IBM Tivoli Netcool/OMNIbus Syslog Probe 8.0

Reference Guide
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SC23-7929-07

Note

Before using this information and the product it supports, read the information in Appendix A, “Notices and Trademarks,” on page 13.

Edition notice

This edition (SC23-7929-07) applies to version 8.0 of IBM Tivoli Netcool/OMNIbus Syslog Probe (SC23-7929-06) and to all subsequent releases and modifications until otherwise indicated in new editions.

This edition replaces SC23-7929-06.

Contents

Document control page

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

The IBM Tivoli Netcool/OMNIbus Syslog Probe documentation is provided in softcopy format only. To obtain the most recent version, visit the IBM Tivoli Netcool Knowledge Center:

http://www-01.ibm.com/support/knowledgecenter/#!/SSSHTQ/omnibus/common/kc_welcome-444.html

Table 1. Document modification history

Document version	Publication date	Comments
SC23-7929-01	September 25, 2007	First IBM publication.
SC23-7929-02	March 28, 2008	Summary section updated. Installation section updated. Troubleshooting section added.
SC23-7929-03	July 25, 2008	IPv6 support information updated. Information about FIPS added to the Summary table. Support for Linux® for zSeries added.
SC23-7929-04	October 31, 2009	Information about syslogd added to the Summary table. Added support for Japanese characters. Added an Installing the probe section. Operating system support information added to the Summary table. Note about named pipe added to **Cleanstart**, **RecoveryFile**, and **ReplayFile** property descriptions in the Properties and command line options table.

Table 1. Document modification history (continued)		
Document version	**Publication date**	**Comments**
SC23-7929-05	February 25, 2011	"Summary" on page 1updated. Installing the probe sections replaced by "Installing probes" on page 2. Note about how to specify a FIFO when running the probe on Linux added to "Configuration" on page 3. "Error messages" on page 9 updated.
SC23-7929-06	March 12, 2015	"Summary" on page 1updated.
SC23-7929-07	November 24, 2016	"Limitations on the length of an event processed by the Syslog Probe" on page 5 added.

Chapter 1. Syslog Probe

Syslog is a logging mechanism implemented on UNIX platforms and does not require any special hardware. The probe logs messages in an appropriate system log and writes it to the system console, forwards it to a list of users, or forwards it to another UNIX host over the network.

There are two probes that acquire data from syslogd: Syslog Probe and Syslogd Probe. Both probes parse the syslog messages in the same way; they differ in how they acquire data. The Syslog Probe acquires `syslogd` data from the system log file or from a named pipe; the Syslog Probe is described in this guide. The Syslogd Probe acquires syslogd data directly from a UDP port; for details, see the *IBM Tivoli Netcool/OMNIbus Syslogd Probe Guide,* (SC23-7930).

The Syslog Probe is only available on UNIX platforms. If you are operating in a Windows environment, you must use the Syslogd Probe to acquire syslogd data.

This guide contains the following sections:

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 summarizes the probe.

Note : On HP-UX and HP-UX Integrity, syslogd does not support logging to a named pipe.

Table 2. Summary

Probe target	Syslog Daemon (syslogd)
Probe executable name	`nco_p_syslog`
Package version	8.0
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=swg21462455
Properties file	`$OMNIHOME/probes/arch/syslog.props`
Rules file	`$OMNIHOME/probes/arch/syslog.rules`
Requirements	A currently supported version of IBM Tivoli Netcool/OMNIbus.

Table 2. Summary (continued)	
Connection method	Reads a log file or a named pipe (FIFO).
Remote connectivity	No
Peer-to-peer failover functionality	Available
Multicultural support	Not Available
IP environment	IPv4 and IPv6 For communication between the probe and Netcool/OMNIbus, IPv6 is supported on all operating systems. For communication between the probe and the target device, IPv6 is supported on all supported operating systems except Microsoft Windows.
Federal Information Processing Standards (FIPS)	The IBM® Tivoli® Netcool/OMNIbus Syslog Probe is compatible with FIPS.

Note : If the **Network Accelerator Cache** is running on the system on which you are going to install the probe, the probe installation would fail. To avoid this problem, disable the **Network Accelerator Cache** option before installing the probe.

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*.

Configuration

After installing the probe, you need to make various configuration settings to suit your environment.

The `/etc/syslog.conf` file needs to be modified to send all messages to either a log file or a named pipe (FIFO). By default, the probe will attempt to read a message from a log file called `/var/log/ncolog`. Before running the probe, check that this file exists; if it does not, create an empty file with that name.

