

# Local Policy Decision Function



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Juniper Networks, Inc.  
1194 North Mathilda Avenue  
Sunnyvale, California 94089  
USA  
408-745-2000  
www.juniper.net

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# About the Documentation

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- Supported Platforms on page vii
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## Documentation and Release Notes

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## Supported Platforms

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

- 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 [Junos OS 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.

[Table 2 on page ix](#) 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

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

Convention	Description	Examples
<i>Italic text like this</i>	<ul style="list-style-type: none"> <li>Introduces important new terms.</li> <li>Identifies book 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 System Basics Configuration 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>
<b>Text like this</b>	Represents names of configuration statements, commands, files, and directories; interface names; 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 <b>ospf area area-id</b>] hierarchy level.</li> <li>The console port is labeled <b>CONSOLE</b>.</li> </ul>
< > (angle brackets)	Enclose 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   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 { # Required for dynamic MPLS only</b>
[ ] (square brackets)	Enclose a variable for which you can substitute one or more values.	<b>community name members [</b> <i>community-ids</i> <b>]</b>
Indentation and braces ( { } )	Identify 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.	
<b>J-Web GUI Conventions</b>		
<b>Bold text like this</b>	Represents J-Web 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 J-Web selections.	In the configuration editor hierarchy, select <b>Protocols&gt;Ospf</b> .

## Documentation Feedback

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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)

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- 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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- 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: <https://www.juniper.net/alerts/>

- 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

- [Local Policy Decision Function on page 3](#)



## CHAPTER 1

# Local Policy Decision Function

- [L-PDF Overview on page 3](#)

## L-PDF Overview

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Local policy decision functionality for application-related services adds support for a new process that regulates collection of statistics related to applications and application groups and tracking of information about dynamic subscribers and static interfaces. This functionality is collectively named the local policy decision function (L-PDF). L-PDF is supported on:

- MX Series routers equipped with Multiservices DPCs.
- M120 or M320 routers equipped with Multiservices 400 PICs.
- Aggregated Multiservices (AMS) PICs.

Multiple `ms-` interfaces can be bundled together in an AMS PIC interface, which causes the traffic destined for this AMS group to be distributed over the member services PICs of the group. Junos OS Trio chipsets enable the calculation of a symmetric hash for the forward and reverse flows, and support a microcode map in the forwarding plane. This capability enables load-balancing of traffic across various services PICs in an AMS group. Starting with Junos OS Release 12.1, `ams-` interfaces enable an N:1 redundancy mechanism to cluster together N number of **`ms- interfaces`** in an AMS group that supports load sharing.

Starting with Junos OS Release 11.3, local L-PDF that resides on the services PIC is supported on T320, T640, and T1600 routers. The application identification (APPID) service defines the applications and how they are grouped. The application-aware access list (AACL) service defines the applications and application groups for which statistics are collected for a specific user or interface. The L-PDF configuration defines the way in which the statistics are output.

To configure properties for statistics output, include the **`policy-decision-statistics-profile`** statement at the **`[edit accounting-options]`** hierarchy level. A new **`traceoptions`** configuration is available at the **`[edit system services local-policy-decision-function]`** hierarchy level. To configure a dynamic profile to attach a specified service set to an interface, include the **`service`** statement at the **`[edit dynamic-profiles profile-name interfaces interface-name unit logical-unit-number family inet]`** hierarchy level. To attach a service set to a static interface, include the **`service-set service-set-name`** statement at

the `[edit interfaces interface-name unit logical-unit-number family inet service (input | output)]` hierarchy level. For more information on service sets, see [Service Set Properties](#).

The following related operational commands are supported:

- `show services local-policy-decision-function flows`
- `show/clear services local-policy-decision-function statistics`
- `show/clear services application-aware-access-list statistics`

For more information on the CLI configuration, see the [Local Policy Decision Function](#).

For more information on the operational commands, see the [Junos OS System Basics and Services Command Reference](#).



