

IBM® Tivoli® Netcool/OMNIbus Probe for
Nokia-Siemens EWSD (Server)
4.0

Reference Guide
January 20, 2012



Notice

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 (SC23-7807-03) applies to version 4.0 of IBM Tivoli Netcool/OMNIbus Probe for Nokia-Siemens EWSD (Server) and to all subsequent releases and modifications until otherwise indicated in new editions.

This edition replaces SC23-7807-02.

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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 Nokia-Siemens EWSD (Server) 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.namomnibus.doc/welcome_ptsm.htm

Table 1. Document modification history		
Document version	Publication date	Comments
SC23-7807-01	December 31, 2008	Summary table updated. IPv6 support information added. FIPS information added. Installation section added.
SC23-7807-02	September 30, 2011	Information about operating system conventions added in “Conventions used in this guide” on page v. Multicultural support information updated in “Summary” on page 1. Lookup table information added in “Lookup table” on page 3. Information about the ReadTimeout property updated in “Timeout” on page 4 and “Properties and command line options” on page 4.
SC23-7807-03	January 20, 2012	Data stream capture information updated in “Data stream capture” on page 3. StreamCaptureFilename property updated in “Properties and command line options” on page 4.

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 Nokia-Siemens EWSD (Server)

Nokia-Siemens Electronic World Switch Digital (EWSD) supports both switched telephony and data applications. Nokia-Siemens EWSD switches provide a wide variety of business and residential services, encompassing ISDN, CLASS, SS7, Centrex, and Advanced Intelligent Network capabilities.

The Probe for Nokia-Siemens EWSD (Server) acts as a multiheaded TCP/IP socket server and receives data from the Nokia-Siemens EWSD system on a specified port.

Note : Another version of this probe, the Probe for Siemens EWSD (UNIX) (`nco_p_siemens_ewsd`), is also available. It receives data through a socket from the Nokia-Siemens EWSD system and is documented separately from the Probe for Nokia-Siemens EWSD (Server).

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 7](#)
- [“Error messages” on page 8](#)

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 Nokia-Siemens EWSD (Server).

<i>Table 3. Summary</i>	
Probe target	Nokia-Siemens EWSD
Probe executable name	<code>nco_p_siemens_ewsd_server</code>
Probe installation package	<code>omnibus-arch-probe-nco-p-siemens-ewsd-server-version</code>
Patch number	4.0
Probe supported on	For details of supported operating systems, see the following Release Notice on the IBM Software Support website:
Properties file	<code>\$OMNIHOME/probes/arch/siemens_ewsd_server.props</code>
Rules file	<code>\$OMNIHOME/probes/arch/siemens_ewsd_server.rules</code>
Requirements	A currently supported version of IBM Tivoli Netcool/OMNIBus.
Connection method	TCP/IP
Multicultural support	Available

Table 3. Summary (continued)	
Peer-to-peer failover functionality	Available
IP environment	IPv4 and IPv6
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 Nokia-Siemens EWSD (Server) generates Netcool® events by acting as a multiheaded TCP/IP socket server. When it starts, it listens for a connection from the Nokia-Siemens EWSD system on the port specified by the **PortNumber** property. There is no limit to the number of clients that can connect to the probe.

Data acquisition is described in the following topics:

- [“Interpreting the data” on page 3](#)
- [“Data stream capture” on page 3](#)
- [“Lookup table” on page 3](#)

- “Timeout” on page 4
- “Peer-to-peer failover functionality” on page 4

Interpreting the data

Data received from the Nokia-Siemens EWSD can include arrays and tables.

The start of an array is indicated by the characters <<<. The start of a table is indicated by a line containing the characters ---+---. You can specify how the probe interprets data using the following property settings:

- To instruct the probe to interpret arrays, set the **DecodeArrays** property to 1.
- To instruct the probe to interpret the first table that appears in an event, set the **DecodeTables** property to 1.
- To instruct the probe to interpret the second table that appears in an event, set the **DecodeSecondTables** property to 1.

Note : The **DecodeTables** and **DecodeSecondTables** properties have limitations. The probe will only decode a table over 3 lines, for example:

```
title line
title line
separator line containing ---+---
value line
```

Certain masks contain tables with three title lines or two value lines.

Data stream capture

The probe can capture the raw data stream sent from the Nokia-Siemens EWSD system to a log file. This raw data can be used for debugging, to develop new features for the probe, or to pass to other management systems that require the same data.

To enable stream capture, set the **StreamCapture** property to 1 and specify a log file to store the data using the **StreamCaptureFilename** property.

Note : The data stream capture function generates a lot of data. When you no longer require this data, set the **StreamCapture** property to 0 to disable stream capture.

