

IBM® Tivoli® Netcool/OMNIbus Probe for  
Alcatel-Lucent OS-OS  
3.0

*Reference Guide*  
*August 2, 2013*



**Note**

Before using this information and the product it supports, read the information in [Appendix A, “Notices and Trademarks,”](#) on page 17.

**Edition notice**

This edition (SC23-9675-03) applies to version 3.0 of IBM Tivoli Netcool/OMNIbus Probe for Alcatel-Lucent OS-OS and to all subsequent releases and modifications until otherwise indicated in new editions.

This edition replaces SC23-9675-02.

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## About this guide

The following sections contain important information about using this guide.

### Document control page

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

The IBM Tivoli Netcool/OMNIBus Probe for Alcatel-Lucent OS-OS documentation is provided in softcopy format only. To obtain the most recent version, visit the IBM® Tivoli® Information Center:

<https://www.ibm.com/support/knowledgecenter/SSSHTQ/omnibus/probes/common/Probes.html>

Table 1. Document modification history		
Document version	Publication date	Comments
SC23-9675-00	April 30, 2009	First IBM publication.
SC23-9675-01	October 29, 2010	<p>Patch number updated in <a href="#">“Summary”</a> on page 1.</p> <p>Installation section updated. See <a href="#">“Installing probes”</a> on page 2.</p> <p>The <b>FlushBufferInterval</b> property was added in <a href="#">“Properties and command line options”</a> on page 7.</p> <p>The \$alarmId element was added in <a href="#">“Elements”</a> on page 11. The following elements were deleted:</p> <ul style="list-style-type: none"><li>• \$additionalInfoN</li><li>• \$managedobjectInstance</li><li>• q\$remoteHost</li></ul>
SC23-9675-02	March 31, 2011	<p>The following CLI commands were added in <a href="#">“Command line interface”</a> on page 5:</p> <ul style="list-style-type: none"><li>• ack</li><li>• name</li><li>• exit/quit</li><li>• name</li></ul> <p>The \$ASid element was added in <a href="#">“Elements”</a> on page 11.</p> <p>The <b>HeartbeatTimeout</b> and <b>RetryWait</b> properties were updated in <a href="#">“Properties and command line options”</a> on page 7.</p>
SC23-9675-03	August 2, 2013	<p>Device version support expanded to Alcatel-Lucent OS-OS Interface (IOO) version 9.6 running on Optical Management System (OMS) version 10.5 in <a href="#">“Summary”</a> on page 1.</p> <p>Typo corrected in the ProbeWatch Messages section.</p>

## Conventions used in this guide

All probe guides use standard conventions for operating system-dependent environment variables and directory paths.

### Operating system-dependent variables and paths

All probe guides use standard conventions for specifying environment variables and describing directory paths, depending on what operating systems the probe is supported on.

For probes supported on UNIX and Linux operating systems, probe guides use the standard UNIX conventions such as `$variable` for environment variables and forward slashes (/) in directory paths. For example:

```
$OMNIHOME/probes
```

For probes supported only on Windows operating systems, probe guides use the standard Windows conventions such as `%variable%` for environment variables and backward slashes (\) in directory paths. For example:

```
%OMNIHOME%\probes
```

For probes supported on UNIX, Linux, and Windows operating systems, probe guides use the standard UNIX conventions for specifying environment variables and describing directory paths. When using the Windows command line with these probes, replace the UNIX conventions used in the guide with Windows conventions. If you are using the bash shell on a Windows system, you can use the UNIX conventions.

**Note :** The names of environment variables are not always the same in Windows and UNIX environments. For example, `%TEMP%` in Windows environments is equivalent to `$TMPDIR` in UNIX and Linux environments. Where such variables are described in the guide, both the UNIX and Windows conventions will be used.

### Operating system-specific directory names

Where Tivoli Netcool/OMNIbus files are identified as located within an *arch* directory under NCHOME or OMNIHOME, *arch* is a variable that represents your operating system directory. For example:

```
$OMNIHOME/probes/arch
```

The following table lists the directory names used for each operating system.

