

The Probe for Ericsson OSS-RC 3GPP connects to the system through a CORBA interface. It is in compliance with the following 3GPP standards:

- TS 32.300 v4.1.1 Name Convention for Managed Objects (Release 4)
- TS 32.111-2 v3.2.0 Information Service (Release 99)
- TS 32.111-3 v3.2.0 Corba Solution Set (Release 99)

Connecting to the CORBA interface

There are two methods that the probe can use to connect to the Ericsson OSS-RC: using Interoperable Object Reference (IOR) files or using the Naming Service.

Using IOR files

If using IOR files, the probe gets the object reference of the AlarmIRPOperation and NotificationIRPOperation objects from the Interoperable Object Reference (IOR) files specified by the AlarmirpFile and NotificationirpFile properties, respectively. The AlarmIRPOperation and NotificationIRPOperation servers form a part of the IRP agent.

Using a naming service

If the AlarmirpFile and NotificationirpFile properties are not specified, the probe gets the object references of the AlarmIRPOperation and NotificationIRPOperation servers from the Naming Service. To locate the Naming Service, the probe either uses the NameServiceHost and NSPort properties to identify the host name and port number of the Naming Service, or uses the IOR file specified by the NSIORfile property.

The Naming Service uses the values specified by the Alarmirp and Notificationirp properties to get the object references to the IRP objects.

Retrieving objects

The probe initially receives a list of all active alarms from the AlarmIRPOperation server. The probe then connects to the NotificationIRPOperation server and uses the CORBA notification push model to receive new alarms from the server as they are generated.

Status checking

The probe checks the status of the IRP agent every 60 seconds. You can change this frequency if required using the `Agentheartbeat` property.

Filtering notifications and alarms

The `NotificationFilter` and `AlarmFilter` properties allow you to specify what notifications and alarms are sent to the probe. When you use these properties, you must use the actual token names. For example, the token `h` represents the element `NV_PERCEIVED_SEVERITY`; so, to specify that the probe is only sent notifications with a perceived severity of 3, you must set the `NotificationFilter` property to `$h == 3`.

To specify that the probe is only sent notifications for a specific managed element, set the `NotificationFilter` property to `'Managed_Node_Name' ~ $f` where `$f` represents the element `NV_MANAGED_OBJECT_INSTANCE` and `Managed_Node_Name` is the name of the managed object. For example, if the set of alarms that you require return an `NV_MANAGED_OBJECT_INSTANCE` of `SubNetwork=ONRM_RootMo, SubNetwork=SNMP, ManagedElement=SP1`, set the `NotificationFilter` property to `'SP1' ~ $f`.



Note: The tilde character (`~`) is required because spaces cannot be entered in this property. For string comparisons, the first argument is considered to be contained in the second argument; which is why `$f` is listed second to the literal.

You can specify more complex filters using `and` and `or` statements; for example, to specify that the probe is sent notifications with a perceived severity of 3 or 4, you must set the `NotificationFilter` property to `$h == 3 or $h == 4`.

Table 3 displays the token mappings for use with the `AlarmFilter` and `NotificationFilter` properties.

Table 3. *Token mappings (1 of 2)*

Element	Token
<code>NV_NOTIFICATION_ID</code>	<code>a</code>
<code>NV_CORRELATED_NOTIFICATIONS</code>	<code>b</code>
<code>NV_EVENT_TIME</code>	<code>c</code>
<code>NV_SYSTEM_DN</code>	<code>d</code>
<code>NV_MANAGED_OBJECT_CLASS</code>	<code>e</code>
<code>NV_MANAGED_OBJECT_INSTANCE</code>	<code>f</code>
<code>NV_PROBABLE_CAUSE</code>	<code>g</code>
<code>NV_PERCEIVED_SEVERITY</code>	<code>h</code>
<code>NV_SPECIFIC_PROBLEM</code>	<code>i</code>
<code>NV_ADDITIONAL_TEXT</code>	<code>j</code>
<code>NV_ALARM_ID</code>	<code>k</code>