Lookup table

The probe is supplied with a lookup table that contains details of the various types of alarms that the Nokia-Siemens EWSD system generates.

At installation, the `siemens_ewsd.lookup` file supplied with the probe installation package is installed to the following location:

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

The following line in the rules file references the lookup file:

```
include "../includes/siemens_ewsd.lookup"
```

Note : The include command assumes that the probe is run from the standard `$OMNIHOME/probes/` directory. If you are running the probe from a different directory, replace `".."` with the absolute directory path to the lookup file. Do not use the `$OMNIHOME` environment variable in this directory path.

Timeout

The probe has a timeout facility that allows it to disconnect from the socket if it does not receive an alarm within a predefined amount of time. You can specify how long the probe waits before disconnecting using the **ReadTimeout** property.

Note : When processing the value specified for the **ReadTimeout** property, the probe treats values from 1 to 10 as seconds. It treats values above 10 as milliseconds. For example, if you specify a value of 11, the probe treats this as 0.011 seconds (11/1000).

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"
```

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 more information about generic Netcool/OMNIbus properties and command line options, see the *IBM Tivoli Netcool/OMNIbus Probe and Gateway Guide*.

Table 4. Properties and command line options

Property name	Command line option	Description
DecodeArrays <i>integer</i>	-decodearrays <i>integer</i>	Use this property to specify whether the probe interprets arrays. This property takes the following values: 0: The probe does not interpret arrays. 2: The probe interprets arrays. The default is 0.
DecodeSecondTables <i>integer</i>	-decodessecondtables <i>integer</i>	Use this property to specify whether the probe interprets the second table that appears in the event. This property takes the following values: 0: The probe does not interpret the second table. 1: The probe interprets the second table. The default is 0.
DecodeTables <i>integer</i>	-decodetables <i>integer</i>	Use this property to specify whether the probe interprets the first table that appear in the event. This property takes the following values: 0: The probe does not interpret the first table. 1: The probe interprets the first table. The default is 0.
EventReadString <i>string</i>	-eventreadstring <i>string</i>	Use this property to specify the string that the probe sends to the Nokia-Siemens EWSD system to indicate that it has received an event. This string can act as an acknowledgment that prompts the system to send the next alarm. The default is " ".
MaxEvents <i>integer</i>	-maxevents <i>integer</i>	Use this property to specify the maximum number of events that the probe attempts to read, simultaneously, from a given source. The default is 10. Note : When a large number of events are being generated, you can increase this number to increase the event throughput.

Table 4. Properties and command line options (continued)

Property name	Command line option	Description
NoNameResolution <i>integer</i>	<code>-nonameresolution</code> <i>integer</i>	Use this property to specify whether the probe performs name resolution on IP addresses. This property takes the following values: 0: The probe performs name resolution. 1: The probe does not perform name resolution. The default is 0.
PortNumber <i>integer</i>	<code>-portnumber</code> <i>integer</i>	Use this property to specify the active TCP/IP port on which the probe listens for connections from the Nokia-Siemens EWSD system. The default is 4567.
ReadTimeout <i>integer</i>	<code>-readtimeout</code> <i>integer</i>	Use this property to specify the period of time that the probe waits for a new alarm before timing out. The default is 1. Note : For this property, the probe treats values from 1 to 10 as seconds and values above 10 as milliseconds. For example, if you specify a value of 11, the probe treats this as 0.011 seconds (11/1000).
ReportStatus <i>integer</i>	<code>-reportstatus</code> <i>integer</i>	Use this property to specify whether the probe sends a ProbeWatch message to the ObjectServer when clients connect to, or disconnect from, the socket. This property takes the following values: 0: The probe does not send a ProbeWatch message. 1: The probe sends a ProbeWatch message. The default is 1.
SocketBuffer <i>integer</i>	<code>-socketbuffer</code> <i>integer</i>	Use this property to specify the maximum buffer size for each socket. The default is 1024. Note : If the probe needs to read a large number of events quickly, you can increase this value.

Table 4. Properties and command line options (continued)

Property name	Command line option	Description
SplitPairs <i>integer</i>	<code>-splitpairs integer</code>	Use this property to specify whether the probe splits name-value pairs that are separated by an equals (=) sign. This property takes the following values: 0: The probe does not split name-value pairs. 1: The probe splits name-value pairs. The default is 0.
StreamCapture <i>integer</i>	<code>-streamcapture integer</code>	Use this property to specify whether stream capture is enabled. This property takes the following values: 0: Stream capture is not enabled. 1: Stream capture is enabled. The default is 0.
StreamCaptureFilename <i>string</i>	<code>-streamcapturefilename string</code>	Use this property to specify the name and location of the stream capture file. The default is <code>\$OMNIHOME/var/siemens_ewsd_server.stream</code> .

