

# HCM



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# About the Documentation

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## Documentation and Release Notes

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To obtain the most current version of all Juniper Networks® technical documentation, see the product documentation page on the Juniper Networks website at <http://www.juniper.net/techpubs/>.

If the information in the latest release notes differs from the information in the documentation, follow the product Release Notes.

Juniper Networks Books publishes books by Juniper Networks engineers and subject matter experts. These books go beyond the technical documentation to explore the nuances of network architecture, deployment, and administration. The current list can be viewed at <http://www.juniper.net/books>.

## Supported Platforms

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For the features described in this document, the following platforms are supported:

- M Series
- T Series
- MX Series

## Using the Examples in This Manual

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If you want to use the examples in this manual, you can use the **load merge** or the **load merge relative** command. These commands cause the software to merge the incoming configuration into the current candidate configuration. The example does not become active until you commit the candidate configuration.

If the example configuration contains the top level of the hierarchy (or multiple hierarchies), the example is a *full example*. In this case, use the **load merge** command.

If the example configuration does not start at the top level of the hierarchy, the example is a *snippet*. In this case, use the **load merge relative** command. These procedures are described in the following sections.

## Merging a Full Example

To merge a full example, follow these steps:

1. From the HTML or PDF version of the manual, copy a configuration example into a text file, save the file with a name, and copy the file to a directory on your routing platform.

For example, copy the following configuration to a file and name the file **ex-script.conf**. Copy the **ex-script.conf** file to the **/var/tmp** directory on your routing platform.

```
system {
  scripts {
    commit {
      file ex-script.xml;
    }
  }
}
interfaces {
  fxp0 {
    disable;
    unit 0 {
      family inet {
        address 10.0.0.1/24;
      }
    }
  }
}
```

2. Merge the contents of the file into your routing platform configuration by issuing the **load merge** configuration mode command:

```
[edit]
user@host# load merge /var/tmp/ex-script.conf
load complete
```

## Merging a Snippet

To merge a snippet, follow these steps:

1. From the HTML or PDF version of the manual, copy a configuration snippet into a text file, save the file with a name, and copy the file to a directory on your routing platform.

For example, copy the following snippet to a file and name the file **ex-script-snippet.conf**. Copy the **ex-script-snippet.conf** file to the **/var/tmp** directory on your routing platform.

```
commit {
  file ex-script-snippet.xml; }
```



2. Move to the hierarchy level that is relevant for this snippet by issuing the following configuration mode command:

```
[edit]
user@host# edit system scripts
[edit system scripts]
```

3. Merge the contents of the file into your routing platform configuration by issuing the **load merge relative** configuration mode command:

```
[edit system scripts]
user@host# load merge relative /var/tmp/ex-script-snippet.conf
load complete
```

For more information about the **load** command, see the *CLI User Guide*.

## Documentation Conventions

Table 1 on page ix defines notice icons used in this guide.

Table 1: Notice Icons







Icon	Meaning	Description
	Informational note	Indicates important features or instructions.
	Caution	Indicates a situation that might result in loss of data or hardware damage.
	Warning	Alerts you to the risk of personal injury or death.
	Laser warning	Alerts you to the risk of personal injury from a laser.
	Tip	Indicates helpful information.
	Best practice	Alerts you to a recommended use or implementation.

Table 2 on page x defines the text and syntax conventions used in this guide.

