Contents

NETCONF commands

The device supports the FIPS mode that complies with NIST FIPS 140-2 requirements. Support for features, commands, and parameters might differ in FIPS mode and non-FIPS mode. For more information about FIPS mode, see *Security Configuration Guide*.

netconf capability specific-namespace

Use **netconf capability specific-namespace** to configure the device to use module-specific namespaces.

Use **undo netconf capability specific-namespace** to restore the default.

Syntax

netconf capability specific-namespace

undo netconf capability specific-namespace

Default

The device uses the common namespace.

Views

System view

Predefined user roles

network-admin

Usage guidelines

NETCONF supports both the common namespace and module-specific namespaces. The common namespace is incompatible with module-specific namespaces. To set up a NETCONF session, the device and the client must use the same type of namespaces. By default, the common namespace is used. If the client does not support the common namespace, use this command to configure the device to use module-specific namespaces.

For this command to take effect, you must reestablish the NETCONF session.

Examples

Configure the device to use module-specific namespaces.

```
<Sysname> system-view
[Sysname] netconf capability specific-namespace
```

netconf idle-timeout

Use **netconf idle-timeout** to set the NETCONF session idle timeout time.

Use **undo netconf idle-timeout** to restore the default.

Syntax

netconf { **soap** | **agent** } **idle-timeout** *minute*

undo netconf { **soap** | **agent** } **idle-timeout**

Default

The NETCONF session idle timeout time is 10 minutes for NETCONF over SOAP over HTTP sessions and NETCONF over SOAP over HTTPS sessions.

The NETCONF session idle timeout time is 0 minutes for NETCONF over SSH sessions, NETCONF over Telnet sessions, and NETCONF over console sessions. The sessions never time out.

Views

System view

Predefined user roles

network-admin

Parameters

soap: Specifies the NETCONF over SOAP over HTTP sessions and NETCONF over SOAP over HTTPS sessions.

agent: Specifies the NETCONF over SSH sessions, NETCONF over Telnet sessions, and NETCONF over console sessions.

minute: Specifies the NETCONF session idle timeout time in minutes. The value range is as follows:

- 1 to 999 for NETCONF over SOAP over HTTP sessions and NETCONF over SOAP over HTTPS sessions.
- 0 to 999 for NETCONF over SSH sessions, NETCONF over Telnet sessions, and NETCONF over console sessions. To disable the timeout feature, set this argument to 0.

Usage guidelines

If no NETCONF packets are exchanged on a NETCONF session within the NETCONF session idle timeout time, the device tears down the session.

Examples

Set the NETCONF session idle timeout time to 20 minutes for NETCONF over SOAP over HTTP sessions and NETCONF over SOAP over HTTPS sessions.

```
<Sysname> system-view
[Sysname] netconf soap idle-timeout 20
```

netconf log

Use **netconf log** to enable NETCONF logging.

Use **undo netconf log** to remove the configuration for the specified NETCONF operation sources and NETCONF operations.

Syntax

netconf log source { **all** | { **agent** | **soap** | **web** } * } { **protocol-operation** { **all** | { **action** | **config** | **get** | **session** | **set** | **syntax** | **others** } * } | **row-operation** | **verbose** }

undo netconf log source { **all** | { **agent** | **soap** | **web** } * } { **protocol-operation** { **all** | { **action** | **config** | **get** | **session** | **set** | **syntax** | **others** } * } | **row-operation** | **verbose** }

Default

NETCONF logging is disabled.

Views

System view

Predefined user roles

network-admin

Parameters

source: Specifies a NETCONF operation source that represents clients that use a protocol.

- **all**: Specifies NETCONF clients that use all protocols.
- **agent**: Specifies clients that use Telnet, SSH, NETCONF over console, or NETCONF over SSH.
- **soap**: Specifies clients that use SOAP over HTTP, or SOAP over HTTPS.
- **web**: Specifies clients that use Web.

protocol-operation: Logs requests and replies for specific types of NETCONF operations.