**Note :** This probe may not support all of the operating systems specified in the table.

Table 2. Directory names for the arch variable	
Operating system	Directory name represented by arch
AIX® systems	aix5
Red Hat Linux® and SUSE systems	linux2x86
Linux for System z	linux2s390
Solaris systems	solaris2
Windows systems	win32

### OMNIHOME location

Probes and older versions of Tivoli Netcool/OMNIbus use the OMNIHOME environment variable in many configuration files. Set the value of OMNIHOME as follows:

- On UNIX and Linux, set \$OMNIHOME to \$NCHOME/omnibus.
- On Windows, set %OMNIHOME% to %NCHOME%\omnibus.





# Chapter 1. Probe for Alcatel-Lucent OS-OS

The Alcatel-Lucent OS-to-OS Interface (IOO) is a generic interface that allows communication between an Alcatel-Lucent system and network management applications.

The Alcatel-Lucent system is a Synchronous Digital Hierarchy (SDH) element manager. It provides centralized equipment configuration and surveillance using a detailed graphical representation of the network and the equipment items. These features permit the control of each individual network element.

This guide contains the following sections:

- [“Summary” on page 1](#)
- [“Installing probes” on page 2](#)
- [“Data acquisition” on page 3](#)
- [“Properties and command line options” on page 7](#)
- [“Elements” on page 11](#)
- [“Error messages” on page 12](#)
- [“ProbeWatch messages” on page 14](#)

## 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 Alcatel-Lucent OS-OS.

Table 3. Summary	
Probe target	Alcatel-Lucent IOO version 4.3 running on Service/Network Layer OS Interface (ISN) version 1.3 Alcatel-Lucent IOO version 5.0 running on ISN version 2 Alcatel-Lucent IOO version 5.4 running on ISN version 2 Alcatel-Lucent IOO version 9.6 running on Optical Management System (OMS) version 10.5
Probe executable name	nco_p_alcatel_osos
Package number	3.0
Probe supported on	For details of supported operating systems, see the following Release Notice on the IBM Software Support Website: <a href="https://www-304.ibm.com/support/docview.wss?uid=swg21450085">https://www-304.ibm.com/support/docview.wss?uid=swg21450085</a>
Properties file	\$OMNIHOME/probes/arch/alcatel_osos.props
Rules file	\$OMNIHOME/probes/arch/alcatel_osos.rules
Requirements	For details of any additional software that this probe requires, refer to the description.txt file that is supplied in its download package.

Table 3. Summary (continued)	
Connection method	TCP/IP
Remote connectivity	The Probe for Alcatel-Lucent OS-OS can connect to a remote device. Details of the remote device are specified using the <b>Host</b> and <b>Port</b> properties.
Multicultural support	Available
Peer-to-peer failover functionality	Available
IP environment	IPv4 and IPv6  <b>Note :</b> 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 <a href="http://csrc.nist.gov/groups/STM/cmvp/documents/140-1/1401val2004.htm">http://csrc.nist.gov/groups/STM/cmvp/documents/140-1/1401val2004.htm</a> . 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](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](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

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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 Alcatel-Lucent OS-OS acquires data from Alcatel-Lucent systems that support the Alcatel-Lucent OS-OS interface. The probe connects to these systems using TCP/IP, and either acquires existing alarms or gathers new alarms as they are generated. The following types of alarms are produced by these systems:

- Processing errors
- Quality of service errors
- Environmental alarms

For details about the Alcatel-Lucent systems that support the Alcatel-Lucent OS-OS interface, see [“Devices managed by the EMS system” on page 6](#).

Data acquisition is described in the following topics:

- [“Parsing the AlarmList field” on page 3](#)
- [“Probe operation” on page 3](#)
- [“Peer-to-peer failover functionality” on page 5](#)

### Parsing the AlarmList field

If the **SplitAlarmLists** property is set to `true`, the probe considers each attribute of an alarm as an event.

A parsed event contains details of the OS-OS device connected to the probe, in the form *hostname/IP address:port number*.

### Probe operation

Once connected to the device, the probe can perform various functions.