## PART 2

# Configuration

- [Configuration Tasks for L-PDF on page 7](#)
- [L-PDF Configuration Statements on page 13](#)



## CHAPTER 2

# Configuration Tasks for L-PDF

- [Configuring Statistics Profiles on page 7](#)
- [Applying L-PDF Profiles to Service Sets on page 10](#)
- [Tracing L-PDF Operations on page 12](#)

## Configuring Statistics Profiles

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The local policy decision function (L-PDF) enables you to configure properties for statistics output. To do this, you create a statistics profile, which configures the files to which statistics records are exported and the format that is exported. There are two configurations you can use to specify the profile, as described in the following subsections:

- [Configuring an L-PDF Statistics Profile on page 8](#)
- [Configuring an ACL Statistics Profile on page 9](#)



**NOTE:** You must use the same configuration stanza for specifying the profile and the file selection. If configurations are committed in both hierarchies, the one at the `[edit system services local-policy-decision-function]` hierarchy level takes precedence.

---



**NOTE:**

- When a session closes before APPID has identified nested applications, the session is treated as a best-effort session and L-PDF does not get the nested application information. In such cases, nested applications will be reported as unknown applications.
  - During the time that the application identification (APPID) feature has not yet made a final determination of the application associated with a given flow, the flow does not contribute to any per-subscriber or per-application statistics collection. For more information, see [Best-Effort Application Identification of DPI-Serviced Flows](#).
-



**NOTE:** For rms- interfaces, the statistics received from the active Multiservices PICs in the RMS group are combined with the statistics of the reported ended flows kept on the Routing Engine. The aggregated value is written to the statistics file. In the case of AMS interfaces, all the Multiservices PICs consisting of the AMS group reports statistics independently. These statistics are aggregated on the Routing Engine. The Routing Engine runs an independent timer, which on expiry writes the aggregated entry in the statistics file. This method of collection causes the statistics data in the statistics file to be displayed with a small delay.

## Configuring an L-PDF Statistics Profile

You can specify an L-PDF statistics profile by including the following configuration at the **[edit accounting-options]** hierarchy level:

```
[edit accounting-options]
policy-decision-statistics-profile profile-name {
  application-aware-access-list-fields [ field-name ];
  file filename;
  files number;
  size bytes;
}
```



**NOTE:** This configuration method is not the preferred method for configuring Dynamic Application Awareness statistics. It is only maintained for backwards compatibility and may be deprecated in a future software release. The new, preferred configuration is found at the **[edit system services local-policy-decision-function]** hierarchy level, as described in “[Configuring an ACL Statistics Profile](#)” on page 9. We encourage you to migrate to the new configuration method.

You specify a profile name to identify the profile and other properties as needed by including the **policy-decision-statistics-profile** statement. The **aacl-fields** statement specifies which statistics to collect in an accounting-data log file. This log file is located on the **/var/log** directory on the router. You specify the log file by including the **file filename** statement. The filename is prefixed by the **aacl\_statistics\_** prefix; for example, if you specify the filename **lpdfd**, the log file will be **/var/log/aacl\_statistics\_lpdfd**.

The **application-aware-access-list-fields** statement supports the following options:

- **address**—IP Address
- **application**—Application name
- **application-group**—Application group name
- **input-bytes**—Number of input bytes
- **input-interface**—Input interface name

- **input-packets**—Number of input packets
- **mask**—Netmask
- **output-bytes**—Number of output bytes
- **output-packets**—Number of output packets
- **subscriber-name**—Subscriber name
- **timestamp**—Timestamp
- **vrf-name**—VPN routing and forwarding (VRF) name

For more information on configuring profiles, see the [Junos OS Network Management Configuration Guide](#).

## Configuring an ACL Statistics Profile

You can specify an ACL statistics profile by including the following configuration at the **[edit system services]** hierarchy level:

```
local-policy-decision-function {
  statistics {
    file filename {
      archive-sites [ url ];
      files number;
      size bytes;
      transfer-interval minutes;
    }
    aacl-statistics-profile profile-name {
      aacl-fields [ field-name ];
      file filename;
      report-interval minutes;
      record-mode (interim-active-only | interim-full);
    }
    record-type (delta | interim);
  }
}
```

To specify the file properties, include the **file** statement at the **[edit system services local-policy-decision-function statistics]** hierarchy level with a unique filename:

- The **archive-sites** statement specifies one or more URLs for archiving the files. Archiving can be done by using FTP or SCP.
- The **files** statement specifies the maximum number of files that are maintained at one time.
- The **size** statement specifies the maximum size of each file.
- The **transfer-interval** statement specifies the interval between data transfers in minutes.