Table 3. *Token mappings (2 of 2)*

Element	Token
NV_ACK_USER_ID	l
NV_ACK_TIME	m
NV_ACK_SYSTEM_ID	n
NV_ACK_STATE	o
NV_BACKED_UP_STATUS	p
NV_BACK_UP_OBJECT	q
NV_THRESHOLD_INFO	r
NV_TREND_INDICATION	s
NV_STATE_CHANGE_DEFINITION	t
NV_MONITORED_ATTRIBUTES	u
NV_PROPOSED_REPAIR_ACTIONS	v
NV_REASON	w

Command line interface

The Probe for Ericsson OSS-RC is supplied with a Command Line Interface (CLI). This interface allows you to perform commands using the probe (for example, to acknowledge alarms or to request a full resynchronization of the CORBA interface).

To use the CLI, you must use the `CommandPort` property in the properties file to specify a port through which commands will be sent. When you want to perform commands, telnet to this port. Table 4 describes the commands that you can use with the Command Line Interface.

Table 4. *CLI commands (1 of 2)*

Command	Description
<code>acknowledge_alarm</code>	Allows you to acknowledge an alarm in the 3GPP interface. Note: This command takes as a parameter the <code>NV_ALARM_ID</code> of the alarm being acknowledged. Only one alarm can be acknowledged at a time. This command also uses the values specified by the <code>AckSystemId</code> and <code>AckUserId</code> properties in the properties file.
<code>help</code>	Displays online help about the CLI.
<code>resynch_all</code>	Allows you to perform a full resynchronization with the 3GPP interface.

Table 4. CLI commands (2 of 2)

Command	Description
<code>resynch_filter</code>	Allows you to perform partial resynchronization with the 3GPP interface. Note: This command takes as a parameter a filter in the same format as the <code>AlarmFilter</code> property. For details, see "Filtering notifications and alarms" on page 5.
<code>unacknowledge_alarm</code>	Allows you to unacknowledge an alarm in the 3GPP interface.
<code>userid_acknowledge_alarm</code>	Allows you to acknowledge an alarm in the 3GPP interface by specifying the <code>NV_ALARM_ID</code> of the alarm being acknowledged and the <code>NV_ACK_USER_ID</code> . The format of the alarm is: <ID> <userID>
<code>userid_unacknowledge_alarm</code>	Allows you to unacknowledge an alarm in the 3GPP interface by specifying the <code>NV_ALARM_ID</code> of the alarm being acknowledged and the <code>NV_ACK_USER_ID</code> .
<code>version</code>	Displays the version of the probe.



Note: Since the CLI is based upon telnet connections, you can connect to the probe from anywhere. This means that simple scripts can be set up to allow users to acknowledge selected events from the IBM Tivoli Netcool/OMNIBus event list by creating desktop tools to telnet to the probe, send a command, and then close the connection.

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; while the other acts as the slave probe on standby. If the master probe fails, the slave probe activates.

Start two instances of the probe, one as `master` and one as `slave`. While the slave probe receives heartbeats from the master probe, it will not forward events to the ObjectServer. If the master shuts down, the slave probe will stop receiving heartbeats from the master and any events it receives thereafter will be forwarded to the ObjectServer on behalf of the master probe. When the master is running again, the slave will continue to receive events, but will no longer send them to the ObjectServer.



Note: If you want to specify multiple hosts using a hosts file, you must ensure that the master and slave probes both specify the same hosts in their respective hosts files.

