Cisco Prime Access Registrar 8.0.2 Release Notes

Cisco Prime Access Registrar (Prime Access Registrar) is a high performance, carrier class, 3GPP-compliant, 64-bit RADIUS/Diameter solution that provides scalable, flexible, intelligent authentication, authorization, and accounting (AAA) services.

Prime Access Registrar comprises a RADIUS/Diameter server designed from the ground up for performance, scalability, and extensibility for deployment in complex service provider environments including integration with external data stores and systems. Session and resource management tools track user sessions and allocate dynamic resources to support new subscriber service introductions.

Note Prime Access Registrar can be used with Red Hat Enterprise Linux (RHEL) 6.6/7.0/7.2/7.4/7.5 and CentOS 6.5 64-bit operating systems using kernel and Glibc.

Note For Prime Access Registrar release 8.0.2.1 and above, RHEL version 6.6 and above and CentOS 6.5 are supported.

Contents

This release note contains the following sections:

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System Requirements

This section describes the system requirements to install and use the Prime Access Registrar software.

Table 1 lists the system requirements for Prime Access Registrar 8.0.2.

Table 1 **Minimum Hardware and Software Requirements for Prime Access Registrar Server**

OS version	RHEL 6.6/7.0/7.2/7.4/7.5
	CentOS 6.5
	Note For Prime Access Registrar release 8.0.2.1 and above, RHEL version 6.6 and above and CentOS 6.5 are supported.
Model	X86
CPU type	Intel Xeon CPU 2.30 GHz
CPU Number	4
CPU speed	2.30 GHz
Memory (RAM)	8 GB
Swap space	10 GB
Disk space	1*146 GB

Prime Access Registrar supports JDK versions 1.7 and 1.8 from release 7.3 onwards.

Co-Existence With Other Network Management Applications

To achieve optimal performance, Prime Access Registrar should be the only application running on a given server. In certain cases, when you choose to run collaborative applications such as a SNMP agent, you must configure Prime Access Registrar to avoid UDP port conflicts. The most common conflicts occur when other applications also use ports 2785 and 2786. For more information on SNMP configuration, see the "Configuring SNMP" section in the "Configuring Cisco Prime Access Registrar" chapter of the *Cisco Prime Access Registrar 8.0 Administrator Guide*.

New and Enhanced Features in Cisco Prime Access Registrar 8.0.2

Cisco Prime Access Registrar 8.0.2 provides the following features:

- Process Level Counters for RADIUS and Diameter, page 3
- Interface Level KPI Counters, page 4
- Support for RADIIUS to JSON and JSON to RADIUS Translation, page 18
- Emergency Services Support for Diameter-EAP Requests, page 19
- TLS1.2 Support for Certificate-Based EAP Authentication Methods, page 20

Process Level Counters for RADIUS and Diameter

New process level counters are introduced for both RADIUS and Diameter as shown in Table 2.

Table 2   Process Level Counters for RADIUS and Diameter

Category	Counters	Description
Memory Counters	totalMemoryLimitForRadiusProcess	To track total memory for RADIUS process.
	totalUsedMemoryByRadiusProcess	To track used memory for RADIUS process.
	totalAvailableMemoryForRadiusProcess	To track free memory for RADIUS process.
Packet Pool counters	totalPacketsInPool	To track total allocated RADIUS packets.
	totalAvailableRadiusPackets	To track total available RADIUS packets.
	totalPacketsInUse	To track total RADIUS packets in use.
	cdbpLocalStatsTotalAvailableDiameterPackets	To track available Diameter packets.
	cdbpLocalStatsTotalNumberOfDiameterPackets	To track total allocated Diameter packets.
	cdbpLocalStatsTotalPacketsInUse	To track total Diameters packets in use.
CPU Utilization counters	totalCPUUtilizationOfRadiusProcess	To track CPU utilization for RADIUS process.

Table 3 lists the OID information for the process level counters.

Table 3   Process Level Counters OID Information

Counter	OID Name	OID
MemoryLimitForRadiusProcess	CISCO-ACCESS-REGISTRAR-MIB::carRadSvrStatsAvailableRadiusMemory	.1.3.6.1.4.1.9.10.70.1.1.9.42
	CISCO-ACCESS-REGISTRAR-MIB::carRadSvrStatsRadiusInUseMemory	.1.3.6.1.4.1.9.10.70.1.1.9.41
	CISCO-ACCESS-REGISTRAR-MIB::carRadSvrStatsTotalRadiusMemory	.1.3.6.1.4.1.9.10.70.1.1.9.40
MaximumNumberOfRadiusPackets	CISCO-ACCESS-REGISTRAR-MIB::carRadSvrStatsTotalPacketsInPool	.1.3.6.1.4.1.9.10.70.1.1.9.4
	CISCO-ACCESS-REGISTRAR-MIB::carRadSvrStatsAvailableRadiusPackets	.1.3.6.1.4.1.9.10.70.1.1.9.43
	CISCO-ACCESS-REGISTRAR-MIB::carRadSvrStatsTotalPacketsInUse	.1.3.6.1.4.1.9.10.70.1.1.9.29
MaximumNumberofDiameterPackets	CISCO-ACCESS-REGISTRAR-MIB::carDiaSvrStatsTotalDiameterPackets	.1.3.6.1.4.1.9.10.70.1.1.11.11
	CISCO-ACCESS-REGISTRAR-MIB::carDiaSvrStatsTotalPacketsInUse	.1.3.6.1.4.1.9.10.70.1.1.11.8
	CISCO-ACCESS-REGISTRAR-MIB::carDiaSvrStatsAvailableDiameterPackets	.1.3.6.1.4.1.9.10.70.1.1.11.12
CPU usage/utilization	CISCO-ACCESS-REGISTRAR-MIB::carRadSvrStatsCPUUtilization	.1.3.6.1.4.1.9.10.70.1.1.9.39

Interface Level KPI Counters

Prime Access Registrar allows you to view the Diameter peer statistics at the interface level. Applicable statistics will be listed for interfaces such as SWm, S6b, STa, SWx, NASREQ, and so on.

The following is a sample CLI that shows the Diameter statistics for a client with interface level counters:

Note The generic statistics counters are also displayed along with the interface-level counters.