Table 2: Text and Syntax Conventions

Convention	Description	Examples
<b>Bold text like this</b>	Represents text that you type.	To enter configuration mode, type the <b>configure</b> command:  user@host> <b>configure</b>
Fixed-width text like this	Represents output that appears on the terminal screen.	user@host> <b>show chassis alarms</b>  No alarms currently active
<i>Italic text like this</i>	<ul style="list-style-type: none"> <li>Introduces or emphasizes important new terms.</li> <li>Identifies guide names.</li> <li>Identifies RFC and Internet draft titles.</li> </ul>	<ul style="list-style-type: none"> <li>A policy <i>term</i> is a named structure that defines match conditions and actions.</li> <li><i>Junos OS CLI User Guide</i></li> <li>RFC 1997, <i>BGP Communities Attribute</i></li> </ul>
<i>Italic text like this</i>	Represents variables (options for which you substitute a value) in commands or configuration statements.	Configure the machine's domain name:  [edit] root@# <b>set system domain-name</b> <i>domain-name</i>
Text like this	Represents names of configuration statements, commands, files, and directories; configuration hierarchy levels; or labels on routing platform components.	<ul style="list-style-type: none"> <li>To configure a stub area, include the <b>stub</b> statement at the [edit protocols ospf area area-id] hierarchy level.</li> <li>The console port is labeled <b>CONSOLE</b>.</li> </ul>
< > (angle brackets)	Encloses optional keywords or variables.	<b>stub</b> <default-metric <i>metric</i> >;
(pipe symbol)	Indicates a choice between the mutually exclusive keywords or variables on either side of the symbol. The set of choices is often enclosed in parentheses for clarity.	<b>broadcast</b>   <b>multicast</b>  ( <i>string1</i>   <i>string2</i>   <i>string3</i> )
# (pound sign)	Indicates a comment specified on the same line as the configuration statement to which it applies.	<b>rsvp {</b> # Required for dynamic MPLS only
[ ] (square brackets)	Encloses a variable for which you can substitute one or more values.	<b>community name members</b> [ <i>community-ids</i> ]
Indentation and braces ( { } )	Identifies a level in the configuration hierarchy.	[edit] routing-options { static { route default { nexthop <i>address</i> ; retain; } } }
;(semicolon)	Identifies a leaf statement at a configuration hierarchy level.	

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## GUI Conventions

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Table 2: Text and Syntax Conventions (*continued*)

Convention	Description	Examples
<b>Bold text like this</b>	Represents graphical user interface (GUI) items you click or select.	<ul style="list-style-type: none"> <li>In the Logical Interfaces box, select <b>All Interfaces</b>.</li> <li>To cancel the configuration, click <b>Cancel</b>.</li> </ul>
> (bold right angle bracket)	Separates levels in a hierarchy of menu selections.	In the configuration editor hierarchy, select <b>Protocols&gt;Ospf</b> .

## Documentation Feedback

We encourage you to provide feedback, comments, and suggestions so that we can improve the documentation. You can send your comments to [techpubs-comments@juniper.net](mailto:techpubs-comments@juniper.net), or fill out the documentation feedback form at <https://www.juniper.net/cgi-bin/docbugreport/>. If you are using e-mail, be sure to include the following information with your comments:

- Document or topic name
- URL or page number
- Software release version (if applicable)

## Requesting Technical Support

Technical product support is available through the Juniper Networks Technical Assistance Center (JTAC). If you are a customer with an active J-Care or JNASC support contract, or are covered under warranty, and need post-sales technical support, you can access our tools and resources online or open a case with JTAC.

- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the *JTAC User Guide* located at <http://www.juniper.net/us/en/local/pdf/resource-guides/7100059-en.pdf>.
- Product warranties—For product warranty information, visit <http://www.juniper.net/support/warranty/>.
- JTAC hours of operation—The JTAC centers have resources available 24 hours a day, 7 days a week, 365 days a year.

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For quick and easy problem resolution, Juniper Networks has designed an online self-service portal called the Customer Support Center (CSC) that provides you with the following features:

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- Search for known bugs: <http://www2.juniper.net/kb/>

- Find product documentation: <http://www.juniper.net/techpubs/>
- Find solutions and answer questions using our Knowledge Base: <http://kb.juniper.net/>
- Download the latest versions of software and review release notes: <http://www.juniper.net/customers/csc/software/>
- Search technical bulletins for relevant hardware and software notifications: <http://kb.juniper.net/InfoCenter/>
- Join and participate in the Juniper Networks Community Forum: <http://www.juniper.net/company/communities/>
- Open a case online in the CSC Case Management tool: <http://www.juniper.net/cm/>

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool: <https://tools.juniper.net/SerialNumberEntitlementSearch/>

## Opening a Case with JTAC

You can open a case with JTAC on the Web or by telephone.