When connected to the device, the probe can perform the following functions:

- Get historical data
- Request heartbeats
- Listen for unsolicited alarms
- Interrupt the unsolicited alarm state
- Send a disconnection warning

The probe operates in the following states, as described below, to perform its functions:

- Connection state
- Login state
- First Heartbeat state
- Resynchronization Initialization state
- Resynchronization Processing state
- Unsolicited state
- Periodic Resynchronization Initialization state

### Connection state

The **ConnectionTimeout** property specifies the length of time allowed for the probe to make the connection.

If the probe connects successfully within the time specified by the **ConnectionTimeout** property, the connection is confirmed and the probe proceeds to the Login state.

## Login state

The probe sends a **CONNECT-REQUEST** command (or primitive) to the interface. This command includes an authentication key. You must specify the authentication key using the **AKey** property.

If the probe receives no response from the interface within the length of time specified by the **LoginTimeout** property, it attempts to reconnect and log in again. If the probe receives a **CONNECT-REJECT** response, the connection has been rejected by the interface and the probe exits. If the probe receives a **CONNECT-CONFIRM** response, the connection has been confirmed and the probe proceeds to the First Heartbeat state.

## First heartbeat state

The probe sends a **HEARTBEAT-REQUEST** command to the interface to ensure that the connection is active.

If the probe receives no response from the interface within the length of time specified by the **HeartbeatTimeout** property, or if the response is not the expected heartbeat response, the probe reconnects and logs in again. If the probe receives a **HEARTBEAT-CONFIRM** response from the interface, the heartbeat has been confirmed and the probe proceeds to the Resynchronization Initialization state.

You can instruct the probe to skip the First Heartbeat state by setting the **HeartbeatInterval** property to 0.

## Resynchronization initialization state

The probe requests the list of active alarms that exist in the element manager.

## Resynchronization processing state

The probe receives all outstanding active alarms from the element manager. At the end of the data stream, the probe receives a **DATA-END-NOTIFICATION** response. The probe then proceeds to the Unsolicited state.

The **SynchronisationTimeout** property specifies the length of time that the probe waits to receive notification at the end of a resynchronization.

## Unsolicited state

The probe receives all unsolicited alarms as they are generated by the element manager.

While in this state, the probe sends periodic heartbeats to the interface when the device becomes idle. To specify the length of time of the heartbeat interval, use the **HeartbeatInterval** property.

**Note :** If the **HeartbeatInterval** property is set to send heartbeats without any idle period and the **RestartOnIdleTimeout** property also allows the sending of heartbeats to the device, the resulting frequency of heartbeat requests may affect the performance of the probe.

You can limit the number of heartbeats that the probe sends to the device using the **RestartOnIdleTimeout** property. If this property is set to 0, the probe sends unlimited heartbeat requests to the device.

If the **ResynchInterval** property is set to a value greater than 0, the probe proceeds to the Periodic Resynchronization Initialization state once the specified length of time has elapsed. A value less than 0 adversely affects the performance of the probe.

## Periodic resynchronization initialization state

The probe requests the list of active alarms that exist in the element manager using the **LIST-CURRENT-ALARMS-REQUEST** command.

If the probe receives no response from the device within the length of time specified by the **RequestTimeout** property, or if the response is not the expected list of current alarms, then the probe waits for the length of time specified by the **ResynchInterval** property before trying to reconnect.

If the probe receives a LIST-CURRENT-ALARMS-CONFIRM response, the confirmation has been received and the probe returns to the Resynchronization Processing state.