Example property file settings for peer-to-peer failover

The following settings show the peer-to-peer settings from the properties file of an example master probe:

```
Server      : "NCOMS"
RulesFile   : "master_rules_file"
MessageLog  : "master_log_file"
PeerHost    : "slave_hostname"
PeerPort    : 5555 # [communication port between master and slave probes]
Mode        : "master"
```

The following settings show 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    : 5555 # [communication port between master and slave probes]
Mode        : "slave"
```



Note: The properties files also contains all other properties required to configure the probe.

Properties and command line options

Table 5 describes the properties and command line options specific to this probe. For information about generic probe properties and command line options, see the *IBM Tivoli Netcool/OMNIBus Probe and Gateway Guide (SC23-6387)*.

Table 5. *Properties and command line options (1 of 4)*

Property name	Command line option	Description
AckSystemId <i>string</i>	-acksystemid <i>string</i>	Processing system on which the IRP Manager runs. This is used by the acknowledge_alarm CLI function. The default is "".
AckUserId <i>string</i>	-ackuserid <i>string</i>	Name of the user acknowledging the alarm. This is used by the acknowledge_alarm CLI function. The default is "".
AgentHeartbeat <i>integer</i>	-agentheartbeat <i>integer</i>	Frequency (in seconds) with which the probe checks the status of the IRP agent. The default is 60.

Table 5. Properties and command line options (2 of 4)

Property name	Command line option	Description
AlarmFilter <i>string</i>	-alarmfilter <i>string</i>	Filter the alarm IRP uses to limit the alarms sent to the probe. The default is " ".
Alarmirp <i>string</i>	-alarmirp <i>string</i>	Alarm IRP object reference. The default is com.ericsson.nms.fm_cirpagent.AlarmIRP. Note: The value required for this property is version-specific. To confirm the appropriate value for the version of the device that you are running, you must contact your technical support team or your system administrator. If necessary, a tool can be used that queries the Naming Service. Such tools are available on the Internet.
AlarmirpFile <i>string</i>	-alarmirpfile <i>string</i>	Path to the Alarm IRP object reference. The default is " ".
CommandPort <i>integer</i>	-commandport <i>integer</i>	Port to which users can telnet to communicate with the 3GPP interface using the Command Line Interface (CLI) supplied with the probe. For details about the CLI, see "Command line interface" on page 7. The default is 6970.
CommandPortLimit <i>integer</i>	-commandportlimit <i>integer</i>	Maximum number of telnet connections that can be made to the probe. The default is 10.
DiscardBlankAdd Text <i>string</i>	-discardblankadd text <i>string</i>	Specifies whether the probe discards blank additional line elements. The default is true.
GetFMEError Messages <i>string</i>	-getfmerror messages <i>string</i>	Specifies whether the probe subscribes to Fault Management Error Messages. The default is false.
NameServiceHost <i>string</i>	-nameservicehost <i>string</i>	Host on which the naming service is running. The default is " ".
Notification Filter <i>string</i>	-notification filter <i>string</i>	Filter the notification IRP uses to limit the notifications sent to the probe. The default is " ".

Table 5. Properties and command line options (3 of 4)

Property name	Command line option	Description
Notificationirp <i>string</i>	-notificationirp <i>string</i>	Notification IRP object. The default is com.ericsson.nms.cif.service.NMSNAConsumer. Note: The value required for this property is version-specific. To confirm the appropriate value for the version of the device that you are running, you must contact your technical support team or your system administrator. If necessary, a tool can be used that queries the Naming Service. Such tools are available on the Internet.
Notificationirp File <i>string</i>	-notificationirp file <i>string</i>	Path of the notification IRP IOR file. The default is "".
NSIORfile <i>string</i>	-nsiorfile <i>string</i>	Naming service object reference file. The default is "".