You specify a profile name to identify the profile and other properties as needed by including the **aacl-statistics-profile** statement. The **aacl-fields** statement specifies which statistics to collect in an accounting-data log file. This log file is located on the **/var/stats/aacl** directory on the router. You specify the log file by including the **file filename** statement.

The **acl-fields** statement supports the following options:

- **address**—IP Address
- **all-fields**—All available fields
- **application**—Application name
- **application-group**—Application group name
- **input-bytes**—Number of input bytes
- **input-interface**—Input interface name
- **input-packets**—Number of input packets
- **mask**—Netmask
- **output-bytes**—Number of output bytes
- **output-packets**—Number of output packets
- **subscriber-name**—Subscriber name
- **timestamp**—Timestamp
- **vrf-name**—VPN routing and forwarding (VRF) name

The **record-type** statement specifies whether a record is **delta** or **interim**; **delta** is the default setting. The **report-interval** statement specifies the reporting interval in minutes; the default setting is 15 minutes and the range is 5 through 1440 minutes. The **record-mode** statement specifies how the statistics are reported for each reporting interval; the default setting is **interim-full** and reports all available statistics. To report only statistics that have changed for the reporting interval, use the **interim-active-only** setting.

For more information on configuring profiles, see the [Junos OS Network Management Configuration Guide](#).

---

## Applying L-PDF Profiles to Service Sets

---

You can optionally apply policy decision statistics profiles as part of a service-set definition. To do this, you include the **policy-decision-statistics-profile** statement at the **[edit services service-set service-set-name]** hierarchy level:

```
policy-decision-statistics-profile profile-name;
```



**NOTE:** To provide high availability for the policy decision statistics, associate the service-set definition with a redundant services PIC (rsp) interface.

You can include only one profile name in the specification for the **application-aware access-list** statement.

The following example shows a sample configuration for attachment of an L-PDF statistics profile:

```
services {
```

```

service-set test_aacl_sset {
  aacl-rules aacl_rule;
  policy-decision-statistics-profile {
    pdf_stats_prof;
  }
  interface-service {
    service-interface ms-0/3/0.0;
  }
}

```



**NOTE:** Only one service set can be applied to a single interface when L-PDF functionality is used.

The following example shows a sample configuration for attachment of a service set to a static interface:

```

interfaces {
  fe-0/0/0 {
    vlan-tagging;
    unit 1 {
      vlan-id 1;
      family inet {
        service {
          input {
            service-set test_aacl_sset;
          }
          output {
            service-set test_aacl_sset;
          }
        }
      }
      address 10.1.1.1/24;
    }
  }
}

```



**NOTE:** The session-offload statement at the [edit chassis fpc slot-number pic number adaptive-services service-package extension-provider] hierarchy level controls session offload behavior for Multiservices DPCs on MX Series routers. It controls session offload on a per-device basis, where a device is a Multiservices interface (*ms-fpc-pic-port*). Currently, the session offload function is supported for at most one Multiservices interface. When the offload function is enabled, it is strongly recommended that you limit Dynamic Application Awareness features to that Multiservices interface.

The default is to not offload any sessions. For more information on chassis configuration, see the [Junos OS System Basics Configuration Guide](#).

## Tracing L-PDF Operations

---

Tracing operations track L-PDF operations and record them in a log file. The logged error descriptions provide detailed information to help you solve problems faster.