Diameter Peer statistics for client: client1, 10.81.79.79 With Origin-Host 10.81.79.79, And port 4994

```
cdbpPeerStatsState = Closed
cdbpPeerStatsACRsIn = 0
cdbpPeerStatsACRsOut = 0
cdbpPeerStatsACAsIn = 0
cdbpPeerStatsACAsOut = 0
cdbpPeerStatsCERsIn = 0
cdbpPeerStatsCERsOut = 0
cdbpPeerStatsCEAsIn = 0
cdbpPeerStatsCEAsOut = 0
cdbpPeerStatsDWRsIn = 0
cdbpPeerStatsDWRsOut = 0
cdbpPeerStatsDWAsIn = 0
cdbpPeerStatsDWAsOut = 0
cdbpPeerStatsDPRsIn = 0
cdbpPeerStatsDPRsOut = 0
cdbpPeerStatsDPAsIn = 0
cdbpPeerStatsDPAsOut = 0
cdbpPeerStatsRedirectEvents = 0
cdbpPeerStatsAccDupRequests = 0
cdbpPeerStatsMalformedReqsts = 0
cdbpPeerStatsAccsNotRecorded = 0
cdbpPeerStatsWhoInitDisconnect = 0
cdbpPeerStatsAccRetrans = 0
cdbpPeerStatsTotalRetrans= 0
cdbpPeerStatsAccPendReqstsOut = 0
cdbpPeerStatsAccReqstsDropped = 0
cdbpPeerStatsHByHDropMessages = 0
cdbpPeerStatsEToEDupMessages= 0
cdbpPeerStatsUnknownTypes= 0
cdbpPeerStatsProtocolErrors = 0
cdbpPeerStatsTransientFailures = 0
cdbpPeerStatsPermanentFailures = 0
cdbpPeerStatsDWCurrentStatus= 0
cdbpPeerStatsTransportDown = 0
cdbpPeerStatsTimeoutConnAtmpts = 0
cdbpPeerStatsFailedCERs = 0
cdbpPeerStatsFailedDWRs = 0
cdbpPeerStatsFailedDPRs = 0
Stats Interface = SWm
cdbpPeerStatsASAsOut = 0
cdbpPeerStatsRARsOut = 0
cdbpPeerStatsRAAsIn = 0
cdbpPeerStatsRAAsOut = 0
cdbpPeerStatsRstRARsOut = 0
cdbpPeerStatsRstRAAsIn = 0
cdbpPeerStatsSTRsIn= 0
cdbpPeerStatsSTRsOut = 0
cdbpPeerStatsSTAsIn = 0
cdbpPeerStatsSTAsOut = 0
```

```
cdbpPeerStatsASRsIn= 0
cdbpPeerStatsASRsOut= 0
cdbpPeerStatsASAsIn = 0
cdbpPeerStatsDERsIn = 0
cdbpPeerStatsDERsOut = 0
cdbpPeerStatsDEAsIn = 0
cdbpPeerStatsDEAsOut = 0
cdbpPeerStatsAARsIn = 0
cdbpPeerStatsAARsOut = 0
cdbpPeerStatsAAAsIn = 0
cdbpPeerStatsAAAsOut = 0
cdbpPeerStatsMARsIn = 0
cdbpPeerStatsMARsOut = 0
cdbpPeerStatsMAAsIn = 0
cdbpPeerStatsMAAsOut = 0
cdbpPeerStatsSARsIn = 0
cdbpPeerStatsSARsOut = 0
cdbpPeerStatsSAAsIn = 0
cdbpPeerStatsSAAsOut = 0
cdbpPeerStatsUDRsIn = 0
cdbpPeerStatsUDRsOut = 0
cdbpPeerStatsUDAsIn = 0
cdbpPeerStatsUDAsOut = 0
cdbpPeerStatsRTRsIn = 0
cdbpPeerStatsRTRsOut = 0
cdbpPeerStatsRTAsIn = 0
cdbpPeerStatsRTAsOut = 0
cdbpPeerStatsPPRsIn = 0
cdbpPeerStatsPPRsOut = 0
cdbpPeerStatsPPAsIn = 0
cdbpPeerStatsPPAsOut = 0
cdbpPeerStatsFailedAARs = 0
cdbpPeerStatsFailedDERs = 0
cdbpPeerStatsFailedMARs = 0
cdbpPeerStatsFailedSARs = 0
cdbpPeerStatsFailedPPRs = 0
cdbpPeerStatsFailedRARs = 0
cdbpPeerStatsRstFailedRARs = 0
cdbpPeerStatsFailedRTRs = 0
cdbpPeerStatsFailedASRs = 0
cdbpPeerStatsFailedSTRs = 0
cdbpPeerStatsMultiRoundDEAs = 0
cdbpPeerStatsFailedUDRs = 0
```
Stats Interface = S6b
```
cdbpPeerStatsASAsOut = 0
cdbpPeerStatsRARsOut = 0
cdbpPeerStatsRAAsIn = 0
cdbpPeerStatsRAAsOut = 0
cdbpPeerStatsRstRARsOut = 0
cdbpPeerStatsRstRAAsIn = 0
cdbpPeerStatsSTRsIn= 0
cdbpPeerStatsSTRsOut = 0
cdbpPeerStatsSTAsIn = 0
cdbpPeerStatsSTAsOut = 0
cdbpPeerStatsASRsIn= 0
cdbpPeerStatsASRsOut= 0
cdbpPeerStatsASAsIn = 0
cdbpPeerStatsDERsIn = 0
cdbpPeerStatsDERsOut = 0
cdbpPeerStatsDEAsIn = 0
cdbpPeerStatsDEAsOut = 0
cdbpPeerStatsAARsIn = 0
cdbpPeerStatsAARsOut = 0
cdbpPeerStatsAAAsIn = 0
```

```
                          cdbpPeerStatsAAAsOut = 0
                          cdbpPeerStatsMARsIn = 0
                          cdbpPeerStatsMARsOut = 0
                          cdbpPeerStatsMAAsIn = 0
                          cdbpPeerStatsMAAsOut = 0
                          cdbpPeerStatsSARsIn = 0
                          cdbpPeerStatsSARsOut = 0
                          cdbpPeerStatsSAAsIn = 0
                          cdbpPeerStatsSAAsOut = 0
                          cdbpPeerStatsUDRsIn = 0
                          cdbpPeerStatsUDRsOut = 0
                          cdbpPeerStatsUDAsIn = 0
                          cdbpPeerStatsUDAsOut = 0
                          cdbpPeerStatsRTRsIn = 0
                          cdbpPeerStatsRTRsOut = 0
                          cdbpPeerStatsRTAsIn = 0
                          cdbpPeerStatsRTAsOut = 0
                          cdbpPeerStatsPPRsIn = 0
                          cdbpPeerStatsPPRsOut = 0
                          cdbpPeerStatsPPAsIn = 0
                          cdbpPeerStatsPPAsOut = 0
                          cdbpPeerStatsFailedAARs = 0
                          cdbpPeerStatsFailedDERs = 0
                          cdbpPeerStatsFailedMARs = 0
                          cdbpPeerStatsFailedSARs = 0
                          cdbpPeerStatsFailedPPRs = 0
                          cdbpPeerStatsFailedRARs = 0
                          cdbpPeerStatsRstFailedRARs = 0
                          cdbpPeerStatsFailedRTRs = 0
                          cdbpPeerStatsFailedASRs = 0
                          cdbpPeerStatsFailedSTRs = 0
                          cdbpPeerStatsMultiRoundDEAs = 0
                          cdbpPeerStatsFailedUDRs = 0
                          Stats Interface = STa
                          cdbpPeerStatsASAsOut = 0
                          cdbpPeerStatsRARsOut = 0
                          cdbpPeerStatsRAAsIn = 0
                          cdbpPeerStatsRAAsOut = 0
                          cdbpPeerStatsRstRARsOut = 0
                          cdbpPeerStatsRstRAAsIn = 0
                          cdbpPeerStatsSTRsIn= 0
                          cdbpPeerStatsSTRsOut = 0
                          cdbpPeerStatsSTAsIn = 0
                          cdbpPeerStatsSTAsOut = 0
                          cdbpPeerStatsASRsIn= 0
                          cdbpPeerStatsASRsOut= 0
                          cdbpPeerStatsASAsIn = 0
                          cdbpPeerStatsDERsIn = 0
                          cdbpPeerStatsDERsOut = 0
                          cdbpPeerStatsDEAsIn = 0
                          cdbpPeerStatsDEAsOut = 0
                          cdbpPeerStatsAARsIn = 0
                          cdbpPeerStatsAARsOut = 0
                          cdbpPeerStatsAAAsIn = 0
                          cdbpPeerStatsAAAsOut = 0
                          cdbpPeerStatsMARsIn = 0
                          cdbpPeerStatsMARsOut = 0
                          cdbpPeerStatsMAAsIn = 0
                          cdbpPeerStatsMAAsOut = 0
                          cdbpPeerStatsSARsIn = 0
                          cdbpPeerStatsSARsOut = 0
                          cdbpPeerStatsSAAsIn = 0
                          cdbpPeerStatsSAAsOut = 0
                          cdbpPeerStatsUDRsIn = 0
```

```
        cdbpPeerStatsUDRsOut = 0
        cdbpPeerStatsUDAsIn = 0
        cdbpPeerStatsUDAsOut = 0
        cdbpPeerStatsRTRsIn = 0
        cdbpPeerStatsRTRsOut = 0
        cdbpPeerStatsRTAsIn = 0
        cdbpPeerStatsRTAsOut = 0
        cdbpPeerStatsPPRsIn = 0
        cdbpPeerStatsPPRsOut = 0
        cdbpPeerStatsPPAsIn = 0
        cdbpPeerStatsPPAsOut = 0
        cdbpPeerStatsFailedAARs = 0
        cdbpPeerStatsFailedDERs = 0
        cdbpPeerStatsFailedMARs = 0
        cdbpPeerStatsFailedSARs = 0
        cdbpPeerStatsFailedPPRs = 0
        cdbpPeerStatsFailedRARs = 0
        cdbpPeerStatsRstFailedRARs = 0
        cdbpPeerStatsFailedRTRs = 0
        cdbpPeerStatsFailedASRs = 0
        cdbpPeerStatsFailedSTRs = 0
        cdbpPeerStatsMultiRoundDEAs = 0
        cdbpPeerStatsFailedUDRs = 0
```

For remote server statistics, the interface is listed as a combination of the source (front-end) and destination (back-end) interfaces e.g. SWx-SWm. In certain cases, where there is a failure of requests initiated from HSS, there will not be any front-end interface. Those requests are grouped under SWx interface.