- **all**: Specifies all types of NETCONF operations.
- **action**: Specifies the <action> operation.
- **config**: Specifies the configuration-related NETCONF operations, including the <CLI>, <save>, <load>, <rollback>, <lock>, <unlock>, and <save-point> operations.
- **get**: Specifies the data retrieval-related NETCONF operations, including the <get>, <get-config>, <get-bulk>, <get-bulk-config>, and <get-sessions> operations.
- **session**: Specifies session-related NETCONF operations, including the <kill-session> and <close-session> operations, and capability exchanges by hello messages.
- **set**: Specifies all <edit-config> operations.
- **syntax**: Specifies the requests that include XML and schema errors.
- **others**: Specifies NETCONF operations except for those specified by keywords **action**, **config**, **get**, **set**, **session**, and **syntax**.

row-operation: Logs row operations for <action> and <edit-config> operations.

verbose: Logs detailed information about requests and replies for types of NETCONF operations, including packet contents of format-correct requests and error information about failed <edit-config> operations.

Usage guidelines

If you specify the **protocol-operation** keyword, the device logs each of the matching operation and the operation result. For example, if you perform a NETCONF operation to create VLANs 3 through 5, the device outputs the following log messages:

```
%Mar 21 17:11:34:479 2017 Sysname XMLSOAP/6/XML_REQUEST: test from 192.168.100.198,
session id 2,message-id 100, receive edit-config request.
%Mar 21 17:11:34:483 2017 Sysname XMLSOAP/6/EDIT-CONFIG: test from 192.168.100.198,
session id 2,message-id 100, execute success.
```

If you specify the **row-operation** keyword, the device logs each row operation and the operation result for an <action> or <edit-config> operation. For example, if you perform a NETCONF operation to create VLANs 3 through 5, the device outputs the following log messages:

```
%Mar 31 17:50:02:608 2017 Sysname XMLSOAP/6/EDIT-CONFIG: User (test, 192.168.100.20,
session ID 1), message ID=100, operation=create VLAN/VLANs (ID=3), result=Succeeded. No
attributes.
%Mar 31 17:50:02:609 2017 Sysname XMLSOAP/6/EDIT-CONFIG: User (test, 192.168.100.20,
session ID 1), message ID=100, operation=create VLAN/VLANs (ID=4), result=Succeeded. No
attributes.
%Mar 31 17:50:02:611 2017 Sysname XMLSOAP/6/EDIT-CONFIG: User (test, 192.168.100.20,
session ID 1), message ID=100, operation=create VLAN/VLANs (ID=5), result=Succeeded. No
attributes.
```

For NETCONF to correctly send the generated logs to the information center, you must also configure the information center. For information about information center configuration, see *Network Management and Monitoring Configuration Guide*.

Examples

Configure the device to log NETCONF edit-config information sourced from agent clients.

```
<Sysname> system-view
[Sysname] netconf log source agent protocol-operation set
```

netconf soap acl

Use **netconf soap acl** to apply an IPv4 ACL to control NETCONF over SOAP access.

Use **undo netconf soap acl** to restore the default.

Syntax

In non-FIPS mode:

netconf soap { **http** | **https** } **acl** { *ipv4-acl-number* | **name** *ipv4-acl-name* }

undo netconf soap { **http** | **https** } **acl**

In FIPS mode:

netconf soap https acl { *ipv4-acl-number* | **name** *ipv4-acl-name* }

undo netconf soap https acl

Default

No IPv4 ACL is applied to control NETCONF over SOAP access.

Views

System view

Predefined user roles

network-admin

Parameters

ipv4-acl-number: Specifies an IPv4 ACL by its number in the range of 2000 to 2999.

http: Applies an IPv4 ACL to control NETCONF over SOAP over HTTP access.

https: Applies an IPv4 ACL to control NETCONF over SOAP over HTTPS access.

name *ipv4-acl-name*: Specifies an IPv4 ACL by its name. The *acl-name* argument is a case-insensitive string of 1 to 63 characters. It must start with an English letter. To avoid confusion, it cannot be **all**.

Usage guidelines

To control NETCONF over SOAP access, specify an ACL that exists and has rules.

- If the specified ACL exists and has rules, only clients permitted by the ACL can establish NETCONF over SOAP sessions.
- If no ACL is applied or the applied ACL does not exist or does not have rules, all NETCONF clients can establish NETCONF over SOAP sessions.