- Use the Case Management tool in the CSC at <http://www.juniper.net/cm/>.
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, see <http://www.juniper.net/support/requesting-support.html>.

## PART 1

# Overview

- [HTTP Content Manager on page 3](#)



## CHAPTER 1

# HTTP Content Manager

- [HTTP Content Manager \(HCM\) on page 3](#)

## HTTP Content Manager (HCM)

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HTTP Content Management (HCM) is an application used for inspecting the HTTP traffic transmitted through port 80 (default) or any other port you use to transmit HTTP traffic. HCM can be installed on an MX-series router that is running the corresponding version of the Junos OS release. HCM inspects HTTP traffic even if the default port 80 is not used for HTTP traffic and is interoperable with ms, rms, and ams interface types. It supports fragmented HTTP request packets and GET, PUT, and POST requests.

### Configuring the HTTP-Manager Package on the Router

1. Before you install the HTTP-Manager package on the router, ensure that you have the appropriate version of the HTTP-Manager package for the Junos OS image you are using on the router. When you have confirmed that you have the right package, use the request system software add command to install the HTTP-Manager package. You would need to restart the CLI after the package is installed.

```
user@router> request system software add http-manager-12.2R2-1-A1.2.tgz
NOTICE: Validating configuration against package-name.
NOTICE: Use the 'no-validate' option to skip this if desired.
Checking compatibility with configuration
```

```
Initializing...
```

```
WARNING: cli has been replaced by an updated version:
CLI release 12.2R2 built by builder on 2012-01-24 02:36:22 UTC
Restart cli using the new version ? [yes,no] (yes)
Restarting cli ...
```

2. When the CLI has restarted, use the **show version** command to see whether the HTTP-Manager packages are installed.

```
user@router> show version
...
HTTP-Manager Management Component [12.2R2-1-A1.2]
HTTP-Manager Dataplane Component [12.2R2-1-A1.2]
user@router>..
```

3. If you want to upgrade the Junos OS image on a router that has the HTTP-Manager package installed, you should first save and then delete the HTTP-Manager configuration from the router.