NSPort <i>integer</i>	-nsport <i>integer</i>	Port on which the naming service is running. The default is 0.
ORBLocalPort <i>integer</i>	-orblocalport <i>integer</i>	Port number for the ORB to listen on. The default is 0.
Resynch <i>string</i>	-resynch <i>string</i>	Specifies whether the probe performs a resynchronization at startup: false - probe does not perform a resynchronization true - probe performs a resynchronization The default is false.
Retry <i>string</i>	-retry <i>string</i>	Specifies whether the probe attempts to reconnect to the system following a timeout: false - probe does not attempt to reconnect to the system true - probe attempts to reconnect to the system The default is false.

Table 5. *Properties and command line options (4 of 4)*

Property name	Command line option	Description
<i>Timeout integer</i>	<i>-timeout integer</i>	Time (in seconds) that the probe allows the port to be silent before disconnecting. The default is 0 (probe never disconnects).
<i>TimeTick integer</i>	<i>-timetick integer</i>	Time (in seconds) that Ericsson OSS-RC sessions are kept open. The default is 15.

Elements

Table 6 describes the elements generated by the Probe for Ericsson OSS-RC.

Table 6. *Static elements (1 of 2)*

Element name	Element description
ATTRIBUTE_VALUE(<i>element_name</i>)	Contains the value of an element being monitored. This element is generated dynamically and its content is dependent on the IRPAgent. Note: The <i>element_name</i> part of this element and the next element can be the name of any of the other elements in this table.
ATTRIBUTE_VALUE_CHANGE(<i>element_name</i>)	Indicates managed object attributes whose value changes are being monitored.
DOMAIN_NAME	Domain name from which the notification originated.
EVENT_NAME	Extended event type for this IRP.
EVENT_TYPE	Event type of the notification.
NV_ACK_STATE	Acknowledgement state of the alarm.
NV_ACK_SYSTEM_ID	System ID of the IRP Manager processing the notification.
NV_ACK_TIME	Time at which the user acknowledged the alarm.
NV_ACK_USER_ID	Identifies the last user who has changed the acknowledgement state.
NV_ADDITIONAL_TEXT	Information about the network element from which the alarm originated.
NV_ALARM_ID	Identification information of the alarm as it appears in the alarm list.
NV_BACK_UP_OBJECT	Distinguished Name (DN) of the backup object.
NV_BACKED_UP_STATUS	Identifies whether the object has been backed up.
NV_CORRELATED_NOTIFICATIONS_ <i>notif_ID_Set</i>	Set of notifications to which this notification is considered to be correlated. This element is generated dynamically and its content is dependent on the IRPAgent.
NV_CORRELATED_NOTIFICATIONS_SOURCE	Source of the notification set.
NV_EVENT_TIME	Time at which the event occurred.
NV_MANAGED_OBJECT_INSTANCE	Managed object instance of the network resource.
NV_NOTIFICATION_ID	Identification information of the notification.
NV_PERCEIVED_SEVERITY	Relative level of urgency for operator attention.

Table 6. Static elements (2 of 2)

Element name	Element description
NV_PROBABLE_CAUSE	Provides further information about the probable cause of the alarm.
NV_PROPOSED_REPAIR_ACTIONS	Proposed repair actions associated with the notification.
NV_SPECIFIC_PROBLEM	Further information about the problem to which the notification relates.
NV_SYSTEM_DN	Distinguished name (DN) used to identify the system.
NV_THRESHOLD_INFO	Provides information about a threshold that has been crossed.
NV_TREND_INDICATION	Indicates how an observed condition has changed.
ResynchEvent	Indicates whether the event was obtained by running the resynchronization function (<code>getalarm_list()</code>). Possible values are: <code>false</code> - event was obtained after the probe subscribed to the notification service for real-time alarms <code>true</code> - event was obtained by running the resynchronization function

Error messages

Table 7 describes the error messages specific to this probe. For information about generic error messages, see the *IBM Tivoli Netcool/OMNIBus Probe and Gateway Guide (SC23-6387)*.

Table 7. *Error messages (1 of 3)*

Error	Description	Action