By default, no events are traced. If you include the **traceoptions** statement at the **[edit system services local-policy-decision-function]** hierarchy level, you can customize the trace file settings:

```
traceoptions {  
  file filename <files number> <size size>;  
  flag flag;  
}
```

The flags track the following information:

- **all**—Everything
- **configuration**—Configuration traces
- **database**—Database traces
- **general**—Miscellaneous traces
- **gres**—Graceful Routing Engine switchover (GRES) traces
- **ptsp-statistics**—PTSP statistics traces
- **rtsock**—Routing socket traces
- **statistics**—Statistics traces
- **subscriber**—Subscriber traces



## CHAPTER 3

# L-PDF Configuration Statements

## acl-fields

---

<b>Syntax</b>	<pre>acl-fields {     <i>field-name</i>; }</pre>
<b>Hierarchy Level</b>	[edit system services local-policy-decision-function statistics aac1-statistics-profile <i>profile-name</i> ]
<b>Release Information</b>	Statement introduced in Junos OS Release 10.0.
<b>Description</b>	Define the statistics to collect in a data log file.
<b>Options</b>	<p><i>field-name</i>—Name of the field:</p> <ul style="list-style-type: none"><li>• <b>address</b>—IP address</li><li>• <b>all-fields</b>—All available fields</li><li>• <b>application</b>—Application name</li><li>• <b>application-group</b>—Application group name</li><li>• <b>input-bytes</b>—Number of input bytes</li><li>• <b>input-interface</b>—Input interface name</li><li>• <b>input-packets</b>—Number of input packets</li><li>• <b>mask</b>—Netmask</li><li>• <b>output-bytes</b>—Number of output bytes</li><li>• <b>output-packets</b>—Number of output packets</li><li>• <b>subscriber-name</b>—Subscriber name</li><li>• <b>timestamp</b>—Timestamp</li><li>• <b>vrf-name</b>—VPN routing and forwarding (VRF) name</li></ul>
<b>Usage Guidelines</b>	See <a href="#">“Configuring Statistics Profiles” on page 7</a> .
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## acl-statistics-profile

<b>Syntax</b>	<pre> acl-statistics-profile <i>profile-name</i> {   aacl-fields {     <i>field-name</i>;   }   file <i>filename</i>;   record-mode (interim-active-only   interim-full);   report-interval <i>minutes</i>; } </pre>
<b>Hierarchy Level</b>	<pre> [edit services service-set <i>service-set-name</i>], [edit system services local-policy-decision-function statistics] </pre>
<b>Release Information</b>	<p>Statement introduced in Junos OS Release 10.0.</p> <p><b>record-mode</b> option introduced in Junos OS Release 10.2.</p>
<b>Description</b>	Create an ACL statistics profile, which configures the files to which statistics records are exported and the format that is exported.
<b>Options</b>	<p><b>file <i>filename</i></b>—Name of the file to receive the statistics data output. Enclose the name within quotation marks. All files are placed in the directory <code>/var/stats/aacl</code>.</p> <p><b>record-mode</b>—Record mode for the reporting interval; possible values are <b>interim-active-only</b>, which reports only statistics that have changed, or <b>interim-full</b>, which reports all available statistics.</p> <p><b>report-interval <i>minutes</i></b>—Frequency at which statistics are recorded, in minutes.</p> <p><b>Default:</b> 15 minutes</p> <p><b>Range:</b> 5 through 1440 minutes</p> <p>The remaining statements are explained separately.</p>
<b>Usage Guidelines</b>	See <a href="#">“Configuring Statistics Profiles” on page 7</a> .
<b>Required Privilege Level</b>	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
<b>Related Documentation</b>	<ul style="list-style-type: none"> <li>For more information on profiles, see the <a href="#">Junos OS Network Management Configuration Guide</a>.</li> </ul>