To set `syslog` to write to this file, add the following line to the `/etc/syslog.conf` file:

```
*.debug    /var/log/ncolog
```

Note : This line must not be the first line of the `/etc/syslog.conf` file. If it is, it will activate a bug in `syslog`, where it attempts a check on the first file in the first entry in the `/etc/syslog.conf` file, and this will make the syslog system unstable. Also note that some implementations of `syslogd` are limited to 20 valid entries in the `/etc/syslog.conf` file.

The line specified will write all syslog messages to the file. It is also possible to configure `syslogd` to only write particular messages to the file. Refer to the UNIX online manual pages for `syslogd.conf` for more details.

If you want to configure the probe to read from a named pipe (FIFO) instead of a log file, it will be necessary to create this FIFO before starting the probe. To do this you need to issue a `mknod` command at the UNIX prompt. For example, if you want the named pipe used by syslogd and the Syslog Probe to be `/var/adm/nco` you would need to execute the following:

```
mknod /var/adm/nco p
```

Refer to the UNIX online manual pages for `mknod` for further details.

Alternatively, you can create the named pipe using the following command:

```
mkfifo /var/adm/nco
```

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 acquires event data from syslogd, the UNIX system message logger, by reading from a log file or a named pipe (FIFO) into which syslogd has been configured to write its messages.

Note : FIFO (First In First Out) is also known as a named pipe. A FIFO allows a program to write to a file and another process to read what has been written without the file expanding.

Data acquisition is described in the following topics:

- "Modes of operation" on page 3
- "Sending a SIGHUP signal" on page 4
- "Peer-to-peer failover functionality" on page 4

Modes of operation

The modes of operation determine how the probe stores and reads recovery data. This affects how the probe behaves on startup.

You can run the probe in one of the following modes:

- `Recovery` - The probe stores recovery data in a recovery file. When the probe starts, it attempts to reference the recovery file. If a recovery file is not present (for example, when the probe starts for the first time), the probe creates one and sets the current position in the log file; it then reads events as they are received. If a recovery file is present, the probe replays the log file from the position set in the recovery file and continues to read the log file as new events are received. To run the probe in recovery

mode, set the **ReplayFile** and **CleanStart** properties to 0 and the **RecoveryFile** property to `$OMNIHOME/var/syslog.reco`.

- `Cleanstart` - The probe ignores the recovery file and starts reading events from the log file created after the probe started. To run the probe in cleanstart mode, set the **CleanStart** property to 1 and set the **ReplayFile** property to 0.

  Note : `Cleanstart` is not supported if you are running the probe against a named pipe.

- `Replay` - The probe ignores the recovery file and starts reading events from the beginning of the log file, and then terminates. To run the probe in replay mode, set the **ReplayFile** property to 1 and set the **CleanStart** property to 0.

  Note : If you set both the **CleanStart** property and the **ReplayFile** property to 1, the probe replays the log file from the start and then continues to read the log file as new events are received.

Sending a SIGHUP signal

The probe can send a SIGHUP signal to the syslog daemon on startup. This forces the daemon to reread its configuration file.

To send a SIGHUP signal, the probe must be run as `root`. Use the following steps to ensure that the probe can be run safely without abusing root privileges:

1. As `root`, change the owner of the probe binary using `chown root nco_p_syslog`.
2. As `root`, enable the probe binary to run as `setuid root`, using `chmod +s nco_p_syslog`.
3. Run the probe as a normal user.

This enables the probe to run as a normal user until it needs to perform the SIGHUP, at which point it becomes `root`, sends the signal to the daemon, and then relinquishes root privileges.

Note :

As running a probe as `suid root` causes environment variables to be ignored, this procedure only works if the IBM Tivoli Netcool/OMNIbus installation is on a local file system and installed in the default location.

There are potential problems when using the probe with suid root on AIX. Problems regarding library paths and events not being read properly by the probe have been noted on this platform. The workaround for this issue is to run the probe as a normal user and SIGHUP the syslog daemon by hand if a reread of the syslog configuration file is required.