For details about the Diameter peer and remote server statistics, see the *Cisco Prime Access Registrar 8.0 User Guide*.

Sample CLI configuration is given below:

```
--> cd /r/remoteServers/

[ //localhost/Radius/RemoteServers ]
    Entries 1 to 1 from 1 total entries
    Current filter: <all>

    remserver/

--> dia-stats /r/RemoteServers/remserver

Diameter Remote server statistics for: remserver, 10.81.78.165, port 3869
    active = FALSE
    cDiaRemSvrRTTAverage = 0ms
    cDiaRemSvrRTTDeviation = 0ms
    cDiaRemSvrServerType  = Diameter
    cDiaRemSvrTotalRequestsPending = 0
    cDiaRemSvrTotalRequestsOutstanding = 0
    cDiaRemSvrTotalRequestsAcknowledged = 0
    cDiaRemSvrStatsState = Closed
    cDiaRemSvrStatsACRsIn = 0
    cDiaRemSvrStatsACRsOut = 0
    cDiaRemSvrStatsACAsIn = 0
    cDiaRemSvrStatsACAsOut = 0
    cDiaRemSvrStatsCERsIn = 0
    cDiaRemSvrStatsCERsOut = 11
    cDiaRemSvrStatsCEAsIn = 0
    cDiaRemSvrStatsCEAsOut = 0
    cDiaRemSvrStatsDWRsIn = 0
    cDiaRemSvrStatsDWRsOut = 0
```

```
cDiaRemSvrStatsDWAsIn = 0
cDiaRemSvrStatsDWAsOut = 0
cDiaRemSvrStatsDPRsIn = 0
cDiaRemSvrStatsDPRsOut = 0
cDiaRemSvrStatsDPAsIn = 0
cDiaRemSvrStatsDPAsOut = 0
cDiaRemSvrStatsRedirectEvents = 0
cDiaRemSvrStatsAccDupRequests = 0
cDiaRemSvrStatsMalformedRequests = 0
cDiaRemSvrStatsAccsNotRecorded = 0
cDiaRemSvrStatsWhoInitDisconnect = 2
cDiaRemSvrStatsAccRetrans = 0
cDiaRemSvrStatsTotalRetrans= 0
cDiaRemSvrStatsAccPendRequestsOut = 0
cDiaRemSvrStatsAccReqstsDropped = 0
cDiaRemSvrStatsHByHDropMessages = 0
cDiaRemSvrStatsEToEDupMessages= 0
cDiaRemSvrStatsUnknownTypes= 0
cDiaRemSvrStatsProtocolErrors = 0
cDiaRemSvrStatsTransientFailures = 0
cDiaRemSvrStatsPermanentFailures = 0
cDiaRemSvrStatsDWCurrentStatus= 2
cDiaRemSvrStatsTransportDown = 1
cDiaRemSvrStatsTimeoutConnAtmpts = 0
cDiaRemSvrStatsFailedCERs = 11
cDiaRemSvrStatsFailedDWRs = 0
cDiaRemSvrStatsFailedDPRs = 0


Stats for Interface= SWx-SWm
cDiaRemSvrStatsASRsIn= 0
cDiaRemSvrStatsASRsOut= 0
cDiaRemSvrStatsASAsIn = 0
cDiaRemSvrStatsASAsOut = 0
cDiaRemSvrStatsRARsIn = 0
cDiaRemSvrStatsRARsOut = 0
cDiaRemSvrStatsRAAsIn = 0
cDiaRemSvrStatsRAAsOut = 0
cDiaRemSvrStatsSTRsIn= 0
cDiaRemSvrStatsSTRsOut = 0
cDiaRemSvrStatsSTAsIn = 0
cDiaRemSvrStatsSTAsOut = 0
cDiaRemSvrStatsMARsIn = 0
cDiaRemSvrStatsMARsOut = 0
cDiaRemSvrStatsMAAsIn= 0
cDiaRemSvrStatsMAAsOut = 0
cDiaRemSvrStatsSARsIn = 0
cDiaRemSvrStatsSARsOut = 0
cDiaRemSvrStatsSAAsIn = 0
cDiaRemSvrStatsSAAsOut = 0
cDiaRemSvrStatsUDRsIn = 0
cDiaRemSvrStatsUDRsOut = 0
cDiaRemSvrStatsUDAsIn = 0
cDiaRemSvrStatsUDAsOut = 0
cDiaRemSvrStatsRTRsIn= 0
cDiaRemSvrStatsRTRsOut = 0
cDiaRemSvrStatsRTAsIn = 0
cDiaRemSvrStatsRTAsOut = 0
cDiaRemSvrStatsPPRsIn= 0
cDiaRemSvrStatsPPRsOut = 0
cDiaRemSvrStatsPPAsIn = 0
cDiaRemSvrStatsPPAsOut = 0
cDiaRemSvrStatsDERsIn= 0
cDiaRemSvrStatsDERsOut = 0
cDiaRemSvrStatsDEAsIn = 0
```

```
cDiaRemSvrStatsDEAsOut = 0
cDiaRemSvrStatsAARsIn= 0
cDiaRemSvrStatsAARsOut = 0
cDiaRemSvrStatsAAAsIn = 0
cDiaRemSvrStatsAAAsOut = 0
cDiaRemSvrStatsFailedAARs = 0
cDiaRemSvrStatsFailedDERs = 0
cDiaRemSvrStatsFailedMARs = 0
cDiaRemSvrStatsFailedSARs = 0
cDiaRemSvrStatsFailedPPRs = 0
cDiaRemSvrStatsFailedRARs = 0
cDiaRemSvrStatsFailedRTRs = 0
cDiaRemSvrStatsFailedASRs = 0
cDiaRemSvrStatsFailedSTRs = 0
cDiaRemSvrStatsFailedUDRs = 0


Stats for Interface= SWx-S6b
cDiaRemSvrStatsASRsIn= 0
cDiaRemSvrStatsASRsOut= 0
cDiaRemSvrStatsASAsIn = 0
cDiaRemSvrStatsASAsOut = 0
cDiaRemSvrStatsRARsIn = 0
cDiaRemSvrStatsRARsOut = 0
cDiaRemSvrStatsRAAsIn = 0
cDiaRemSvrStatsRAAsOut = 0
cDiaRemSvrStatsSTRsIn= 0
cDiaRemSvrStatsSTRsOut = 0
cDiaRemSvrStatsSTAsIn = 0
cDiaRemSvrStatsSTAsOut = 0
cDiaRemSvrStatsMARsIn = 0
cDiaRemSvrStatsMARsOut = 0
cDiaRemSvrStatsMAAsIn= 0
cDiaRemSvrStatsMAAsOut = 0
cDiaRemSvrStatsSARsIn = 0
cDiaRemSvrStatsSARsOut = 0
cDiaRemSvrStatsSAAsIn = 0
cDiaRemSvrStatsSAAsOut = 0
cDiaRemSvrStatsUDRsIn = 0
cDiaRemSvrStatsUDRsOut = 0
cDiaRemSvrStatsUDAsIn = 0
cDiaRemSvrStatsUDAsOut = 0
cDiaRemSvrStatsRTRsIn= 0
cDiaRemSvrStatsRTRsOut = 0
cDiaRemSvrStatsRTAsIn = 0
cDiaRemSvrStatsRTAsOut = 0
cDiaRemSvrStatsPPRsIn= 0
cDiaRemSvrStatsPPRsOut = 0
cDiaRemSvrStatsPPAsIn = 0
cDiaRemSvrStatsPPAsOut = 0
cDiaRemSvrStatsDERsIn= 0
cDiaRemSvrStatsDERsOut = 0
cDiaRemSvrStatsDEAsIn = 0
cDiaRemSvrStatsDEAsOut = 0
cDiaRemSvrStatsAARsIn= 0
cDiaRemSvrStatsAARsOut = 0
cDiaRemSvrStatsAAAsIn = 0
cDiaRemSvrStatsAAAsOut = 0
cDiaRemSvrStatsFailedAARs = 0
cDiaRemSvrStatsFailedDERs = 0
cDiaRemSvrStatsFailedMARs = 0
cDiaRemSvrStatsFailedSARs = 0
cDiaRemSvrStatsFailedPPRs = 0
cDiaRemSvrStatsFailedRARs = 0
cDiaRemSvrStatsFailedRTRs = 0
```

```
cDiaRemSvrStatsFailedASRs = 0
cDiaRemSvrStatsFailedSTRs = 0
cDiaRemSvrStatsFailedUDRs = 0

Stats for Interface= SWx-STa
cDiaRemSvrStatsASRsIn= 0
cDiaRemSvrStatsASRsOut= 0
cDiaRemSvrStatsASAsIn = 0
cDiaRemSvrStatsASAsOut = 0
cDiaRemSvrStatsRARsIn = 0
cDiaRemSvrStatsRARsOut = 0
cDiaRemSvrStatsRAAsIn = 0
cDiaRemSvrStatsRAAsOut = 0
cDiaRemSvrStatsSTRsIn= 0
cDiaRemSvrStatsSTRsOut = 0
cDiaRemSvrStatsSTAsIn = 0
cDiaRemSvrStatsSTAsOut = 0
cDiaRemSvrStatsMARsIn = 0
cDiaRemSvrStatsMARsOut = 0
cDiaRemSvrStatsMAAsIn= 0
cDiaRemSvrStatsMAAsOut = 0
cDiaRemSvrStatsSARsIn = 0
cDiaRemSvrStatsSARsOut = 0
cDiaRemSvrStatsSAAsIn = 0
cDiaRemSvrStatsSAAsOut = 0
cDiaRemSvrStatsUDRsIn = 0
cDiaRemSvrStatsUDRsOut = 0
cDiaRemSvrStatsUDAsIn = 0
cDiaRemSvrStatsUDAsOut = 0
cDiaRemSvrStatsRTRsIn= 0
cDiaRemSvrStatsRTRsOut = 0
cDiaRemSvrStatsRTAsIn = 0
cDiaRemSvrStatsRTAsOut = 0
cDiaRemSvrStatsPPRsIn= 0
cDiaRemSvrStatsPPRsOut = 0
cDiaRemSvrStatsPPAsIn = 0
cDiaRemSvrStatsPPAsOut = 0
cDiaRemSvrStatsDERsIn= 0
cDiaRemSvrStatsDERsOut = 0
cDiaRemSvrStatsDEAsIn = 0
cDiaRemSvrStatsDEAsOut = 0
cDiaRemSvrStatsAARsIn= 0
cDiaRemSvrStatsAARsOut = 0
cDiaRemSvrStatsAAAsIn = 0
cDiaRemSvrStatsAAAsOut = 0
cDiaRemSvrStatsFailedAARs = 0
cDiaRemSvrStatsFailedDERs = 0
cDiaRemSvrStatsFailedMARs = 0
cDiaRemSvrStatsFailedSARs = 0
cDiaRemSvrStatsFailedPPRs = 0
cDiaRemSvrStatsFailedRARs = 0
cDiaRemSvrStatsFailedRTRs = 0
cDiaRemSvrStatsFailedASRs = 0
cDiaRemSvrStatsFailedSTRs = 0
cDiaRemSvrStatsFailedUDRs = 0

Stats for Interface= SH
cDiaRemSvrStatsASRsIn= 0
cDiaRemSvrStatsASRsOut= 0
cDiaRemSvrStatsASAsIn = 0
cDiaRemSvrStatsASAsOut = 0
cDiaRemSvrStatsRARsIn = 0
cDiaRemSvrStatsRARsOut = 0
cDiaRemSvrStatsRAAsIn = 0
```

```
cDiaRemSvrStatsRAAsOut = 0
cDiaRemSvrStatsSTRsIn= 0
cDiaRemSvrStatsSTRsOut = 0
cDiaRemSvrStatsSTAsIn = 0
cDiaRemSvrStatsSTAsOut = 0
cDiaRemSvrStatsMARsIn = 0
cDiaRemSvrStatsMARsOut = 0
cDiaRemSvrStatsMAAsIn= 0
cDiaRemSvrStatsMAAsOut = 0
cDiaRemSvrStatsSARsIn = 0
cDiaRemSvrStatsSARsOut = 0
cDiaRemSvrStatsSAAsIn = 0
cDiaRemSvrStatsSAAsOut = 0
cDiaRemSvrStatsUDRsIn = 0
cDiaRemSvrStatsUDRsOut = 0
cDiaRemSvrStatsUDAsIn = 0
cDiaRemSvrStatsUDAsOut = 0
cDiaRemSvrStatsRTRsIn= 0
cDiaRemSvrStatsRTRsOut = 0
cDiaRemSvrStatsRTAsIn = 0
cDiaRemSvrStatsRTAsOut = 0
cDiaRemSvrStatsPPRsIn= 0
cDiaRemSvrStatsPPRsOut = 0
cDiaRemSvrStatsPPAsIn = 0
cDiaRemSvrStatsPPAsOut = 0
cDiaRemSvrStatsDERsIn= 0
cDiaRemSvrStatsDERsOut = 0
cDiaRemSvrStatsDEAsIn = 0
cDiaRemSvrStatsDEAsOut = 0
cDiaRemSvrStatsAARsIn= 0
cDiaRemSvrStatsAARsOut = 0
cDiaRemSvrStatsAAAsIn = 0
cDiaRemSvrStatsAAAsOut = 0
cDiaRemSvrStatsFailedAARs = 0
cDiaRemSvrStatsFailedDERs = 0
cDiaRemSvrStatsFailedMARs = 0
cDiaRemSvrStatsFailedSARs = 0
cDiaRemSvrStatsFailedPPRs = 0
cDiaRemSvrStatsFailedRARs = 0
cDiaRemSvrStatsFailedRTRs = 0
cDiaRemSvrStatsFailedASRs = 0
cDiaRemSvrStatsFailedSTRs = 0
cDiaRemSvrStatsFailedUDRs = 0
```