- To view the HTTP-Manager configuration, use the **user@router>extension juniper-http-manager show <section>** command.
- To delete the HTTP-Manager configuration from the router, use the **user@router>extension juniper-http-manager delete <section>** command.
- Any remnant HTTP-Manager configuration left on the router will be deleted when the Junos OS image is upgraded. So, ensure that you have saved all necessary HTTP Content Management configurations.
- To delete the HTTP-Manager package from the router, use the **user@router>>request system software delete <http-manager-package>** command.
- Reinstall the HTTP-Manager package on the router after you upgrade the Junos OS image on the router.

```
root@aulavik> show version
Hostname: aulavik
Model: mx480
JUNOS Base OS boot [12.2R2]
JUNOS Base OS Software Suite [12.2R2]
JUNOS Kernel Software Suite [12.2R2]
JUNOS Crypto Software Suite [12.2R2]
JUNOS Packet Forwarding Engine Support (M/T Common) [12.2R2]
JUNOS Packet Forwarding Engine Support (MX Common) [12.2R2]
JUNOS Online Documentation [12.2R2]
JUNOS Voice Services Container package [12.2R2]
JUNOS Border Gateway Function package [12.2R2]
JUNOS Services AACL Container package [12.2R2]
JUNOS Services LL-PDF Container package [12.2R2]
JUNOS Services PTSP Container package [12.2R2]
JUNOS Services Stateful Firewall [12.2R2]
JUNOS Services NAT [12.2R2]
JUNOS Services Application Level Gateways [12.2R2]
JUNOS Services Captive Portal and Content Delivery Container package [12.2R2]
JUNOS Services RPM [12.2R2]
JUNOS Services HTTP Content Management package [12.2R2]
JUNOS Appld Services [12.2R2]
JUNOS IDP Services [12.2R2]
JUNOS Services Crypto [12.2R2]
JUNOS Services SSL [12.2R2]
JUNOS Services IPSec [12.2R2]
JUNOS Runtime Software Suite [12.2R2]
JUNOS Routing Software Suite [12.2R2]
HTTP-Manager Management Component [12.2R2-1-A1.2]
HTTP-Manager Dataplane Component [12.2R2-1-A1.2]
```

```
root@aulavik> configure
Entering configuration mode

[edit]
root@aulavik# extension juniper-http-manager show
## Last changed: 2012-06-07 13:21:36 PDT
services {
    http-manager {
        traceoptions {
            level all;
        }
    }
}
```



```
        flag all;
    }
}
}

[edit]
root@aulavik# extension juniper-http-manager delete

[edit]
root@aulavik# extension juniper-http-manager show

[edit]
root@aulavik# commit
commit complete

[edit]
root@aulavik# exit
Exiting configuration mode

root@aulavik> request system software delete http-manager-services
Removing package 'http-manager-services' ...
Removing /opt/sdk/service-packages/http-manager-services ...
Removing http-manager-services-xlr-12.2R2-1-A1.2.tgz from /var/sw/pkg ...
Notifying mspd ...

root@aulavik> request system software delete http-manager-mgmt
Removing package 'http-manager-mgmt' ...
Reloading /config/juniper.conf.gz ...
Activating /config/juniper.conf.gz ...
mgd: commit complete
Restarting mgd ...
Restarting http-manager ...

WARNING: cli has been replaced by an updated version:
CLI release 11.4R3.7 built by builder on 2012-05-14 19:51:45 UTC
Restart cli using the new version ? [yes,no] (yes)

Restarting cli ...
root@aulavik>

root@aulavik> show version
Hostname: aulavik
Model: mx480
JUNOS Base OS boot [12.2R2]
JUNOS Base OS Software Suite [12.2R2]
JUNOS Kernel Software Suite [12.2R2]
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JUNOS Services RPM [12.2R2]
```

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 JUNOS Services Crypto [12.2R2]  
 JUNOS Services SSL [12.2R2]  
 JUNOS Services IPSec [12.2R2]  
 JUNOS Runtime Software Suite [12.2R2]  
 JUNOS Routing Software Suite [12.2R2]

**Related  
Documentation**

- [Configuring HTTP URL Tracking and Policy Control on page 9](#)
- [HTTP URL Tracking and Policy Control for Client Requests on page 10](#)
- [show services hcm statistics on page 14](#)

## PART 2

# Configuration

- [Configuration Tasks on page 9](#)
- [Configuration Statements on page 13](#)



## CHAPTER 2

# Configuration Tasks

- [Configuring HTTP URL Tracking and Policy Control on page 9](#)
- [HTTP URL Tracking and Policy Control for Client Requests on page 10](#)

## Configuring HTTP URL Tracking and Policy Control

---

To configure an HTTP URL Tracking and Policy Control, include the **url-rule** *url-rule-name* statement at the **[edit services hcm]** hierarchy level:

```
services {
  hcm {
    url-rule url-rule-name {
      term term-num {
        from {
          url-list url-list-name;
          url url_identifier {
            host hostname;
            request-url page-name;
          }
        }
        then {
          discard;
          accept;
          count;
          log-request;
        }
      }
    }
    url-rule-set url-rule-set-name {
      url-rule rule1;
      url-rule rule2;
    }
  }
}
```

Each HCM rule consists of a set of terms, similar to a firewall filter. A term consists of the following:

- **from** statement—Specifies the match conditions and applications that are included and excluded.

- **then** statement—Specifies the actions and action modifiers to be performed by the router software.

