



# Implementing RCMD

This module describes how to implement RCMD.

## Feature History for Implementing RCMD

Release 5.0.0	This feature was introduced.
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## Route Convergence Monitoring and Diagnostics

Route Convergence Monitoring and Diagnostics (RCMD) is a mechanism to monitor OSPF and ISIS convergence events, gather details about the SPF runs and time taken to provision routes and LDP labels across all LCs on the router.

RCMD is a tool that collects and reports data related to routing convergence. Highlights of the RCMD mechanism are:

- Lightweight and always-on using route flow markers across routing components (all nodes & MC).
- Tracks most convergence events and all routes affected by them.
- Provides within-router view with statistics and time-lines on per convergence event basis.
- Measurements against time-line/SLA and triggers specified EEM actions on excess.
- 'On the router' reports via CLI/XML interface.
- Each RCMD enabled router provides a digest of convergence data.

The events that are monitored and reported by RCMD are:

- Add/delete of specific external or inter-area/level prefixes.
- IGP flooding propagation delays for LSA/LSP changes.

RCMD runs in two modes:

- Monitoring—detecting events and measuring convergence.

- Diagnostics—additional (debug) information collection for 'abnormal' events.

# Configuring Route Convergence Monitoring and Diagnostics

Perform these tasks to configure route convergence monitoring and diagnostics:

## SUMMARY STEPS

1. **configure**
2. **router-convergence**
3. **collect-diagnostics** *location*
4. **event-buffer-size** *number*
5. **max-events-stored** *number*
6. **monitoring-interval** *minutes*
7. **node** *node-name*
8. **protocol**
9. **priority**
10. **disable**
11. **leaf-network** *number*
12. **threshold** *value*
13. **storage-location**
14. **diagnostics** *directory-path-name*
15. **diagnostics-size**
16. **reports** *directory-path-name*
17. **reports-size**

## DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>configure</b> <b>Example:</b>  RP/0/RP0/CPU0:router# configure	Enters XR Config mode.
Step 2	<b>router-convergence</b> <b>Example:</b>  RP/0/RP0/CPU0:router(config)#router-convergence	Enters configure Router Convergence Monitoring and Diagnostics (rcmd) configuration mode.
Step 3	<b>collect-diagnostics</b> <i>location</i> <b>Example:</b>  RP/0/RP0/CPU0:router(config-rcmd)#collect-diagnostics 0/3/CPU0	Configures to collect diagnostics on specified node.
Step 4	<b>event-buffer-size</b> <i>number</i> <b>Example:</b>	Sets event buffer size 9as number of events) for storing event traces .

	Command or Action	Purpose
	RP/0/RP0/CPU0:router (config-rcmd) #event-buffer-size 100	
<b>Step 5</b>	<b>max-events-stored</b> <i>number</i>  <b>Example:</b> RP/0/RP0/CPU0:router (config-rcmd) #max-events-stored 10	Sets maximum number of events to be stored in the server.
<b>Step 6</b>	<b>monitoring-interval</b> <i>minutes</i>  <b>Example:</b> RP/0/RP0/CPU0:router (config-rcmd) #monitoring-interval 120	Sets interval (in minutes) to collect logs.
<b>Step 7</b>	<b>node</b> <i>node-name</i>  RP/0/RP0/CPU0:router (config-rcmd) #node	Configures parameters for a specified node.
<b>Step 8</b>	<b>protocol</b>  <b>Example:</b> RP/0/RP0/CPU0:router (config-rcmd) #protocol ISIS RP/0/RP0/CPU0:router (config-rcmd-PROTO) #	Specifies the protocol for which to configure RCMD parameters. <ul style="list-style-type: none"> <li>• ISIS-Select ISIS to configure parameters related to ISIS protocol</li> <li>• OSPF-Select OSPF to configure parameters related to OSPF protocol</li> </ul>
<b>Step 9</b>	<b>priority</b>  <b>Example:</b> RP/0/RP0/CPU0:router (config-rcmd-PROTO) #priority critical RP/0/RP0/CPU0:router (config-rcmd-PROTO-PRIO) #	Sets priority for monitoring of route convergence for the specified protocol. <ul style="list-style-type: none"> <li>• Critical-Set to monitor route convergence for critical priority routes</li> <li>• High-Set to monitor route convergence for high priority routes</li> <li>• Medium-Set to monitor route convergence for medium priority routes</li> <li>• Low-Set to monitor route convergence for low priority routes</li> </ul>
<b>Step 10</b>	<b>disable</b>  <b>Example:</b> RP/0/RP0/CPU0:router (config-rcmd-PROTO-PRIO) #disable	Disables the monitoring of route convergence for specified priority.
<b>Step 11</b>	<b>leaf-network</b> <i>number</i>  <b>Example:</b> RP/0/RP0/CPU0:router (config-rcmd-PROTO-PRIO) #leaf-network 100	Enables leaf network monitoring. Specify a maximum number of leaf networks to be monitored. Range for maximum number is 10-100.

	Command or Action	Purpose
<b>Step 12</b>	<b>threshold</b> <i>value</i> <b>Example:</b> RP/0/RP0/CPU0:router(config-rcmd- <i>proto-prio</i> )#threshold 1000	Specifies threshold value for convergence in milliseconds. Select a threshold value from the range. Range is 0-4294967295 milliseconds
<b>Step 13</b>	<b>storage-location</b> <b>Example:</b> RP/0/RP0/CPU0:router(config-rcmd)#storage-location RP/0/RP0/CPU0:router(config-rcmd-store)#	Sets the absolute directory path for storing diagnostic reports.
<b>Step 14</b>	<b>diagnostics</b> <i>directory-path-name</i> <b>Example:</b> RP/0/RP0/CPU0:router(config-rcmd-store)#diagnostics /disk0:/rcmd	Specifies the absolute directory path for storing diagnostic reports. Set a directory-path-name. Example: /disk0:/rcmd/ or <tftp-location>/rcmd/
<b>Step 15</b>	<b>diagnostics-size</b> <b>Example:</b> RP/0/RP0/CPU0:router(config-rcmd-store)# diagnostics-size 8	Specify a maximum size for the diagnostics directory. Set the size in %. Range is 5%-80%.
<b>Step 16</b>	<b>reports</b> <i>directory-path-name</i> <b>Example:</b> RP/0/RP0/CPU0:router(config-rcmd-store)#reports /disk0:/rcmd	Specifies the absolute directory path for storing reports. Set a directory-path-name. Example: /disk0:/rcmd/ or <tftp-location>/rcmd/
<b>Step 17</b>	<b>reports-size</b> <b>Example:</b> RP/0/RP0/CPU0:router(config-rcmd-store)#reports-size 8	Specify a maximum size for the reports directory. Set the size in %. Range is 5%-80%.