## 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"
```

## Command line interface

The Probe for Alcatel-Lucent OS-OS is supplied with a command line interface (CLI). This interface allows you to issue commands to the probe (for example, to request a full resynchronization with the OS-OS device).

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, open a Telnet connection to this port.

The following table describes the commands that you can use with the CLI.

Table 4. CLI commands	
Command	Description
<b>ack</b>	This command enables the probe to acknowledge the OS-OS alarms.
<b>clear</b>	This command clears the OS-OS alarms.
<b>exit/quit</b>	This command closes the connection.
<b>help</b>	This command displays online help about the CLI.
<b>name</b>	This command displays the name information from the probe.
<b>os_buffer_size</b>	This command displays the number of events that the probe has buffered for transfer to the ObjectServer.
<b>resynch</b>	This command allows you to perform a full resynchronization with the Alcatel-Lucent OS-OS server.
<b>shutdown</b>	This command shuts down the probe.
<b>stream_capture [on off]</b>	This command enables or disables the stream capture facility.
<b>version</b>	This command displays the version of the probe.

## Devices managed by the EMS system

This section lists the devices that are managed by the Element Management Systems (EMS) with which this probe integrates.

Telco/Enterprise Element Management Systems:

- Alcatel-Lucent 1353 DCN
- Alcatel-Lucent 1353 SH
- Alcatel-Lucent 1353 SH/GEM
- Alcatel-Lucent 1353 AC
- Alcatel-Lucent 1353 DN
- Alcatel-Lucent 1354 BM (Broadband Network Manager)
- Alcatel-Lucent 1354 DCN (Data Communication Network Manager)
- Alcatel-Lucent 1354 NN (National Network Manager)
- Alcatel-Lucent 1354 NP (Network Protection Manager)
- Alcatel-Lucent 1354 RM (Regional Network Manager)
- Alcatel-Lucent 1354 SN (Submarine Network Manager)
- Alcatel-Lucent 1354 SY (Synchronization Network Manager)

Telco and Voice Devices:

- Alcatel-Lucent 1640 OXC (Optical Cross Connect)
- Alcatel-Lucent 1690 OXC (Optical Cross Connect)

- Alcatel-Lucent 1660 Cross Light OADM (Optical Add/Drop Multiplexer)
- Alcatel-Lucent 1674 Lambda Gate OADM (Optical Add/Drop Multiplexer)
- Alcatel-Lucent DXC (Digital Cross Connect) 4/4
- Alcatel-Lucent DXC (Digital Cross Connect) 4/3/1
- Alcatel-Lucent Metro and Backbone DWDM
- Alcatel-Lucent OMSN (Optinex Multi-Service Nodes)

**Note :** This information is intended as a guide for reference purposes only. This list is not comprehensive and it is likely that additional devices are managed by the EMS. Refer to the vendor of your EMS for confirmation of the devices that are managed by your system.

## 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* (SC23-6373).

Table 5. Properties and command line options		
Property name	Command line option	Description
<b>AKey</b> <i>string</i>	-akey <i>string</i>	Use this property to specify the authentication key for the target system.  The default is alarm_handoff.
<b>AttributeDelimiterIndicator</b> <i>string</i>	-attributedelimiterindicator <i>string</i>	Use this property to specify the character that the OS-OS system uses to separate an attribute name from its value.  The default is =.
<b>AttributeSeparatorIndicator</b> <i>string</i>	-attributeseparatorindicator <i>string</i>	Use this property to specify the character that the OS-OS system uses to separate the attributes in an alarm.  The default is  .
<b>CommandPort</b> <i>integer</i>	-commandport <i>integer</i>	Use this property to specify the port to which users can connect using Telnet, to access the command line interface (CLI) supplied with the probe.  For details about the CLI, see <a href="#">“Command line interface” on page 5</a> .  The default is 6970.
<b>CommandPortLimit</b> <i>integer</i>	-commandportlimit <i>integer</i>	Use this property to specify the maximum number of Telnet connections that can be made to the probe at one time.  The default is 10.

Table 5. Properties and command line options (continued)

Property name	Command line option	Description
<b>ConnectionTimeout</b> <i>integer</i>	-connectiontimeout <i>integer</i>	Use this property to specify the time (in seconds) that the probe waits for a connection to the device.  The default is 10. <b>Note :</b> If this property is set to 0, the probe waits indefinitely.
<b>FlushBufferInterval</b> <i>integer</i>	-flushbufferinterval <i>integer</i>	Use this property to specify how often (in seconds) that the probe flushes all alerts in the buffer to the ObjectServer.  The default is 0 (which instructs the probe to never flush the alerts to the ObjectServer).