**Related  
Documentation**

- [HTTP Content Manager \(HCM\) on page 3](#)
- [HTTP URL Tracking and Policy Control for Client Requests on page 10](#)
- [show services hcm statistics on page 14](#)

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## HTTP URL Tracking and Policy Control for Client Requests

The URL manipulation capability in the service plane allows an administrator to enter all the URLs associated with an action. An administrator can now enter URLs and actions in the service plane and apply them to the traffic associated with an interface and a subscriber by using the existing functions.



**NOTE:** The URL manipulation capability is supported only when the Junos OS Extension-Provider packages are installed and configured on the device.

In Junos OS releases earlier than 12.3, the extension-provider packages were variously referred to as Junos Services Framework (JSF), MP-SDK, and eJunos.

The HTTP URL manipulation allows routers to:

- Monitor HTTP transactions in the service plane and identify matching incoming HTTP requests with preconfigured URLs. When a matching HTTP request is found, the associated action and preconfigured URL are applied to the transaction.
- Maintain the statistics of HTTP requests that match the preconfigured URLs. Such statistics must be maintained per policy on a per-rule or per-term basis across all service sets.
- Display the current statistics for all visible HTTP-URL matches.
- Scale 50,000 HTTP transactions per second on a single MS-DPC network processing unit.

### Guidelines for Configuring HTTP URL Monitoring for Client Requests

HTTP URL manipulation can be configured with service rules containing a sequence of terms. The URL rules are evaluated based on the longest prefix or suffix matches. The rules and terms are configured if:

- Multiple hostnames are specified in a match condition with an OR operator (that is, “any” is a potential match).
- Multiple request-URLs are specified in a match condition with an OR operator (that is, “any” is a potential match).
- The “discard” action causes HTTP requests matched to URLs to be dropped (stateful).
- The “accept” action causes HTTP requests matched to URLs to be allowed (stateful).

- The “log-request” action causes HTTP requests matched to URLs to be logged (fast log, once per transaction).
- The “count” action causes HTTP requests matched to URLs to be counted against the specified rule or term. The total number is the total of all service sets in which the rule or terms exists.
- The “discard” action can be combined only with the “log-request” action.
- The “accept” action can be combined with the “log-request” and “count” actions.
- If any given HTTP request matches more than one rule or term, the action applied is undeterministic and may be any of the matched rules or terms.
- The number of rules, terms, url-lists, and individual clauses in the rules, terms, and url-lists are limited by service-plane memory. No hard limits are imposed.
- If a hostname is not specified, then “\*” (any) is assumed. Similarly, if a request-URL is not specified, then “\*” (any) is assumed. Matching of hostnames and request-URLs to the HTTP request follows the same process described for url-lists. However, a match happens only when both the hostname and the request-URL match an entry in the same term of a rule.
- Multiple “url” and “url-list” clauses may be entered for the same “from {}” clause.





## CHAPTER 3

# Configuration Statements

- `show services hcm statistics`

## show services hcm statistics

<b>Syntax</b>	<b>show services hcm statistics rule <i>url-rule-name</i></b>
<b>Description</b>	Display information about statistics associated with the HTTP URL manipulation.
<b>Options</b>	<i>url-rule-name</i> —Name of the URL rule.
<b>Required Privilege Level</b>	view
<b>List of Sample Output</b>	<a href="#">show services hcm statistics on page 14</a>
<b>Output Fields</b>	Table 1 lists the output fields for the <b>show services hcm statistics rule</b> command. Output fields are listed in the approximate order in which they appear.

Table 3: show services hcm statistics rule Output Fields

Field Name	Field Description	Level of Output
<b>Interface</b>	Name of the interface.	all
<b>Term id</b>	The ID from the Termination table.	all
<b>Hits</b>	Number of hits for each services hcm statistics rule.	all

## Sample Output

### show services hcm statistics

```

user@host> show services hcm statistics rule url-rule-name
Interface: ms-3/0/0
Term id          Hits
1                10
22               100
333              1000
4444             10000
6                18446744073709551615
Interface: ms-3/1/0
Term id          Hits
1                10
22               100
333              1000
4444             10000
6                18446744073709551615

```

## PART 3

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