Error Statistics (error-stats)

Prime Access Registrar aggregates the error counters in case of failure of requests. Error statistic is the list the error codes with the number of failures for each command. These statistics are also listed at the interface level.

To enable error-stats, you must place the **errorstats.xml** file in the following location:

/opt/CSCOar/conf

The xml file must contain the error codes to be monitored. Error statistics will be displayed only for the error codes mentioned in the xml file.

A sample **errorstats.xml** file content is shown below:

```
[root@cpar-rhel-93 conf]# cat errorstats.xml <?xml version="1.0"?> <Application>
    <Command>
        <ErrorCode Name="Diameter-Command-Unsupported">3001</ErrorCode>
        <ErrorCode Name="Diameter-Unable-To-Deliver">3002</ErrorCode>
        <ErrorCode Name="Diameter-Realm-Not-Served">3003</ErrorCode>
```

```
                    <ErrorCode Name="Diameter-Too-Busy">3004</ErrorCode>
                    <ErrorCode Name="Diameter-Loop-Detected">3005</ErrorCode>
                    <ErrorCode Name="Diameter-Redirect-Indication">3006</ErrorCode>
                    <ErrorCode Name="Diameter-Application-Unsupported">3007</ErrorCode>
                    <ErrorCode Name="Diameter-Invalid-Hdr-Bits">3008</ErrorCode>
                    <ErrorCode Name="Diameter-Invalid-Avp-Bits">3009</ErrorCode>
                    <ErrorCode Name="Diameter-Unknown-Peer">3010</ErrorCode>
                    <ErrorCode Name="Diameter-Authentication-Rejected">4001</ErrorCode>
                    <ErrorCode Name="Diameter-Out-Of-Space">4002</ErrorCode>
                    <ErrorCode Name="Diameter-Election-Lost">4003</ErrorCode>
                    <ErrorCode Name="Diameter-Error-User-Unknown">5001</ErrorCode>
                    <ErrorCode Name="Diameter-Unknown-Session-Id">5002</ErrorCode>
                    <ErrorCode Name="Diameter-Error-Identity-Not-Registered">5003</ErrorCode>
                    <ErrorCode Name="Diameter-Error-Roaming-Not-Allowed">5004</ErrorCode>
                    <ErrorCode Name="Diameter-Error-Identity-Already-Registered">5005</ErrorCode>
                    <ErrorCode Name="Diameter-Unable-To-Comply">5012</ErrorCode>
                    <ErrorCode Name="Diameter-Error-User-No-Non-3gpp-Subscription">5450</ErrorCode>
                    <ErrorCode Name="Diameter-Error-User-No-Apn-Subscription">5451</ErrorCode>
                    <ErrorCode Name="Diameter-Error-Rat-Type-Not-Allowed">5452</ErrorCode>
                    <ErrorCode Name="Diameter-Error-Late-Overlapping-Request">5453</ErrorCode>
                    <ErrorCode Name="Diameter-Error-Timed-Out-Request">5454</ErrorCode>
                    <ErrorCode Name="Diameter-Error-Illegal-Equipment">5554</ErrorCode>
            </Command>
    </Application>
```