<p><i>Command Port Error</i> occurred</p> <p><i>Command Port Failed</i> to get <code>CommandPortLimit</code> property - using 10</p> <p><i>Command Port Failed</i> to get property <code>CommandPort</code></p> <p><i>Command Port Failed</i> to open listening socket, shutting down Thread!</p> <p><i>Command Port Failed</i> to send probewatch message!</p> <p><i>Command Port host</i> Failed to close command socket</p> <p><i>Command Port host</i> Failed to get socket IO</p> <p><i>Command Port host</i> Failed to read command</p> <p><i>Command Port Thread</i> shutting down due to error!</p> <p>NetcoolIRPManager: Failed to <code>acknowledge_alarms()</code></p> <p>NetcoolIRPManager: Failed to <code>Unacknowledge_alarms()</code></p>	<p>There was a problem with command port functionality.</p>	<p>Check that you have specified the command port correctly.</p> <p>Check the connection between the probe and the command port.</p>

Table 7. Error messages (2 of 3)

Error	Description	Action
<p>BAD_PARAM Exception i.e one or more of the in/out parameter is null</p> <p>InvalidParameter Exception</p> <p>NetcoolIRPManager: Exception occurred. Stack trace to stderr</p> <p>OperationNotSupported Exception</p> <p>Unexpected CORBA Exception</p>	<p>There is a problem with the CORBA interface.</p>	<p>Refer to your CORBA documentation.</p>
<p>COMMUNICATION FAILURE Exception i.e Server is dead</p> <p>GetSubscriptionStatus Exception</p> <p>NetcoolIRPManager:Bot h NameServiceHost and NSPort property needs to be set</p> <p>NetcoolIRPManager: 'Alarmirp' property needs to be set</p> <p>NetcoolIRPManager: 'Notificationirp' property needs to be set</p> <p>NetcoolIRPManager: Failed to perform resynch</p>	<p>The probe cannot connect to the server.</p>	<p>Check that the Ericsson OSS-RC server is running correctly.</p> <p>Check that you have specified the parameters correctly in the properties file.</p>

Table 7. Error messages (3 of 3)

Error	Description	Action
Error to parse event completely Failed to parse event completely Name is null, cannot create Element NetcoolIRPManager: Category Value NOT supported: Discarding Alarm NetcoolIRPManager: Error when parsing event NetcoolIRPManager: Failed to send event	The probe cannot parse the alarm; this is probably because the alarm is not in a format that the probe can understand.	Check that the Ericsson OSS-RC server is running correctly.
Failed to get timeout property value, defaulting to 0	The Timeout property has not been set.	Check the value for the Timeout property; change this value if necessary.
NetcoolIRPManager: Stack Trace to stderr:	This is message generated by the IBM Tivoli Netcool IRP Manager.	This message is intended for use when debugging.

ProbeWatch messages

Table 8 describes the raw ProbeWatch messages that the probe generates. For information about generic ProbeWatch messages, see the *IBM Tivoli Netcool/OMNIBus Probe and Gateway Guide* (SC23-6387).

Table 8. *ProbeWatch messages*

ProbeWatch message	Description	Triggers/causes
Will listen for commands on port number <i>command_port value</i>	The probe is listening for commands on the specified port.	The specified port is ready to receive commands.
[Command Port] Failed to send probewatch message	The probe was unable to send the alert, command, or ProbeWatch message specified to the ObjectServer.	The ObjectServer is not available, or there is a problem with the connection with the ObjectServer.
Failed to listen for commands on port number <i>command_port value</i> : + <i>e.toString()</i>	The probe could not open the socket specified by the port to listen for commands.	The specified port is in use for another process.
START SYNCHRONIZATION	The probe is synchronizing the events.	The probe has started receiving alarms from the alarm list.
SYNCHRONIZATION ERROR - + <i>e.toString()</i>	The probe could not get new alarms.	The probe failed to get the alarm list, or failed to perform resynchronization of alarms.
END SYNCHRONIZATION	The probe is closing the synchronization process.	The probe has finished receiving alarms from the alarm list.

Appendix A. Notices

This appendix contains the following:

- "Notices" on page 19
- "Trademarks" on page 21

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