

NETCONF Java Toolkit Overview and Installation

NETCONF Java Toolkit Overview

The NETCONF Java toolkit provides an object-oriented interface for communicating with a NETCONF server. The toolkit enables programmers familiar with the Java programming language to easily connect to a device, open a NETCONF session, construct configuration hierarchies in XML, and create and execute operational and configuration requests. You can create your own Java applications to manage and configure routing, switching, and security devices.

The NETCONF Java toolkit provides classes with methods that implement the functionality of the NETCONF protocol operations defined in [RFC 4741](#). All basic protocol operations are supported. The NETCONF XML management protocol uses XML-based data encoding for configuration data and remote procedure calls. The toolkit provides classes and methods that aid in creating, modifying, and parsing XML.

The NETCONF Java toolkit has four basic classes, which are described in Table 1.

Table 1: NETCONF Java Toolkit Classes

Class	Summary
Device	Defines the device on which the NETCONF server runs, and represents the SSHv2 connection and default NETCONF session with that device.
NetconfSession	Represents a NETCONF session established with the device on which the NETCONF server runs.
XMLBuilder	Creates XML-encoded data.
XML	XML-encoded data that represents an operational or configuration request or configuration data.

A *configuration management server* is generally a PC or workstation that is used to configure a router, switch, or security device remotely. The communication between the configuration management server and the NETCONF server via the NETCONF Java toolkit involves:

- Establishing a NETCONF session over SSHv2 between the configuration management server and the NETCONF server.
- Creating RPCs corresponding to requests and sending these requests to the NETCONF server.
- Receiving and processing the RPC replies from the NETCONF server.

To use the NETCONF Java toolkit, you must install the toolkit and add the .jar path to your CLASSPATH. For more information about installing the NETCONF Java toolkit, see “Downloading and Installing the NETCONF Java Toolkit” on page 2.

Once the toolkit is installed, you connect to a device, create a NETCONF session, and execute operations by adding the associated code to a Java program file, which is then compiled and executed.



NOTE: Juniper Networks devices running Junos OS Release 7.5R1 or later support the NETCONF XML management protocol.

Downloading and Installing the NETCONF Java Toolkit

A *configuration management server* is a PC or workstation that is used to configure a router, switch, or security device remotely. To use the NETCONF Java toolkit, download and install the toolkit on the configuration management server. The toolkit contains the Netconf.jar library, which is compatible with Java Version 1.4 and later. The following tasks are discussed:

1. Downloading the NETCONF Java Toolkit on page 2
2. Installing the NETCONF Java Toolkit on page 2
3. Satisfying Requirements for SSHv2 Connections on page 3

Downloading the NETCONF Java Toolkit

To download the NETCONF Java toolkit to the configuration management server:

1. Access the Juniper Networks Customer Support Center Web page at <http://www.juniper.net/support/>.
2. Under Support, click the Download Software link.
3. Under the Network Management section, click the NETCONF XML Management Protocol link.
4. Click the link for the appropriate software release.
5. Select the Software tab.
6. Download the Netconf.jar library to the configuration management server.

Installing the NETCONF Java Toolkit

To install the NETCONF Java toolkit on the configuration management server:

1. Include the Netconf.jar file in the CLASSPATH of your local Java development environment.

For more information about setting the CLASSPATH, see <http://download.oracle.com/javase/1.4.2/docs/tooldocs/windows/classpath.html>.

2. Ensure SSHv2/NETCONF connectivity to the device on which the NETCONF server is running.

Satisfying Requirements for SSHv2 Connections

The NETCONF server communicates with client applications within the context of a NETCONF session. The server and client explicitly establish a connection and session before exchanging data, and close the session and connection when they are finished.

The NETCONF Java toolkit accesses the NETCONF server using the SSH protocol and uses the standard SSH authentication mechanism. To establish an SSHv2 connection with a device running Junos OS, you must ensure that the following requirements are met:

- The client application has a user account and can log in on each device where a NETCONF session will be established.
- The login account used by the client application has an SSH public/private key pair or a text-based password.
- The client application can access the public/private keys or text-based password.
- The NETCONF service over SSH is enabled on each device where a NETCONF session will be established.

For information about enabling NETCONF on a device running Junos OS and satisfying the requirements for establishing an SSH session, see the [NETCONF XML Management Protocol Guide](#).

For information about NETCONF over SSH, see RFC 4742, *Using the NETCONF Configuration Protocol over Secure SHell (SSH)*, which is available at <http://www.ietf.org/rfc/rfc4742.txt>.

Related Documentation

- [NETCONF Java Toolkit Guide](#)

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