If you execute the **netconf soap http acl** command multiple times, the most recent configuration takes effect. The same is true for the **netconf soap https acl** command.

Examples

Use IPv4 ACL 2001 to allow only NETCONF clients from subnet 10.10.0.0/16 to establish NETCONF over SOAP over HTTP sessions.

```
<Sysname> system-view
[Sysname] acl basic 2001
```

```
[Sysname-acl-ipv4-basic-2001] rule permit source 10.10.0.0 0.0.255.255
[Sysname-acl-ipv4-basic-2001] quit
[Sysname] netconf soap http acl 2001
```

netconf soap domain

Use **netconf soap domain** to specify a mandatory authentication domain for NETCONF users.

Use **undo netconf soap domain** to restore the default.

Syntax

netconf soap domain *domain-name*

undo netconf soap domain

Default

No mandatory authentication domain is specified for NETCONF users.

Views

System view

Predefined user roles

network-admin

Parameters

domain-name: Specifies an ISP domain by its name, a case-insensitive string of 1 to 255 characters. For information about ISP domains, see *Security Configuration Guide*.

Usage guidelines

You can use either of the following methods to specify an authentication domain:

- Execute the **netconf soap domain** command to specify a mandatory authentication domain. After this command is executed, all NETCONF users are placed in the domain for authentication.
- Add an authentication domain to the <UserName> parameter of a SOAP request. The authentication domain takes effect only on the current request.

The authentication domain specified by using this command takes precedence over the authentication domain specified by the <UserName> parameter of a SOAP request.

If you execute this command multiple times, the most recent configuration takes effect.

Examples

Specify mandatory authentication domain **my-domain** for NETCONF users.

```
<Sysname> system-view
[Sysname] netconf soap domain my-domain
```

netconf soap dscp

Use **netconf soap dscp** to set the DSCP value for outgoing NETCONF over SOAP packets.

Use **undo netconf soap dscp** to restore the default.

Syntax

In non-FIPS mode:

netconf soap { **http** | **https** } **dscp** *dscp-value*

undo netconf soap { **http** | **https** } **dscp**

In FIPS mode:

netconf soap https dscp *dscp-value*

undo netconf soap https dscp

Default

The DSCP value is 0 for outgoing NETCONF over SOAP packets.

Views

System view

Predefined user roles

network-admin

Parameters

dscp-value: Specifies a DSCP value in the range of 0 to 63. A larger DSCP value represents a higher priority.

http: Specifies NETCONF over SOAP over HTTP packets.

https: Specifies NETCONF over SOAP over HTTPS packets.

Usage guidelines

The DSCP value of an IP packet specifies the priority level of the packet and affects the transmission priority of the packet.

Examples

Set the DSCP value to 30 for outgoing NETCONF over SOAP over HTTP packets.

```
<Sysname> system-view
[Sysname] netconf soap http dscp 30
```

netconf soap enable

Use **netconf soap enable** to enable NETCONF over SOAP.

Use **undo netconf soap enable** to disable NETCONF over SOAP.

Syntax

In non-FIPS mode:

netconf soap { **http** | **https** } **enable**

undo netconf soap { **http** | **https** } **enable**

In FIPS mode:

netconf soap https enable

undo netconf soap https enable

Default

NETCONF over SOAP is disabled.

Views

System view

Predefined user roles

network-admin

Parameters

http: Specifies NETCONF over SOAP over HTTP.

https: Specifies NETCONF over SOAP over HTTPS.

Usage guidelines

This command enables the device to resolve NETCONF messages that are encapsulated with SOAP in HTTP or HTTPS packets.

Examples

Enable NETCONF over SOAP over HTTP.

```
<Sysname> system-view
[Sysname] netconf soap http enable
```

netconf ssh server enable

Use **netconf ssh server enable** to enable NETCONF over SSH.

Use **undo netconf ssh server enable** to disable NETCONF over SSH.

Syntax

netconf ssh server enable

undo netconf ssh server enable

Default

NETCONF over SSH is disabled.