<b>HeartbeatInterval</b> <i>integer</i>	-heartbeatinterval <i>integer</i>	Use this property to specify the time (in seconds) that the probe allows the connection with OS-OS to remain idle before sending successive heartbeat requests.  The default is 60. <b>Note :</b> A value less than 60 may affect the performance of the probe.
<b>HeartbeatThreshold</b> <i>integer</i>	-heartbeatthreshold <i>integer</i>	Use this property to specify the number of heartbeats that must be lost to confirm that the connection to the OS-OS device is closed.  The default is 60.
<b>HeartbeatTimeout</b> <i>integer</i>	-heartbeattimeout <i>integer</i>	Use this property to specify the time (in seconds) that the probe waits for a heartbeat response.  The default is 10. <b>Note :</b> A value of 0 makes the probe disconnect and restart the connection, and so affects performance.
<b>Host</b> <i>string</i>	-host <i>string</i>	Use this property to specify the name of the host providing the OS-OS interface.  The default is localhost.



Table 5. Properties and command line options (continued)

Property name	Command line option	Description
<b>LoginTimeout</b> <i>integer</i>	<code>-logintime integer</code>	<p>Use this property to specify the time (in seconds) that the probe waits for the OS-OS device to respond to a login attempt.</p> <p>The default is 10.</p> <p><b>Note :</b> A value of 0 makes the probe wait indefinitely for a response.</p>
<b>Port</b> <i>integer</i>	<code>-port integer</code>	<p>Use this property to specify the port to which the probe connects.</p> <p>The default is 3001.</p> <p><b>Note :</b> The OS-OS interface listens on this port.</p>
<b>RequestTimeout</b> <i>integer</i>	<code>-requesttimeout integer</code>	<p>Use this property to specify the time (in seconds) that the probe waits to receive confirmation of a general request from the OS-OS device.</p> <p>The default is 10.</p> <p><b>Note :</b> A value of 0 makes the probe wait indefinitely for a response.</p>
<b>RestartOnIdleTimeout</b> <i>integer</i>	<code>-restartonidletimeout integer</code>	<p>Use this property to specify the number of successive heartbeats that the probe sends to the OS-OS device, without any other intervening traffic (such as notifications of new alarms), before the probe exits.</p> <p>The default is 0.</p> <p><b>Note :</b> If this property is set to 0, the probe sends unlimited heartbeats.</p>
<b>ResynchInterval</b> <i>integer</i>	<code>-resynchinterval integer</code>	<p>Use this property to specify the time (in seconds) between successive resynchronization requests to the device.</p> <p>The default is 86400 (equal to 1 day).</p> <p><b>Note :</b> A value of 0 disables resynchronization of alarms.</p> <p>Alcatel-Lucent OS-OS may be configured to send existing alarms as new upon initial connection.</p>

Table 5. Properties and command line options (continued)

Property name	Command line option	Description
<b>Retry</b> <i>integer</i>	<code>-retry integer</code>	Use this property to specify the number of times that the probe attempts to reconnect to the system following a reported error.  The default is 0. <b>Note :</b> If this property is set to 0, the probe shuts down following an error and does not attempt to reconnect.
<b>RetryWait</b> <i>integer</i>	<code>-retry integer</code>	Use this property to specify the time (in seconds) between successive reconnection attempts.  The default is 10.
<b>SplitAlarmLists</b> <i>string</i>	<code>-splitalarmlists</code> (This is equivalent to <b>SplitAlarmLists</b> with a value of true.)  <code>-nosplitalarmlists</code> (This is equivalent to <b>SplitAlarmLists</b> with a value of false.)	Use this property to specify whether or not the probe splits alarms with AlarmList fields into multiple events. This property takes the following values:  <code>true</code> : The probe splits alarms into multiple events.  <code>false</code> : The probe treats alarms as single events.  The default is <code>true</code> .
<b>StreamCapture</b> <i>string</i>	<code>-streamcapture</code> (This is equivalent to <b>StreamCapture</b> with a value of true.)  <code>-nostreamcapture</code> (This is equivalent to <b>StreamCapture</b> with a value of false.)	Use this property to specify whether the probe uses the stream capture feature. This property takes the following values:  <code>false</code> : The probe disables the stream capture feature.  <code>true</code> : The probe enables the stream capture feature.  The default is <code>false</code> .