Following is the sample CLI of the error statistics:

```
--> error-stats /r/RemoteServers/remserver SWx-SWm


Diameter Error Stats for RemoteServer : remserver, Interface: SWx-SWm

Command Code = CER
        Diameter-Command-Unsupported                    = 0
        Diameter-Unable-To-Deliver                      = 0
        Diameter-Realm-Not-Served                       = 0
        Diameter-Too-Busy                               = 0
        Diameter-Loop-Detected                          = 0
        Diameter-Redirect-Indication                    = 0
        Diameter-Application-Unsupported                = 0
        Diameter-Invalid-Hdr-Bits                       = 0
        Diameter-Invalid-Avp-Bits                       = 0
        Diameter-Unknown-Peer                           = 0
        Diameter-Authentication-Rejected                = 0
        Diameter-Out-Of-Space                           = 0
        Election-Lost                                   = 0
        Diameter-Error-User-Unknown                     = 0
        Diameter-Unknown-Session-Id                     = 0
        Diameter-Error-Identity-Not-Registered          = 0
        Diameter-Error-Roaming-Not-Allowed              = 0
        Diameter-Error-Identity-Already-Registered      = 0
        Diameter-Unable-To-Comply                       = 0
        Diameter-Error-User-No-Non-3gpp-Subscription    = 0
        Diameter-Error-User-No-Apn-Subscription         = 0
        Diameter-Error-Rat-Type-Not-Allowed             = 0
        Diameter-Error-Late-Overlapping-Request         = 0
        Diameter-Error-Timed-Out-Request                = 0
        Diameter-Error-Illegal-Equipment                = 0

Command Code = DWR
        Diameter-Command-Unsupported                    = 0
        Diameter-Unable-To-Deliver                      = 0
        Diameter-Realm-Not-Served                       = 0
        Diameter-Too-Busy                               = 0
```

```
        Diameter-Loop-Detected                          = 0
        Diameter-Redirect-Indication                    = 0
        Diameter-Application-Unsupported                = 0
        Diameter-Invalid-Hdr-Bits                       = 0
        Diameter-Invalid-Avp-Bits                       = 0
        Diameter-Unknown-Peer                           = 0
        Diameter-Authentication-Rejected                = 0
        Diameter-Out-Of-Space                           = 0
        Election-Lost                                   = 0
        Diameter-Error-User-Unknown                     = 0
        Diameter-Unknown-Session-Id                     = 0
        Diameter-Error-Identity-Not-Registered          = 0
        Diameter-Error-Roaming-Not-Allowed              = 0
        Diameter-Error-Identity-Already-Registered      = 0
        Diameter-Unable-To-Comply                       = 0
        Diameter-Error-User-No-Non-3gpp-Subscription    = 0
        Diameter-Error-User-No-Apn-Subscription         = 0
        Diameter-Error-Rat-Type-Not-Allowed             = 0
        Diameter-Error-Late-Overlapping-Request         = 0
        Diameter-Error-Timed-Out-Request                = 0
        Diameter-Error-Illegal-Equipment                = 0

Command Code = DPR
        Diameter-Command-Unsupported                    = 0
        Diameter-Unable-To-Deliver                      = 0
        Diameter-Realm-Not-Served                       = 0
        Diameter-Too-Busy                               = 0
        Diameter-Loop-Detected                          = 0
        Diameter-Redirect-Indication                    = 0
        Diameter-Application-Unsupported                = 0
        Diameter-Invalid-Hdr-Bits                       = 0
        Diameter-Invalid-Avp-Bits                       = 0
        Diameter-Unknown-Peer                           = 0
        Diameter-Authentication-Rejected                = 0
        Diameter-Out-Of-Space                           = 0
        Election-Lost                                   = 0
        Diameter-Error-User-Unknown                     = 0
        Diameter-Unknown-Session-Id                     = 0
        Diameter-Error-Identity-Not-Registered          = 0
        Diameter-Error-Roaming-Not-Allowed              = 0
        Diameter-Error-Identity-Already-Registered      = 0
        Diameter-Unable-To-Comply                       = 0
        Diameter-Error-User-No-Non-3gpp-Subscription    = 0
        Diameter-Error-User-No-Apn-Subscription         = 0
        Diameter-Error-Rat-Type-Not-Allowed             = 0
        Diameter-Error-Late-Overlapping-Request         = 0
        Diameter-Error-Timed-Out-Request                = 0
        Diameter-Error-Illegal-Equipment                = 0

Command Code = AAR
        Diameter-Command-Unsupported                    = 0
        Diameter-Unable-To-Deliver                      = 0
        Diameter-Realm-Not-Served                       = 0
        Diameter-Too-Busy                               = 0
        Diameter-Loop-Detected                          = 0
        Diameter-Redirect-Indication                    = 0
        Diameter-Application-Unsupported                = 0
        Diameter-Invalid-Hdr-Bits                       = 0
        Diameter-Invalid-Avp-Bits                       = 0
        Diameter-Unknown-Peer                           = 0
        Diameter-Authentication-Rejected                = 0
        Diameter-Out-Of-Space                           = 0
        Election-Lost                                   = 0
        Diameter-Error-User-Unknown                     = 0
```

```
        Diameter-Unknown-Session-Id                        = 0
        Diameter-Error-Identity-Not-Registered             = 0
        Diameter-Error-Roaming-Not-Allowed                 = 0
        Diameter-Error-Identity-Already-Registered         = 0
        Diameter-Unable-To-Comply                          = 0
        Diameter-Error-User-No-Non-3gpp-Subscription       = 0
        Diameter-Error-User-No-Apn-Subscription            = 0
        Diameter-Error-Rat-Type-Not-Allowed                = 0
        Diameter-Error-Late-Overlapping-Request            = 0
        Diameter-Error-Timed-Out-Request                   = 0
        Diameter-Error-Illegal-Equipment                   = 0

Command Code = DER
        Diameter-Command-Unsupported                       = 0
        Diameter-Unable-To-Deliver                         = 0
        Diameter-Realm-Not-Served                          = 0
        Diameter-Too-Busy                                  = 0
        Diameter-Loop-Detected                             = 0
        Diameter-Redirect-Indication                       = 0
        Diameter-Application-Unsupported                   = 0
        Diameter-Invalid-Hdr-Bits                          = 0
        Diameter-Invalid-Avp-Bits                          = 0
        Diameter-Unknown-Peer                              = 0
        Diameter-Authentication-Rejected                   = 0
        Diameter-Out-Of-Space                              = 0
        Election-Lost                                      = 0
        Diameter-Error-User-Unknown                        = 0
        Diameter-Unknown-Session-Id                        = 0
        Diameter-Error-Identity-Not-Registered             = 0
        Diameter-Error-Roaming-Not-Allowed                 = 0
        Diameter-Error-Identity-Already-Registered         = 0
        Diameter-Unable-To-Comply                          = 0
        Diameter-Error-User-No-Non-3gpp-Subscription       = 0
        Diameter-Error-User-No-Apn-Subscription            = 0
        Diameter-Error-Rat-Type-Not-Allowed                = 0
        Diameter-Error-Late-Overlapping-Request            = 0
        Diameter-Error-Timed-Out-Request                   = 0
        Diameter-Error-Illegal-Equipment                   = 0

Command Code = MAR
        Diameter-Command-Unsupported                       = 0
        Diameter-Unable-To-Deliver                         = 0
        Diameter-Realm-Not-Served                          = 0
        Diameter-Too-Busy                                  = 0
        Diameter-Loop-Detected                             = 0
        Diameter-Redirect-Indication                       = 0
        Diameter-Application-Unsupported                   = 0
        Diameter-Invalid-Hdr-Bits                          = 0
        Diameter-Invalid-Avp-Bits                          = 0
        Diameter-Unknown-Peer                              = 0
        Diameter-Authentication-Rejected                   = 0
        Diameter-Out-Of-Space                              = 0
        Election-Lost                                      = 0
        Diameter-Error-User-Unknown                        = 0
        Diameter-Unknown-Session-Id                        = 0
        Diameter-Error-Identity-Not-Registered             = 0
        Diameter-Error-Roaming-Not-Allowed                 = 0
        Diameter-Error-Identity-Already-Registered         = 0
        Diameter-Unable-To-Comply                          = 0
        Diameter-Error-User-No-Non-3gpp-Subscription       = 0
        Diameter-Error-User-No-Apn-Subscription            = 0
        Diameter-Error-Rat-Type-Not-Allowed                = 0
        Diameter-Error-Late-Overlapping-Request            = 0
        Diameter-Error-Timed-Out-Request                   = 0
```

```
        Diameter-Error-Illegal-Equipment              = 0

Command Code = SAR
        Diameter-Command-Unsupported                  = 0
        Diameter-Unable-To-Deliver                    = 0
        Diameter-Realm-Not-Served                     = 0
        Diameter-Too-Busy                             = 0
        Diameter-Loop-Detected                        = 0
        Diameter-Redirect-Indication                  = 0
        Diameter-Application-Unsupported              = 0
        Diameter-Invalid-Hdr-Bits                     = 0
        Diameter-Invalid-Avp-Bits                     = 0
        Diameter-Unknown-Peer                         = 0
        Diameter-Authentication-Rejected              = 0
        Diameter-Out-Of-Space                         = 0
        Election-Lost                                 = 0
        Diameter-Error-User-Unknown                   = 0
        Diameter-Unknown-Session-Id                   = 0
        Diameter-Error-Identity-Not-Registered        = 0
        Diameter-Error-Roaming-Not-Allowed            = 0
        Diameter-Error-Identity-Already-Registered    = 0
        Diameter-Unable-To-Comply                     = 0
        Diameter-Error-User-No-Non-3gpp-Subscription  = 0
        Diameter-Error-User-No-Apn-Subscription       = 0
        Diameter-Error-Rat-Type-Not-Allowed           = 0
        Diameter-Error-Late-Overlapping-Request       = 0
        Diameter-Error-Timed-Out-Request              = 0
        Diameter-Error-Illegal-Equipment              = 0

Command Code = PPR
        Diameter-Command-Unsupported                  = 0
        Diameter-Unable-To-Deliver                    = 0