## application-aware-access-list-fields

---

<b>Syntax</b>	<pre>application-aware-access-list-fields {     <i>field-name</i>; }</pre>
<b>Hierarchy Level</b>	[edit accounting-options policy-decision-statistics-profile <i>profile-name</i> ]
<b>Release Information</b>	Statement introduced in Junos OS Release 9.5.
<b>Description</b>	Define the statistics to collect in a data log file.
<b>Options</b>	<p><i>field-name</i>—Name of the field:</p> <ul style="list-style-type: none"><li>• <b>address</b>—IP address</li><li>• <b>application</b>—Application name</li><li>• <b>application-group</b>—Application group name</li><li>• <b>input-bytes</b>—Number of input bytes</li><li>• <b>input-interface</b>—Input interface name</li><li>• <b>input-packets</b>—Number of input packets</li><li>• <b>mask</b>—Netmask</li><li>• <b>output-bytes</b>—Number of output bytes</li><li>• <b>output-packets</b>—Number of output packets</li><li>• <b>subscriber-name</b>—Subscriber name</li><li>• <b>timestamp</b>—Timestamp</li><li>• <b>vrf-name</b>—VPN routing and forwarding (VRF) name</li></ul>
<b>Usage Guidelines</b>	See <a href="#">“Configuring Statistics Profiles” on page 7</a> .
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## file

---

<b>Syntax</b>	<pre>file <i>file-name</i> {     archive-sites <i>url</i>;     files <i>file-number</i>;     size <i>bytes</i>;     transfer-interval <i>minutes</i>; }</pre>
<b>Hierarchy Level</b>	[edit system services local-policy-decision-function statistics]
<b>Release Information</b>	Statement introduced in Junos OS Release 10.0.
<b>Description</b>	Specify a file to which statistics records are exported and the format that is exported.
<b>Options</b>	<p><b>archive-sites</b> [<i>url</i>]<b>—</b>One or more destinations for archiving data.</p> <p><b>filename</b><b>—</b>Name of the file to receive the statistics data output.</p> <p><b>files</b> <i>number</i><b>—</b>(Optional) Maximum number of accounting files.  <b>Range:</b> 3 through 1000 files  <b>Default:</b> 3 files</p> <p>If you specify a maximum number of files, you also must specify a maximum file size with the <b>size</b> option.</p> <p><b>size</b> <i>size</i><b>—</b>(Optional) Maximum size of each trace file, in kilobytes (KB), megabytes (MB), or gigabytes (GB).  <b>Syntax:</b> <i>xk</i> to specify KB, <i>xm</i> to specify MB, or <i>xg</i> to specify GB  <b>Range:</b> 262144 through 1073741824 or the maximum file size supported on your system</p> <p>If you specify a maximum file size, you also must specify a maximum number of trace files with the <b>files</b> option.</p> <p><b>transfer-interval</b> <i>minutes</i><b>—</b>Frequency at which to transfer files to archive sites, in minutes.</p>
<b>Usage Guidelines</b>	See <a href="#">“Configuring Statistics Profiles” on page 7</a> .
<b>Required Privilege Level</b>	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>

## local-policy-decision-function

---

**Syntax**    local-policy-decision-function {  
              statistics {  
                  aocl-statistics-profile *profile-name* {  
                      aocl-fields {  
                          *field-name*;  
                      }  
                      file *filename*;  
                      report-interval *minutes*;  
                  }  
                  file *file-name* {  
                      archive-sites *url*;  
                      files *file-number*;  
                      size *bytes*;  
                      transfer-interval *minutes*;  
                  }  
                  record-type (delta | interim);  
              }  
              traceoptions {  
                  file *filename* <files *number*> <size *size*>;  
                  flag *flag*;  
                  no-remote-trace;  
              }  
          }

**Hierarchy Level**    [edit system services]

**Release Information**    Statement introduced in Junos OS Release 10.0.

**Description**    Specify L-PDF properties.

**Options**    The remaining statements are explained separately.

**Usage Guidelines**    See [“Configuring Statistics Profiles” on page 7](#).

**Required Privilege Level**    interface—To view this statement in the configuration.  
                                  interface-control—To add this statement to the configuration.