<b>StreamCaptureFile</b> <i>string</i>	<code>-streamcapturefile string</code>	Use this property to specify the file that the probe uses to store the input stream log.  The default is <code>\$OMNIHOME/var/alcatel_osos.stream</code> .
<b>SubscriptionFilter</b> <i>string</i>	<code>-subscriptionfilter string</code>	Use this property to specify the ASId of the sub-EMS from which alarms are received.  The default is <code>" "</code> .

Table 5. Properties and command line options (continued)

Property name	Command line option	Description
<b>SynchronizationTimeout</b> <i>integer</i>	- synchronizationtimeout <i>integer</i>	Use this property to specify the time (in seconds) that the probe waits to receive notification at the end of a resynchronization.  The default is 60.  <b>Note :</b> A value of 0 makes the probe wait indefinitely for the notification.

## 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 following table describes some of the elements that the Probe for Alcatel-Lucent OS-OS generates. Not all the elements described are generated for each event; the elements that the probe generates depends upon the event type. The elements present in each event are based on the attributes of the OS-OS event data.

Table 6. Elements

Element name	Element description
\$additionalText	This element contains additional information about an alarm.
\$alarmId	This element contains the alarm identifier.
\$ASid	This element contains the AS identifier.
\$currentAlarmId	This element is an alternative container for the alarm identifier, used instead of \$alarmId.
\$eventTime	This element indicates the time the event occurred.
\$eventType	This element indicates the alarm type.
\$friendlyName	This element contains the name of the source that sent the alarm.
\$neLocationName	This element contains the name of the location of the network element.
\$notificationType	This element indicates whether the alarm is new.
\$perceivedSeverity	This element identifies the perceived severity of the alarm.
\$probableCause	This element contains a brief description of the probable cause of the alarm.

Table 6. Elements (continued)	
Element name	Element description
\$Solicited	This element indicates whether this was a solicited alarm.
\$specificProblems	This element contains the specific problems related to the alarm.

## 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 (SC23-6373)*.

Table 7. Error messages		
Error	Description	Action
AlcatelOSOS: alarm parser failed to parse message - discarding AlcatelOSOS: alarm parser failed to create events from parsed message - discarding AlcatelOSOS: alarm parser was unable to understand message. Next tokens are: AlcatelOSOS: alarm parser found unbalanced brackets starting at: AlcatelOSOS: alarm parser was unable to understand message. Next tokens are:	The probe could not parse the alarms correctly. The alarm could be corrupted or unsupported.	Check the value specified for the <b>AttributeSeparatorIndicator</b> and <b>AttributeDelimiterIndicator</b> properties.
AlcatelOSOS: alarm parser found value with no name	The probe found an alarm without field names. The probe will create tokens for these alarms with the name <code>unknownDataxx</code> , where <code>xx</code> is an integer.	No action required, this message is for information only.
AlcatelOSOS: unable to understand hostname and port given for OSOS host:	The probe could not use the hostname and port specified.	Check the values specified for the <b>Host</b> and <b>Port</b> properties.

Table 7. Error messages (continued)

Error	Description	Action
AlcatelOSOS: unable to resolve hostname <i>host name</i>	The probe could not resolve the host name to a specified address.	Check the values specified for the <b>Host</b> property. Check the resolver setting on the probe host.
AlcatelOSOS: login timed out	An attempted login by the probe to the Alcatel-Lucent OS-OS system has timed out.	Increase the value of the <b>LoginTimeout</b> property. Ensure that the OS-OS interface is operating correctly. Check the connection between the probe and the OS-OS interface.
HeartbeatManager: exceeded consecutive heartbeat threshold	The number of heartbeat requests that the probe has sent to the host has exceeded the set limit.	Increase the value of the <b>RestartOnIdleTimeout</b> property.
HeartbeatManager: failed to receive heartbeat response Heartbeat Manager: number of lost heartbeats <i>N</i> exceeds threshold <i>nn</i>	The probe has not received a response to its heartbeat requests.	Check that OS-OS system is working correctly. Increase the value of the <b>HeartbeatTimeout</b> property.