        Diameter-Realm-Not-Served                     = 0
        Diameter-Too-Busy                             = 0
        Diameter-Loop-Detected                        = 0
        Diameter-Redirect-Indication                  = 0
        Diameter-Application-Unsupported              = 0
        Diameter-Invalid-Hdr-Bits                     = 0
        Diameter-Invalid-Avp-Bits                     = 0
        Diameter-Unknown-Peer                         = 0
        Diameter-Authentication-Rejected              = 0
        Diameter-Out-Of-Space                         = 0
        Election-Lost                                 = 0
        Diameter-Error-User-Unknown                   = 0
        Diameter-Unknown-Session-Id                   = 0
        Diameter-Error-Identity-Not-Registered        = 0
        Diameter-Error-Roaming-Not-Allowed            = 0
        Diameter-Error-Identity-Already-Registered    = 0
        Diameter-Unable-To-Comply                     = 0
        Diameter-Error-User-No-Non-3gpp-Subscription  = 0
        Diameter-Error-User-No-Apn-Subscription       = 0
        Diameter-Error-Rat-Type-Not-Allowed           = 0
        Diameter-Error-Late-Overlapping-Request       = 0
        Diameter-Error-Timed-Out-Request              = 0
        Diameter-Error-Illegal-Equipment              = 0

Command Code = RAR
        Diameter-Command-Unsupported                  = 0
        Diameter-Unable-To-Deliver                    = 0
        Diameter-Realm-Not-Served                     = 0
        Diameter-Too-Busy                             = 0
        Diameter-Loop-Detected                        = 0
        Diameter-Redirect-Indication                  = 0
        Diameter-Application-Unsupported              = 0
```

```
        Diameter-Invalid-Hdr-Bits                        = 0
        Diameter-Invalid-Avp-Bits                        = 0
        Diameter-Unknown-Peer                            = 0
        Diameter-Authentication-Rejected                 = 0
        Diameter-Out-Of-Space                            = 0
        Election-Lost                                    = 0
        Diameter-Error-User-Unknown                      = 0
        Diameter-Unknown-Session-Id                      = 0
        Diameter-Error-Identity-Not-Registered           = 0
        Diameter-Error-Roaming-Not-Allowed               = 0
        Diameter-Error-Identity-Already-Registered       = 0
        Diameter-Unable-To-Comply                        = 0
        Diameter-Error-User-No-Non-3gpp-Subscription     = 0
        Diameter-Error-User-No-Apn-Subscription          = 0
        Diameter-Error-Rat-Type-Not-Allowed              = 0
        Diameter-Error-Late-Overlapping-Request          = 0
        Diameter-Error-Timed-Out-Request                 = 0
        Diameter-Error-Illegal-Equipment                 = 0

Command Code = RstRAR
        Diameter-Command-Unsupported                     = 0
        Diameter-Unable-To-Deliver                       = 0
        Diameter-Realm-Not-Served                        = 0
        Diameter-Too-Busy                                = 0
        Diameter-Loop-Detected                           = 0
        Diameter-Redirect-Indication                     = 0
        Diameter-Application-Unsupported                 = 0
        Diameter-Invalid-Hdr-Bits                        = 0
        Diameter-Invalid-Avp-Bits                        = 0
        Diameter-Unknown-Peer                            = 0
        Diameter-Authentication-Rejected                 = 0
        Diameter-Out-Of-Space                            = 0
        Election-Lost                                    = 0
        Diameter-Error-User-Unknown                      = 0
        Diameter-Unknown-Session-Id                      = 0
        Diameter-Error-Identity-Not-Registered           = 0
        Diameter-Error-Roaming-Not-Allowed               = 0
        Diameter-Error-Identity-Already-Registered       = 0
        Diameter-Unable-To-Comply                        = 0
        Diameter-Error-User-No-Non-3gpp-Subscription     = 0
        Diameter-Error-User-No-Apn-Subscription          = 0
        Diameter-Error-Rat-Type-Not-Allowed              = 0
        Diameter-Error-Late-Overlapping-Request          = 0
        Diameter-Error-Timed-Out-Request                 = 0
        Diameter-Error-Illegal-Equipment                 = 0

Command Code = RTR
        Diameter-Command-Unsupported                     = 0
        Diameter-Unable-To-Deliver                       = 0
        Diameter-Realm-Not-Served                        = 0
        Diameter-Too-Busy                                = 0
        Diameter-Loop-Detected                           = 0
        Diameter-Redirect-Indication                     = 0
        Diameter-Application-Unsupported                 = 0
        Diameter-Invalid-Hdr-Bits                        = 0
        Diameter-Invalid-Avp-Bits                        = 0
        Diameter-Unknown-Peer                            = 0
        Diameter-Authentication-Rejected                 = 0
        Diameter-Out-Of-Space                            = 0
        Election-Lost                                    = 0
        Diameter-Error-User-Unknown                      = 0
        Diameter-Unknown-Session-Id                      = 0
        Diameter-Error-Identity-Not-Registered           = 0
        Diameter-Error-Roaming-Not-Allowed               = 0
```

```
                    Diameter-Error-Identity-Already-Registered      = 0
                    Diameter-Unable-To-Comply                       = 0
                    Diameter-Error-User-No-Non-3gpp-Subscription    = 0
                    Diameter-Error-User-No-Apn-Subscription         = 0
                    Diameter-Error-Rat-Type-Not-Allowed             = 0
                    Diameter-Error-Late-Overlapping-Request         = 0
                    Diameter-Error-Timed-Out-Request                = 0
                    Diameter-Error-Illegal-Equipment                = 0

            Command Code = ASR
                    Diameter-Command-Unsupported                    = 0
                    Diameter-Unable-To-Deliver                      = 0
                    Diameter-Realm-Not-Served                       = 0
                    Diameter-Too-Busy                               = 0
                    Diameter-Loop-Detected                          = 0
                    Diameter-Redirect-Indication                    = 0
                    Diameter-Application-Unsupported                = 0
                    Diameter-Invalid-Hdr-Bits                       = 0
                    Diameter-Invalid-Avp-Bits                       = 0
                    Diameter-Unknown-Peer                           = 0
                    Diameter-Authentication-Rejected                = 0
                    Diameter-Out-Of-Space                           = 0
                    Election-Lost                                   = 0
                    Diameter-Error-User-Unknown                     = 0
                    Diameter-Unknown-Session-Id                     = 0
                    Diameter-Error-Identity-Not-Registered          = 0
                    Diameter-Error-Roaming-Not-Allowed              = 0
                    Diameter-Error-Identity-Already-Registered      = 0
                    Diameter-Unable-To-Comply                       = 0
                    Diameter-Error-User-No-Non-3gpp-Subscription    = 0
                    Diameter-Error-User-No-Apn-Subscription         = 0
                    Diameter-Error-Rat-Type-Not-Allowed             = 0
                    Diameter-Error-Late-Overlapping-Request         = 0
                    Diameter-Error-Timed-Out-Request                = 0
                    Diameter-Error-Illegal-Equipment                = 0

            Command Code = STR
                    Diameter-Command-Unsupported                    = 0
                    Diameter-Unable-To-Deliver                      = 0
                    Diameter-Realm-Not-Served                       = 0
                    Diameter-Too-Busy                               = 0
                    Diameter-Loop-Detected                          = 0
                    Diameter-Redirect-Indication                    = 0
                    Diameter-Application-Unsupported                = 0
                    Diameter-Invalid-Hdr-Bits                       = 0
                    Diameter-Invalid-Avp-Bits                       = 0
                    Diameter-Unknown-Peer                           = 0
                    Diameter-Authentication-Rejected                = 0
                    Diameter-Out-Of-Space                           = 0
                    Election-Lost                                   = 0
                    Diameter-Error-User-Unknown                     = 0
                    Diameter-Unknown-Session-Id                     = 0
                    Diameter-Error-Identity-Not-Registered          = 0
                    Diameter-Error-Roaming-Not-Allowed              = 0
                    Diameter-Error-Identity-Already-Registered      = 0
                    Diameter-Unable-To-Comply                       = 0
                    Diameter-Error-User-No-Non-3gpp-Subscription    = 0
                    Diameter-Error-User-No-Apn-Subscription         = 0
                    Diameter-Error-Rat-Type-Not-Allowed             = 0
                    Diameter-Error-Late-Overlapping-Request         = 0
                    Diameter-Error-Timed-Out-Request                = 0
                    Diameter-Error-Illegal-Equipment                = 0

            Command Code = UDR
```

```
Diameter-Command-Unsupported                    = 0
Diameter-Unable-To-Deliver                      = 0
Diameter-Realm-Not-Served                       = 0
Diameter-Too-Busy                               = 0
Diameter-Loop-Detected                          = 0
Diameter-Redirect-Indication                    = 0
Diameter-Application-Unsupported                = 0
Diameter-Invalid-Hdr-Bits                       = 0
Diameter-Invalid-Avp-Bits                       = 0
Diameter-Unknown-Peer                           = 0
Diameter-Authentication-Rejected                = 0
Diameter-Out-Of-Space                           = 0
Election-Lost                                   = 0
Diameter-Error-User-Unknown                     = 0
Diameter-Unknown-Session-Id                     = 0
Diameter-Error-Identity-Not-Registered          = 0
Diameter-Error-Roaming-Not-Allowed              = 0
Diameter-Error-Identity-Already-Registered      = 0
Diameter-Unable-To-Comply                       = 0
Diameter-Error-User-No-Non-3gpp-Subscription    = 0
Diameter-Error-User-No-Apn-Subscription         = 0
Diameter-Error-Rat-Type-Not-Allowed             = 0
Diameter-Error-Late-Overlapping-Request         = 0
Diameter-Error-Timed-Out-Request                = 0
Diameter-Error-Illegal-Equipment                = 0
```