Views

System view

Predefined user roles

network-admin

Usage guidelines

This feature allows you to use an SSH client to invoke NETCONF as an SSH subsystem. Then, you can directly use XML messages to perform NETCONF operations without using the **xml** command.

Before you execute this command, configure the authentication mode for users as **scheme** on the device. Then, the NETCONF-over-SSH-enabled user terminals can access the device through NETCONF over SSH.

Only capability set **urn:ietf:params:netconf:base:1.0** is available. It is supported by both the device and user terminals.

Examples

Enable NETCONF over SSH.

```
<Sysname> system-view
[Sysname] netconf ssh server enable
```

netconf ssh server port

Use **netconf ssh server port** to specify a port to listen for NETCONF over SSH session requests.

Use **undo netconf ssh server port** to restore the default.

Syntax

netconf ssh server port *port-number*

undo netconf ssh server port

Default

The device uses port 830 to listen for NETCONF over SSH session requests.

Views

System view

Predefined user roles

network-admin

Parameters

*port-numbe*r: Specifies a port by its number in the range of 1 to 65535.

Usage guidelines

Make sure the specified port is not being used by other services.

Examples

Use port 800 to listen for NETCONF over SSH session requests.

```
<Sysname> system-view
[Sysname] netconf ssh server port 800
```

xml

Use **xml** to enter XML view.

Syntax

xml

Views

User view

Predefined user roles

network-admin

network-operator

Usage guidelines

In XML view, use NETCONF messages to configure the device or obtain data from the device. The NETCONF operations you can perform depend on the user roles you have, as shown in Table 1.

Table 1 NETCONF operations available for the predefined user roles

User role	NETCONF operations
network-admin	All NETCONF operations
network-operator	• Get • Get-bulk • Get-bulk-config • Get-config • Get-sessions • Close-session

To ensure the format correctness of NETCONF messages in XML view, do not enter NETCONF messages manually. Copy and paste the messages.

While the device is performing a NETCONF operation, do not perform any other operations, such as pasting a NETCONF message or pressing **Enter**.

For the device to identify NETCONF messages, you must add end mark **]]>]]>** at the end of each NETCONF message.

After you enter XML view, the device automatically advertises its NETCONF capabilities to the client. In response, you must configure the client to notify the device of its supported NETCONF capabilities. After the capability exchange, you can use the client to configure the device.

NETCONF messages must comply with the XML format requirements and semantic and syntactic requirements in the NETCONF XML API reference for the device. As a best practice, use third-party software to generate NETCONF messages to ensure successful configuration.

To quit XML view, use a NETCONF message instead of the **quit** command.

If you have configured a shortcut key (**Ctrl + C**, by default) by using the **escape-key** command in user line/user line class view, the NETCONF message should not contain the shortcut key string. If the NETCONF message contains the shortcut key string, relevant configurations in XML view might be affected. For example, in user line view, you configured "a" as the shortcut key by using the **escape-key a** command. When a NETCONF message includes the character "a," only the contents after the last "a" in the message can be processed.

Examples

Enter XML view.

```
<Sysname> xml
<?xml version="1.0" encoding="UTF-8"?><hello
xmlns="urn:ietf:params:xml:ns:netconf:base:1.0"><capabilities><capability>urn:ietf:pa
rams:netconf:base:1.1</capability><capability>urn:ietf:params:netconf:writable-runnin
g</capability><capability>urn:ietf:params:netconf:capability:notification:1.0</capabi
lity><capability>urn:ietf:params:netconf:capability:validate:1.1</capability><capabil
ity>urn:ietf:params:netconf:capability:interleave:1.0</capability><capability>urn:h3c
:params:netconf:capability:h3c-netconf-ext:1.0</capability></capabilities><session-id
>1</session-id></hello>]]>]]>
```

Notify the device of the NETCONF capabilities supported on the client.

```
<hello xmlns="urn:ietf:params:xml:ns:netconf:base:1.0">
  <capabilities>
    <capability>
            urn:ietf:params:netconf:base:1.0
    </capability>
  </capabilities>
</hello>]]>]]>
```

Quit XML view.

```
<rpc message-id="101" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0">
  <close-session/>
</rpc>]]>]]>
<Sysname>
```