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"
```

Limitations on the length of an event processed by the Syslog Probe

The Syslog Probe reads syslog messages line by line. Each line is limited to a length of 2056 bytes. This is due to an Internet RFC Protocol. The probe truncates any line that exceeds 2056.

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 3. Properties and command line options

Property name	Command line option	Description
BreakCharacters *string*	`-break` *string*	Use this property to list the characters that are used in the FIFO to separate non-quoted tokens. The default is `,=`.
CleanStart *integer*	`-cleanstart` (This is equivalent to **CleanStart** with a value of 1.) `-nocleanstart` (This is equivalent to **CleanStart** with a value of 0.)	Use this property to specify whether the probe should ignore the recovery file and start reading events from the log file or FIFO created after the probe started. This property takes the following values: 0: The probe disables clean start. 1: The probe enables clean start. The default is 0. **Note :** If you have specified a named pipe using the **FifoName** property, the probe ignores the value set for this property. This is because this functionality cannot be used with FIFOs.

Table 3. Properties and command line options (continued)

Property name	Command line option	Description
FifoName *string*	`-fifoname` *string*	Use this property to specify the path to the FIFO in which syslog messages are created and read. The default is " ".
InactivityAlarmTime *integer*	`-inactivityalarmtime` *integer*	Use this property to specify the time (in seconds) the probe allows a port to be inactive before sending an inactivity alarm. The probe generates a ProbeWatch message for every interval of inactivity that occurs. The default is `60`. **Note :** Setting this property to `0` disables the inactivity feature.
LogFile *string*	`-logfile` *string*	Use this property to specify the path to the log file from which the probe reads syslog messages. The default is `/var/log/ncolog`.
OffsetOne *integer*	`-offset1` *integer*	Use this property to specify the number of token elements to create. The default is `20`.
OffsetTwo *integer*	`-offset2` *integer*	Use this property to specify the position (count of tokens) within the syslog message at which the details section begins. The default is `6`.
OffsetZero *integer*	`-offset0` *integer*	Use this property to specify the character position from where the probe should parse the event data. The default is `0`.
QuoteCharacters *string*	`-quote` *string*	Use this property to specify the characters that the probe treats as quote marks. Anything contained within matching quote characters is treated as a single token. The default is `\'\"`.

Table 3. Properties and command line options (continued)

Property name	Command line option	Description
RecoveryFile *string*	`-recoveryfile` *string*	Use this property to specify the name of the recovery file to which the probe writes recovery data. The default is `$OMNIHOME/var/syslog.reco`. **Note :** If you have specified a named pipe using the **FifoName** property, the probe ignores the value set for this property. This is because this functionality cannot be used with FIFOs.
ReplayFile *integer*	`-noreplayfile` (This is equivalent to **ReplayFile** with a value of `0`.) `-replayfile` (This is equivalent to **ReplayFile** with a value of `1`.)	Use this property to specify whether the probe reads events from the beginning of the event logs. This property takes the following values: `0`: The probe checks the recovery file and reads events starting from the last event read. `1`: The probe reads events from the beginning of the event log, creating events for each one. The default is `0`. **Note :** If you have specified a named pipe using the **FifoName** property, the probe ignores the value set for this property. This is because this functionality cannot be used with FIFOs.
SendHUP *integer*	`-nosendhup` (This is equivalent to **SendHUP** with a value of `0`.) `-sendhup` (This is equivalent to **SendHUP** with a value of `1`.)	Use this property to specify whether the probe sends a SIGHUP signal to the syslog daemon on startup. This property takes the following values: `0`: The probe does not send a SIGHUP signal. `1`: The probe sends a SIGHUP signal. The default is `0`. **Note :** To send SIGHUP signal, the probe must be used with suid root. For details about using the **SendHUP** property and for details about a known issue on AIX, see "Sending a SIGHUP signal" on page 4.

Table 3. Properties and command line options (continued)		
Property name	**Command line option**	**Description**
SyslogPIDFile *string*	`-syslogpidfile` *string*	Use this property to specify the name of the file that stores the process ID for the device. The default is `/etc/syslog.`*pid*, where *pid* is the process ID number. **Note :** Make sure that the user running the probe has read permission to the file that you specify with this property.
TimeFormat *string*	`-timeformat` *string*	Use this property to specify the timestamp conversion format (refer to the UNIX online manual page for `strptime`). The default is `%b %d %T`. **Note :** The probe will not recognize the time format if the locale is not set to English.
WhiteSpaces *string*	`-white` *string*	Use this property to specify the characters that the probe treats as whitespace that separate tokens. The default is `\t`.

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 generates. Not all the elements described are generated for each event; the elements that the probe generates depend on the event type.

Table 4. Elements	
Element name	**Element description**
`$Details`	This element contains the main body of syslog messages, as specified by properties **`OffsetZero`**, **`OffsetOne`**, and **`OffsetTwo`**.
`$Time`	This element displays the timestamp of the syslog message, as specified in UNIX integer format.
`$Token`*nn*	This element contains the tokens generated from syslog messages, as specified by properties **`OffsetZero`** and **`OffsetOne`**.
`$TokenCount`	This element contains the number of tokens created.
`$EventCount`	This element identifies the sequence number of the event.