Probe: AttributeDelimiter Indicator property should be one character Probe: AttributeSeparator Indicator property should be one character	The probe found that the value of the named properties exceeded the set limit.	Change the value of the <b>AttributeDelimiterIndicator</b> property or the <b>AttributeSeparatorIndicator</b> property to a single character.
ResyncManager: resynchronisation is taking too long ResyncManager: resynchronisation request has timed out	The resynchronization of the alarms is taking too long or has timed out.	Check the value of the <b>SynchronizationTimeout</b> property.
UnsolicitedAlarmsManager: failed to subscribe for notifications: request timed out UnsolicitedAlarmsManager: failed to subscribe for notifications: OSOS rejected request	The probe failed to subscribe for notifications.	Ensure that the OS-OS system allows the probe to subscribe. Check the connection between the probe and the OS-OS system.

## ProbeWatch messages

During normal operations, the probe generates ProbeWatch messages and sends them to the ObjectServer. These messages tell the ObjectServer how the probe is running.

The following table 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*, (SC23-6373).

Table 8. ProbeWatch messages		
ProbeWatch message	Description	Triggers/Causes
Alcatel OSOS probe running on host <i>host</i>	The probe is running normally.	The probe has just been started on the named host.
Trying to connect to host <i>host</i> on port <i>port</i> Trying to connect to	The probe is attempting to connect to the host.	The probe tried to login to the OS-OS system.
Cannot connect to host <i>host</i> on port <i>port</i> ; Retrying Cannot connect to	The probe failed to connect to the host.	The probe could not connect to the OS-OS system.
Probe successfully connected to host <i>host</i> on port <i>port</i> Successfully connected to	The probe connected to the host.	The probe connected to the OS-OS system using the given properties.
Failed to login to remote host; Closing connection	The probe failed to log in to the system.	Either the value specified for the <b>ConnectionTimeout</b> property is too small, or the values specified for the <b>Host</b> and <b>Port</b> properties are incorrect.
Login successful	The probe received a connection confirmation message.	The probe has connected to the OS-OS system.
Login rejected by remote host; probe shutdown	The probe received a connection rejected message.	Either the value specified for the <b>LoginTimeout</b> property is too small, or the destination server is not working.
Failed to get heartbeat confirmation; Closing connection Failed to get heartbeat confirmation; Retrying	The probe failed to receive the first heartbeat message from the system.	Either the value specified for the <b>HeartbeatInterval</b> is inadequate, or the destination server is not working.

Table 8. ProbeWatch messages (continued)

ProbeWatch message	Description	Triggers/Causes
Heartbeat successful; Requesting unsolicited alarms (if OSOSHeartbeatInterval > 0) Heartbeat skipped; Requesting unsolicited alarms (if OSOSHeartbeatInterval = 0) Heartbeat received	The probe has received the first heartbeat message from the system.	The OS-OS system sent a response to the heartbeat message from the probe.
Resynchronization failed; Closing connection Resynchronisation request failed	The probe failed to receive resynchronization data.	The value specified by the <b>RequestTimeout</b> property is inadequate.
Resynchronization successful resynchronisation complete	The probe received resynchronization data.	The probe has resynchronized alarms from the OS-OS system.
Requesting current alarm list Requesting resynchronisation	The probe is requesting periodic resynchronization.	The probe has reached the next resynchronization time specified by the <b>HeartbeatInterval</b> property.
Failed to get current alarms request confirmation; Closing connection	The probe failed to receive an alarm request confirmation.	The resynchronization attempt by the probe has failed.
Current alarms request confirmation received; Starting resynchronization Resynchronisation started	The probe received an alarm request confirmation.	The resynchronization attempt by the probe was successful.
Invalid data received	The probe received invalid data.	The connection to the OS-OS system is not working.
Disconnection request received; probe shutdown	The probe shuts down following a disconnection request.	Either the connection attempt by the probe has failed, or the destination system is not available.





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## Appendix A. Notices and Trademarks

This appendix contains the following sections:

- Notices
- Trademarks

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