## policy-decision-statistics-profile

<b>Syntax</b>	<pre> policy-decision-statistics-profile <i>profile-name</i> {     aacl-fields {         <i>field-name</i>;     }     file <i>filename</i>;     files <i>file-number</i>;     size <i>bytes</i>; } </pre>
<b>Hierarchy Level</b>	[edit accounting-options], [edit services service-set <i>service-set-name</i> ]
<b>Release Information</b>	Statement introduced in Junos OS Release 9.5.
<b>Description</b>	Create a policy decision statistics profile, which configures the files to which statistics records are exported and the format that is exported.
<b>Options</b>	<p><b>file <i>filename</i></b>—Name of the file to receive the accounting-data output. Enclose the name within quotation marks. All files are placed in the directory <code>/var/log</code>.</p> <p><b>files <i>number</i></b>—(Optional) Maximum number of accounting files.  <b>Range:</b> 2 through 1000 files  <b>Default:</b> 2 files</p> <p>If you specify a maximum number of files, you also must specify a maximum file size with the <b>size</b> option.</p> <p><b><i>profile-name</i></b>—Name of the policy decision statistics profile.</p> <p><b>size <i>size</i></b>—(Optional) Maximum size of each trace file, in kilobytes (KB), megabytes (MB), or gigabytes (GB).  <b>Syntax:</b> <i>xk</i> to specify KB, <i>xm</i> to specify MB, or <i>xg</i> to specify GB  <b>Range:</b> 10240 through 1073741824 or the maximum file size supported on your system</p> <p>If you specify a maximum file size, you also must specify a maximum number of trace files with the <b>files</b> option.</p> <p>The remaining statements are explained separately.</p>
<b>Usage Guidelines</b>	See <a href="#">“Configuring Statistics Profiles” on page 7</a> .
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
<b>Related Documentation</b>	<ul style="list-style-type: none"> <li>For more information on profiles, see the <a href="#">Junos OS Network Management Configuration Guide</a>.</li> </ul>

## statistics

---

**Syntax**

```
statistics {
  aacl-statistics-profile profile-name {
    aacl-fields {
      field-name;
    }
    file filename;
    report-interval minutes;
  }
  file file-name {
    archive-sites [ url ];
    files file-number;
    size bytes;
    transfer-interval minutes;
  }
  record-type (delta | interim);
}
```

**Hierarchy Level** [edit system services local-policy-decision-function]

**Release Information** Statement introduced in Junos OS Release 10.0.

**Description** Configure file and data specifications for recording AACL statistics.

**Options** **record-type**—Record type; possible values are **delta** or **interim**.

The remaining statements are explained separately.

**Usage Guidelines** See [“Configuring Statistics Profiles” on page 7](#).

**Required Privilege** interface—To view this statement in the configuration.

**Level** interface-control—To add this statement to the configuration.



## traceoptions

<b>Syntax</b>	<pre> traceoptions {     file <i>filename</i> &lt;files <i>number</i>&gt; &lt;size <i>size</i>&gt;;     flag <i>flag</i>;     no-remote-trace; } </pre>
<b>Hierarchy Level</b>	[edit services local-policy-decision-function], [edit system services local-policy-decision-function]
<b>Release Information</b>	Statement introduced in Junos OS Release 9.5.
<b>Description</b>	Configure local policy decision function (L-PDF) tracing options.
<b>Options</b>	<p><b>file <i>filename</i></b>—Name of the file to receive the output of the tracing operation. Enclose the name within quotation marks. All files are placed in the directory <b>/var/log</b>.</p> <p><b>files <i>number</i></b>—(Optional) Maximum number of trace files. When a trace file named <b><i>trace-file</i></b> reaches its maximum size, it is renamed <b><i>trace-file.0</i></b>, then <b><i>trace-file.1</i></b>, and so on, until the maximum number of trace files is reached. Then the oldest trace file is overwritten.</p> <p><b>Range:</b> 2 through 1000 files</p> <p><b>Default:</b> 2 files</p> <p>If you specify a maximum number of files, you also must specify a maximum file size with the <b>size</b> option.</p> <p><b><i>flag</i></b>—Tracing operation to perform. To specify more than one flag, include multiple <b>flag</b> statements.</p> <ul style="list-style-type: none"> <li>• <b>all</b>—Everything</li> <li>• <b>configuration</b>—Configuration traces</li> <li>• <b>database</b>—Database traces</li> <li>• <b>general</b>—Miscellaneous traces</li> <li>• <b>gres</b>—Graceful Routing Engine switchover (GRES) traces</li> <li>• <b>ptsp-statistics</b>—PTSP statistics traces</li> <li>• <b>rtsock</b>—Routing socket traces</li> <li>• <b>statistics</b>—Statistics traces</li> <li>• <b>subscriber</b>—Subscriber traces</li> </ul> <p><b>no-remote-trace</b>—Disable remote tracing.</p> <p><b>size <i>size</i></b>—(Optional) Maximum size of each trace file, in kilobytes (KB), megabytes (MB), or gigabytes (GB). When a trace file named <b><i>trace-file</i></b> reaches this size, it is renamed <b><i>trace-file.0</i></b>. When the <b><i>trace-file</i></b> again reaches its maximum size, <b><i>trace-file.0</i></b> is renamed</p>