Support for RADIIUS to JSON and JSON to RADIUS Translation

Prime Access Registrar allows you to translate incoming radius requests to JSON format and vice versa.

The existing REST interface is extended to accommodate this functionality. This translation is supported for the following scenarios:

- Authorization
- Accounting (Start/Interim-Update/Stop)
- Change of Authorization/Packet of Disconnect (CoA/PoD)
- Session manager

Note This translation is not supported for authentication.

The following are CLI configurations to support this feature:

```
--> ls -R /r/services/restproxy

[ restproxy ]
    Name = restproxy
    Description =
    Type = rest
    IncomingScript~ =
    OutgoingScript~ =
    OutagePolicy~ = RejectAll
    OutageScript~ = myscript
    MultipleServersPolicy = Failover
    RemoteServers/
        1. restRM
```

```
--> ls -R

[ //localhost/Radius/RemoteServers/rest ]
    Name = rest
    Description =
    Protocol = rest
    ReactivateTimerInterval = 300000
    Timeout = 5000
    MaxTimeOuts = 3
    RESTSourceConnections = 16
    RequestURL =
http://10.81.78.143:8080/eapauth/IMSI/CISCO/NASId/NASIP/Port/authorization
    HTTPVersion = HTTP2
    UserName = eapAuth32TMUS
    Password = <encrypted>
    KeepAliveTimerInterval = 0
    RequestToJSONRequestMappings/
    RequestToQueryMappings/
        CISCO = Cisco-AVPair
        IMSI = User-Name
        NASId = NAS-Identifier
        NASIP = NAS-IP-Address
        Port = NAS-Port
```

Emergency Services Support for Diameter-EAP Requests

Emergency Services support is applicable for packets containing Emergency-Services AVP in the incoming Diameter-EAP-request.

Note Emergency Services support is available only for EAP-AKA and EAP-AKA-PRIME services and not for EAP-SIM service.

A new parameter **EmergencyServicesPolicy** is added to support this feature and can have the following values:

- All—For all users. Prime Access Registrar skips authorization and authentication and generates EAP-Master-Session-Key using IMEI from user in Terminal-Information AVP.

- UnauthenticatedIMSI—When Authentication is failed, EAP-Notification is skipped. It returns unknown user error and the next request comes with IMEI from the user.

- AuthenticatedIMSI—When Authorization is failed, it returns Diameter-Success with the emergency information acquired from HSS.