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 the elements that the Probe for Nokia-Siemens EWSD (Server) generates. Not all the elements described are generated for each event. The elements that the probe generates depend on the event type.

Table 5. Elements

Element name	Description
<code>\$EventTime</code>	This element contains the time at which the event occurred.
<code>\$Mask</code>	This element contains the mask number for the event. This defines the contents and format of the event. For descriptions of all event formats, see the <i>Siemens EWSD Output Manual</i> supplied by the vendor.
<code>\$Linen</code>	This element contains lines of the event that are passed to the rules file as a single token, where <i>n</i> represents a line number. This element indicates the line number of the event.
<code>\$NEName</code>	This element contains the network element name.

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 Netcool/OMNIbus error messages, see the *IBM Tivoli Netcool/OMNIbus Probe and Gateway Guide*.

Table 6. Error messages		
Error	Description	Action
Error adding list element to node Error adding socket node to List Error allocating memory for ProbeWatchString Error allocating memory for sockDataList Expect: Error allocating memory for buffer Failed to build initial poll list Failed to build Poll List Failed to create NSProbe Event: <event> Failed to create the server socket	The probe failed to allocate internal storage.	Make more memory available.
Expect timed out after<number> seconds	When the Nokia-Siemens EWSD system tried to log in to or log out of the probe, the expect part of the chat timed out.	Check that the Nokia-Siemens EWSD system is running correctly.
Failed to connect to Object Server - <reason>	The probe failed to connect to the ObjectServer.	Check that the ObjectServer is available.

Table 6. Error messages (continued)

Error	Description	Action
Footer defined, but no header. Please define or undefine both. Header defined, but no footer. Please define or undefine both. Received HEADER when expecting FOOTER, sending incomplete event! RegComp Failed for FOOTER:<reason> RegComp Failed for HEADER:<reason>	The incoming data stream may be corrupt.	Check that the Nokia-Siemens EWSD system is running correctly.
Illegal port :<port number>	The port number specified is not valid.	Check the PortNumber property in the properties file.
Only managed to write <percentage> out of <total> characters	The probe cannot write out data because the disk is full.	Make more disk space available.
REGEXP: sub <number> does not exist	A regular expression is incorrectly formed in the rules file.	Check the rules file for the regular expression and correct the entry.
The probe has received <number> bytes of data without an event terminator! Sending incomplete event! The probe failed to receive the character indicating the end of an event.	The event stream may have become corrupted.	Check the connection to the switch and that it is running correctly.
Unable to open file : <path> - <filename>	The specified file could not be opened.	Check that the permissions of the file are set correctly.
Unable to write to file : <path> - <filename>	The probe was unable to write to the recovery file.	Check that there is enough disk space to save the recovery file.

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 ProbeWatch messages that the probe generates. For information about generic Netcool/OMNIBus ProbeWatch messages, see the *IBM Tivoli Netcool/OMNIBus Probe and Gateway Guide*.

Table 7. ProbeWatch messages

ProbeWatch message	Description	Triggers/causes
Error allocating memory for ProbeWatchString	An error occurred when allocating memory.	There is insufficient memory to complete the operation.
Unable to open file: <i>settings.sStreamFile - err_str</i>	The probe is unable to open the stream capture file.	The file permissions are not set correctly or the disk is full.
Status: Connection received from <i>psockGetHost(newSockId)</i>	A connection was received from a specific host.	A connection was received from a specific host.
Status: Connection closing from <i>psockGetHost(sockNodeptr->psid)</i>	A connection to a host is being closed.	A connection to a host is being closed.
Illegal port: <i>settings.port</i>	The port number given in the message is not valid.	The port number specified by the PortNumber property might not be in the correct format, or there is a problem with the connection to the Nokia-Siemens EWSD system.
Only managed to write <i>iReturnVal</i> out of <i>iRawBufferCounter</i> characters	The probe cannot write data out.	The disk is full.
Running ...	The probe is running normally.	The probe has just been started up.
Shutting down stream capture file : <i>settings.sStreamFile</i>	The probe is closing the stream capture file.	The probe is shutting down.
Unable to get events	A problem occurred when trying to obtain the syslog log entries.	There was a problem initializing the connection due to insufficient memory or (if this message was sent after some events had been parsed) there was a license failure or a connection failure.
Going Down ...	The probe is shutting down.	The probe is shutting down after performing the shutdown routine.
Failed to send "Going Down ..." ProbeWatch message	The probe failed to send a Going Down signal to the process during shutdown.	The setting for the ProbeWatch message has failed.

Appendix A. Notices and Trademarks

This appendix contains the following sections:

- Notices
- Trademarks

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