***trace-file.1*** and ***trace-file*** is renamed ***trace-file.0***. This renaming scheme continues until the maximum number of trace files is reached. Then the oldest trace file is overwritten.

**Syntax:** ***xk*** to specify KB, ***xm*** to specify MB, or ***xg*** to specify GB

**Range:** 10240 through 1073741824 or the maximum file size supported on your system

If you specify a maximum file size, you also must specify a maximum number of trace files with the ***files*** option.

**Usage Guidelines** See [“Tracing L-PDF Operations” on page 12](#).

**Required Privilege** routing and trace—To view this statement in the configuration.  
**Level** routing-control and trace-control—To add this statement to the configuration.

## PART 3

# Administration

- [L-PDF Operational Mode Commands on page 25](#)



## CHAPTER 4

# L-PDF Operational Mode Commands

## clear services flows ip-action

---

<b>Syntax</b>	clear services flows ip-action
<b>Release Information</b>	Command introduced in Junos OS Release 10.0.
<b>Description</b>	Clear <b>ip-action</b> entries generated by the router to log, drop, or block traffic based on previous matches. The IP action options and targets are configured at the <b>[edit security idp idp-policy <i>policy-name</i> rulebase-ips rule <i>rule-name</i> then]</b> hierarchy level.
<b>Options</b>	This command has no options.
<b>Required Privilege Level</b>	clear
<b>Output Fields</b>	When you issue this command, you are provided feedback on the status of your request.

### Sample Output

```
user@host> clear services flows ip-action
Interface  Service set      Flows removed
ms-4/0/0   idp-service       1
```

## **clear services local-policy-decision-function statistics**

---

<b>Syntax</b>	clear services local-policy-decision-function statistics
<b>Release Information</b>	Command introduced in Junos OS Release 9.5.
<b>Description</b>	Clear local policy decision function (L-PDF) statistics.
<b>Options</b>	This command has no options.
<b>Required Privilege Level</b>	view
<b>Related Documentation</b>	<ul style="list-style-type: none"><li>• <a href="#">show services local-policy-decision-function statistics on page 30</a></li></ul>

## show services local-policy-decision-function flows

<b>Syntax</b>	<b>show services local-policy-decision-function flows</b> (interface <i>interface-name</i>   subscriber <i>subscriber-name</i> )
<b>Release Information</b>	Command introduced in Junos OS Release 9.5.
<b>Description</b>	Display local policy decision function (L-PDF) flows.
<b>Options</b>	<p><b>interface <i>interface-name</i></b>—Display L-PDF flows for the specified interfaces only.</p> <p><b>subscribers <i>subscriber-name</i></b>—Display L-PDF flows for the specified subscribers only.</p>
<b>Required Privilege Level</b>	view
<b>List of Sample Output</b>	<p><a href="#">show services local-policy-decision-function flows by interface on page 29</a></p> <p><a href="#">show services local-policy-decision-function flows by subscriber on page 29</a></p>
<b>Output Fields</b>	<p><a href="#">Table 3 on page 28</a> lists the output fields for the <b>show services local-policy-decision-function flows</b> command. Output fields are listed in the approximate order in which they appear.</p>