- Authenticated-AuthorizedIMSI—When both are successful, only APN-Configuration is removed and emergency information from HSS is sent.

A sample CLI configuration is given below:

```
--> cd /r/advanced/diameter/general/

[ //localhost/Radius/Advanced/Diameter/General ]
    Product = CPAR
    Version = 8.0.2
    AuthApplicationIdList = 1:5:16777265:16777250:1:5:16777265:16777272:16777264
    AcctApplicationIdList = 3
    EmergencyServicesPolicy = All
```

TLS1.2 Support for Certificate-Based EAP Authentication Methods

Prime Access Registrar supports TLS1.2 for certificate-based EAP authentication methods.To provide backward compatibility with TLS1.0 and TLS1.1, the variable **TLSv1Enabled** is available under /r/advanced in aregcmd CLI.

This variable **TLSv1Enabled** is now applicable for the certificate-based EAP authentication methods listed below:

- EAP-TLS
- EAP-TTLS
- PEAP-v0
- PEAP-v1
- EAP-FAST

If this variable is set to TRUE, TLS1.0 and above can be used. If this is set to FALSE, TLS1.1 and above can be used. Default value is TRUE.

> **Note** If the value of the attribute is changed, you must restart Prime Access Registrar after saving the configuration.

> **Note** EAP-FAST service does not work with TLS1.2. It works only with TLS1.0 and TLS1.1. However, EAP-FAST service works with TLS 1.2 in Prime Access Registrar Release 8.0.2.2 and above.

Cisco Prime Access Registrar 8.0.2 Bugs

For information on a specific bug or to search all bugs in a particular Prime Access Registrar release, see Using the Bug Search Tool.

This section contains the following information:

Fixed Anomalies in Cisco Prime Access Registrar 8.0.2.1

Table 4 lists the anomalies fixed in Prime Access Registrar 8.0.2.1 release.

Table 4   *Fixed Anomalies in Prime Access Registrar 8.0.2.1*

Bug	Description
CSCvn52619	When SSL related error occurs in Prime Access Registrar, CPU utilization is higher in a RADIUS TLS connection method.
CSCvo00331	Prime Access Registrar does not reset the DWR retry counter when DWA is received for the next retry.
CSCvo08038	Prime Access Registrar updates the RAR and RAA counters in Remote Server statistics for translation service in SNMP.
CSCvo07580	Prime Access Registrar failed to update the failed scenario DPA and DPR in diameter statistics.

Fixed Anomalies in Cisco Prime Access Registrar 8.0.2.2

Table 5 lists the anomalies fixed in Prime Access Registrar 8.0.2.2 release.

Table 5   *Fixed Anomalies in Prime Access Registrar 8.0.2.2*

Bug	Description
CSCvp97185	Additional traps implementation for server monitor.
CSCvp95166	Prime Access Registrar SSL connection handler enhancement for better resilience.
CSCvm52761	Sessions are not displayed in the GUI.
CSCvq12939	When connections are initiated in parallel, validation of max TLS connection was not working.
CSCvq14474	The carServerTPSUsage counter MIB is not updated properly when the TPS drops to zero value.

Fixed Anomalies in Cisco Prime Access Registrar 8.0.2.3

Table 6 lists the anomalies fixed in Prime Access Registrar 8.0.2.3 release.

Table 6   *Fixed Anomalies in Prime Access Registrar 8.0.2.3*

Bug	Description
CSCvr25357	Reactivation not happening when the diameter connection is closed for the remote server randomly.
CSCvr60466	Tag value is not set properly for vendor-specific attributes of type TAG_STRING.

Fixed Anomalies in Cisco Prime Access Registrar 8.0.2.4

Table 7 lists the anomalies fixed in Prime Access Registrar 8.0.2.4 release.

Table 7 **Fixed Anomalies in Prime Access Registrar 8.0.2.4**

Bug	Description
CSCvp94893	Director license details are not displaying properly.
CSCvp48999	Prime Access Registrar is not trying to reconnect to Oracle DB when all OCI requests are timed out.
CSCvn52628	If Prime Access Registrar receives NAS-IPv6-Address with empty value, after merge it generates core.
CSCvo72045	While processing bad CER packets, Prime Access Registrar generates core.
CSCvp32829	KeepAliveTimerInterval attribute is not working properly on Oracle DB.
CSCvr83909	Client throttling is dropping response packets in DRA mode.
CSCvo82754	Agent Server stopped working during Nessus vulnerability scanner. **PSIRT Evaluation** The Cisco PSIRT has evaluated this issue and does not meet the criteria for PSIRT ownership or involvement. This issue will be addressed via normal resolution channels. If you believe that there is new information that would cause a change in the severity of this issue, please contact psirt@cisco.com for another evaluation. Additional information on Cisco's security vulnerability policy can be found at the following URL: http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html
CSCvf94593	Unable to access WebGUI.log post upgrade.
CSCvn92856	Director License Add-on is not getting counted properly on start up.

Fixed Anomalies in Cisco Prime Access Registrar 8.0.2.5

Table 8 lists the anomaly fixed in Prime Access Registrar 8.0.2.5 release.

Table 8 **Fixed Anomaly in Prime Access Registrar 8.0.2.5**

Bug	Description
CSCvs28006	In TLS 1.2 EAP authentication, Recv key generated is not accepted by RADIUS clients.

Fixed Anomalies in Cisco Prime Access Registrar 8.0.2.6

Table 9 lists the anomaly fixed in Prime Access Registrar 8.0.2.6 release.

Table 9   *Fixed Anomaly in Prime Access Registrar 8.0.2.6*

Bug	Description
CSCvt27777	Evaluation of cnsar for Apache Tomcat Ghostcat vulnerability. **PSIRT Evaluation** The Cisco PSIRT has evaluated this issue and does not meet the criteria for PSIRT ownership or involvement. This issue will be addressed via normal resolution channels. If you believe that there is new information that would cause a change in the severity of this issue, please contact psirt@cisco.com for another evaluation. Additional information on Cisco's security vulnerability policy can be found at the following URL: http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

Fixed Anomalies in Cisco Prime Access Registrar 8.0.2.7

Table 10 lists the anomalies fixed in Prime Access Registrar 8.0.2.7 release.

Table 10   *Fixed Anomalies in Prime Access Registrar 8.0.2.7*

Bug	Description
CSCvu06598	Prime Access Registrar stops working when trying to access packet and its associated states that have been deleted already.
CSCvt62795	Prime Access Registrar stops working when EAP-Sync failure happens while all worker threads are busy.

Using the Bug Search Tool

Use the Bug Search tool (BST) to get the latest information about Cisco Prime Access Registrar bugs. BST allows partners and customers to search for software bugs based on product, release, and keyword, and it aggregates key data such as bug details, product, and version.

BST allows you to:

- Quickly scan bug content
- Configure e-mail notifications for updates on selected bugs
- Start or join community discussions about bugs
- Save your search criteria so you can use it later

When you open the Bug Search page, check the interactive tour to familiarize yourself with these and other Bug Search features.

Step 1 Log into the Bug Search Tool.

    a. Go to https://tools.cisco.com/bugsearch.

    b. At the Log In screen, enter your registered Cisco.com username and password; then, click **Log In**. The Bug Search page opens.

Note If you do not have a Cisco.com username and password, you can register for them at http://tools.cisco.com/RPF/register/register.do.

Step 2 To search for a specific bug, enter the bug ID in the Search For field and press **Return**.

Step 3 To search for bugs in a particular release:

    a. In the Search For field, enter the product name and the release version, e.g. Cisco Prime Access Registrar 8.0.2, and press **Return**. (Leave the other fields empty.)

    b. When the search results are displayed, use the filter and sort tools to find the types of bugs you are looking for. You can search for bugs by severity, by status, how recently they were modified, according to the number of support cases associated with them, and so forth.

Related Documentation

For a complete list of Cisco Prime Access Registrar documentation, see the *Cisco Prime Access Registrar 8.0 Documentation Overview*.

Note We sometimes update the documentation after original publication. Therefore, you should also review the documentation on Cisco.com for any updates.