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 5. Error messages

Error	Description	Action
`Both FifoName and LogFile properties are set to NULL`	The **FifoName** property and **LogFile** property have both been omitted.	Specify a value for either the **FifoName** property or for the **LogFile** property.
`Cannot open file/fifo : file_or_fifo_name` `Failed to open fifo_name`	The probe could not open the file specified by the **LogFile** property or the FIFO specified by the **FifoName** property.	Check that the location of the file or FIFO has been specified correctly, and that the permissions are set correctly.
`Cannot stat file : file_name`	The probe cannot obtain the status of the specified file.	Check that the file exists and that the permissions are set correctly.
`Date stamp not in recognised format`	The date stamp is not in the format specified by the **TimeFormat** property.	Adjust the **TimeFormat** property appropriately.

`CreateAndSet failed for element : value`
`Failed to create NSProbe event : event_id`
`Failed to get properties`
`Failed to set NSProbe event to asynchronous: event_id`
	These are internal errors.	Contact IBM Software Support.

`Failed to install signal handlers`	The signal handler failed to initiate when the probe started.	Restart the probe. If the same problem recurs, contact IBM Software Support.

`Failed to destroy event : event_id`
`Failed to process event : event_id`
`Failed to set event times : event_id`
	The probe failed to process the event correctly.	Check that the events in the file specified by the **LogFile** property or the FIFO specified by the **FifoName** property are formatted correctly.

Table 5. Error messages (continued)

Error	Description	Action

`Failed to allocate memory for event`
`Failed to allocate memory for syslog line`
`Failed to allocate storage for fifo data`
	The probe failed to allocate internal storage.	Make more memory available.

`Failed to open syslog pid file : reason`	The syslog PID file specified by the **SyslogPIDFile** property could not be opened or accessed.	Adjust the **SyslogPIDFile** property if necessary, and check file permissions.
`Failed to process line`	The probe was unable to process a line of the alarm against the rules file.	Refer to your support contract for information about contacting the help desk.
`Failed to SIGHUP syslog daemon : reason`	The probe failed to send a SIGHUP signal to the syslog daemon on startup.	See "Sending a SIGHUP signal" on page 4 for details about the steps that you need to perform to use this functionality. If you still receive this message having followed these steps, and if a reread of the syslog configuration file is required, run the probe as a normal user (instead of as the root) and SIGHUP the syslog daemon manually. If the problem persists contact IBM Software Support.
`Failed to translate date stamp into UTC`	An alert was received that did not match the date stamp format expected.	Contact IBM Software Support.
`New event length exceeds 2056 bytes`	The probe generates this warning message when it receives a message that is longer than 2056 bytes. The probe truncates the message to retain the first 2056 bytes and discards the rest.	This message is for information only. No action is required.

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 6. ProbeWatch messages

ProbeWatch message	Description	Triggers or causes
`Cannot open recovery file` *`filename`* `for reading: No such file or directory`	The probe is unable to open the recovery file specified by the **RecoveryFile** property at startup.	Either the recovery file does not exist, has been locked, or the probe does not have permission to access it. The probe starts in clean start mode instead of recovery mode.

`Cannot open recovery file` *`filename`* `for writing: No such file or directory`
 	
`Cannot read recovery file. Continuing with invalid values`
	The probe is unable to read or update the recovery file specified by the **RecoveryFile** property.	Either the recovery file has been locked or the probe does not have permission to write to it. The probe continues functioning as normal, but without updating the recovery file.

`Cannot stat file: No such file or directory`	The probe is unable to obtain the status of the file specified by the **LogFile** property.	Possible reasons include the log file does not exist or has been locked, or the probe does not have permission to access the file. The probe then pauses for a period specified by the **PollTime** property before attempting to open the log file again.
`Failed to send SIGHUP to syslogd daemon`	The probe has failed to send a HUP signal to the `syslogd` process during probe startup.	Either the probe is unable to open the `syslogd` PID file or an error has occurred while sending the HUP signal to the `syslogd` process. Check that the PID file is in the location set by the SyslogPIDFile property.
`File inode changed! Re-opening file`	The probe detected a change in the inode number of the syslog log file and is reopening the log file.	A syslog log file rollover occurred. The probe reads the rolled-over log file from the beginning.
`File truncated! Reopening file`	The probe detected a truncation of the syslog log file.	A syslog log file rollover occurred. The probe reads the rolled-over log file from the beginning.
`Going Down`	The probe is shutting down.	The probe is shutting down after performing the shutdown routine.
`No syslog messages received for` *`n`* `seconds`	No new syslog messages have been received for the specified number of seconds.	The probe has received no messages for the time specified by the **InactivityAlarmTime** property.
`Running ...`	The probe is running normally.	The probe has just been started.

Table 6. ProbeWatch messages (continued)

ProbeWatch message	Description	Triggers or causes
`Unable to get events`	A problem occurred while trying to obtain the syslog log entries.	Either there was a problem with one of the components in the path prefix of the log file or named pipe (FIFO) (such as search permission is denied for the component) or there was a connection failure.

Appendix A. Notices and Trademarks

This appendix contains the following sections:

- Notices
- Trademarks

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