**Table 3: show services local-policy-decision-function flows Output Fields**

Field Name	Field Description
<b>Interface</b>	Interface name.
<b>service-set</b>	Service set name.
<b>service-set-interface</b>	Service set interface name.
<b>Currently active flows</b>	Number of currently active flows.
<b>High watermark flows</b>	Maximum number of flows.
<b>Protocol</b>	(With <b>interface</b> option) Protocol identifier.
<b>Source address</b>	(With <b>interface</b> option) Source address.
<b>Source port</b>	(With <b>interface</b> option) Source port.
<b>Destination address</b>	(With <b>interface</b> option) Destination address.
<b>Destination port</b>	(With <b>interface</b> option) Destination port.
<b>Application</b>	(With <b>interface</b> option) Application name.
<b>Application group</b>	(With <b>interface</b> option) Application group identifier.



## Sample Output

```

show services      user@host> show services local-policy-decision-function flows subscriber user@juniper.net
local-policy-      Interface: ge-0/0/5.26
decision-function
flows by interface service-set: aac1_ms30
                      service-set interface: ms-3/0/0

```

```

Currently active flows: 0
High watermark flows: 0

```

```

show services      user@host> show services local-policy-decision-function flows interface ge-1/1/0
local-policy-      Interface: ge-1/1/0.0
decision-function
flows by subscriber service-set: IDP
                      service-set interface: ms-2/0/0

```

```

Currently active flows: 2
High watermark flows: 2

```

Protocol	Source address	Source port	Destination address	Destination port
Application		Application group		
tcp	10.1.1.2	81	20.1.1.2	32813
	junos:ftp [63]	unknown [1023]		
tcp	20.1.1.2	32813	10.1.1.2	81
	junos:ftp [63]	unknown [1023]		

## show services local-policy-decision-function statistics

<b>Syntax</b>	<b>show services local-policy-decision-function statistics</b> ( <i>interface interface-name</i>   <i>subscriber subscriber-name</i> )
<b>Release Information</b>	Command introduced in Junos OS Release 9.5.
<b>Description</b>	Display local-policy-decision-function (L-PDF) statistics.
<b>Options</b>	<b>interface interface-name</b> —Display L-PDF statistics for the specified interface(s) only. <b>subscribersubscriber-name</b> —Display L-PDF statistics for the specified subscriber(s) only.
<b>Required Privilege Level</b>	view
<b>List of Sample Output</b>	<a href="#">show services local-policy-decision-function statistics by interface on page 31</a> <a href="#">show services local-policy-decision-function statistics by subscriber on page 31</a>
<b>Output Fields</b>	Table 4 on page 30 lists the output fields for the <b>show services local-policy-decision-function statistics</b> command. Output fields are listed in the approximate order in which they appear.

**Table 4: show services local-policy-decision-function statistics Output Fields**

Field Name	Field Description
<b>Interface</b>	Interface name.
<b>service-set</b>	Service set name.
<b>service-set-interface</b>	Service set interface name.
<b>Application group</b>	Application group identifier.
<b>Application</b>	Application name.
<b>Packets in</b>	Number of ingress packets.
<b>Bytes in</b>	Number of ingress bytes.
<b>Packets out</b>	Number of egress packets.
<b>Bytes out</b>	Number of egress bytes.

## Sample Output

```

show services local-policy-decision-function statistics by interface
user@host> show services local-policy-decision-function statistics interface ge-1/1/0
Interface: ge-1/1/0.0
service-set: IDP
service-set interface: ms-2/0/0

Application group      Application      Packets in      Bytes in
      Packets out      Bytes out
      junos:ftp [63]
      6                346            5                334

show services local-policy-decision-function statistics by subscriber
user@host> show services local-policy-decision-function statistics subscriber user@juniper.net
Service-set-interface: ms-1/3/0
Service set: aac1-svc-set
Application-aware-access-list statistics

Application group      Packets in      Bytes in      Packets out      Bytes
out
P2P                    16284           400           32025           200
FTP                    8700            20000        5231000        100

```



## PART 4

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