



# Signaling Delivery Controller

## SNMP Guide

4.4

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## About this Document

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## Document Objectives

This document describes the SNMP traps executed by SDC and the Statistics data collected by SDC. The document also provides information related to Operating System statistics data collection.

This document reflects the MIB file provided with the SDC 4.4 CF 0 release.



Note: This document describes F5 oriented traps and objects. The hardware MIB files used by SDC are detailed in HW MIB Files. For information about HP/IBM oriented objects please refer to the relevant documentation.

## Document History

Revision Number	Change Description	Change Location
May 2015 – Ver. 2	Updated SNMP Trap list	See <i>Table 2: Generated Traps</i>
May 2015 – Ver. 3	Trademark text changed	



## Conventions

The style conventions used in this document are detailed in *Table 1*.

**Table 1: Conventions**

Convention	Use
Normal Text	Regular text; style: F5_Normal
<b>Normal Text Bold</b>	Names of menus, commands, buttons, and other elements of the user interface; style: F5_Normal_Bold
<i>Normal Text Italic</i>	Links to figures, tables, and sections in the document, as well as references to other documents; style: <i>F5_Normal_CrossRef</i>



Convention	Use
Script	Language scripts; style: F5_Scripts
Calibri	File names; F5_Normal_FileName
Table Heading	Table Headings; style: F5_Table Header Text
Table Text	Table Text; style: F5_Table_Text
 Note:	Notes which offer an additional explanation or a hint on how to overcome a common problem
 Warning:	Warnings which indicate potentially damaging user operations and explain how to avoid them



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## 1. MIB

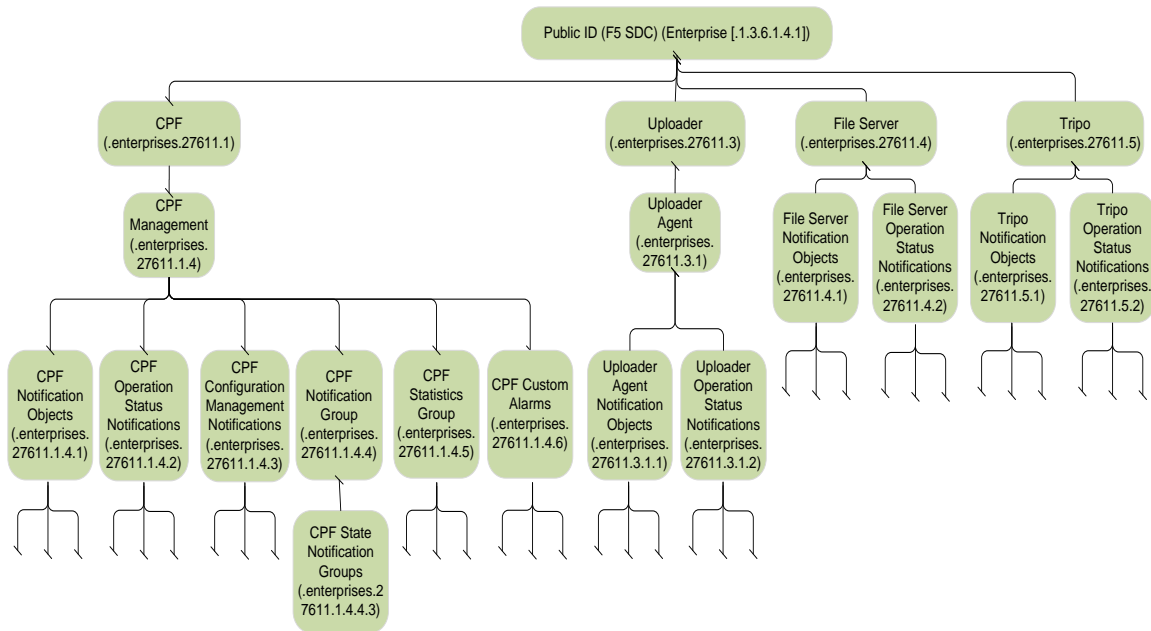
F5® Traffix® Signaling Delivery Controller™ (SDC) uses a standard MIB (Management Information Base) file, which holds the hierarchy of objects and their properties. Each branch of the tree consists of logical groupings used to generate unique object ID's. The following are the high-level MIB nodes:

- Notification Objects (e.g., .enterprises.27611.1.4.1) are objects used by the SNMP traps (e.g., peer identifier, peer type).
- Operation Status Notifications (e.g., .enterprises.27611.1.4.2) represent SNMP traps (e.g., “Memory Size Overload”).
- Configuration Status Notifications (e.g., .enterprises.27611.1.4.3) represent potential configuration status traps (this group is currently empty)
- Notification Group (e.g., .enterprises.27611.1.4.4) represents different notification categorizations (e.g., State Notification Groups).
- Statistics Group (.enterprises.27611.1.4.5) holds the statistics data objects of data collected by SDC.

Each branch is a MIB node. A node can have both “parents” and “children.” A node that does not have “children” is a MIB leaf node. The leaf node is the actual object. Only leaf nodes return MIB values from SDC Nodes or Remote Peers. *Figure 1* depicts the hierarchy of the objects in the SDC's MIB file:



Figure 1: The MIB's Hierarchy



A MIB object is named by concatenating the numerical names of each of its parent nodes. The nodes are concatenated and separated by “.”. To avoid conflicts of object IDs, each branch of the tree must be “registered,” that is, defined through a designated organization. Enterprise-specific MIB’s are registered under the enterprises sub-tree. The Internet-standard MIB-II is registered under the mib-2 sub-tree. The mib-2 sub-tree is primarily used to manage TCP/IP-based networks through SNMP.



Note: The string “.enterprises” represents the F5 SDC – Public ID - prefix “.1.3.6.1.4.1”.

## 1.1 MIB File Location

The SDC MIB file is located under `/opt/traffix/sdc/config/mibFiles/CPF-MIB.mib`





## 2. SNMP Traps

### 2.1 SDC Generated Traps

An SDC generated trap is a message sent from the SDC or the EMS. These traps – also known as Operations Status Notifications – indicate when an SDC element’s state changes, a utilization threshold has been reached, or unexpected behavior has occurred.

The SDC raises SNMP traps based on SNMP protocol version 2.

#### 2.1.1 Trap Variables

Each SNMP trap generated by the SDC is sent with trap variables. These variables provide information about the specific scenario that triggered that particular trap occurrence.

All SNMP traps generated by SDC are sent with the following default SNMP trap variables:

- **SnmConstants.sysUpTime** – the time that lapsed since the SDC element that raised the trap was last re-initialized.
- **SnmConstants.snmpTrapOID** – the SNMP trap identifier.
- **SnmConstants.sysLocation** – the SDC/EMS site that raised the trap.
- **SnmConstants.snmpTrapAddress** – the IP address of the component that generated the trap.

The SNMP trap variables always appear in the same position in the trap. The first three trap variables for every trap are the following SNMP trap variables, in this order:

**SnmConstants.sysUpTime, SnmConstants.snmpTrapOID,  
SnmConstants.sysLocation,**

The last trap variable for every trap is the following SNMP trap variables:

**SnmConstants.snmpTrapAddress**

In addition to the SNMP trap variables, the SDC also adds its own trap variables to the generated traps. The order in which the SDC trap variables appear can be found in the CPF-



MIB file or in *Table 2*. These trap variables are included in the trap between the first three SNMP trap variables and the last SNMP trap variable.

The following is an example of all the trap variables included in the Peer State Changed Channel Down trap, and the order in which they will appear:

SnmpConstants.sysUpTime, SnmpConstants.snmpTrapOID, SnmpConstants.sysLocation  
**cpfNodeId, cpfPeerId, cpfPeerType, cpfPeerAdminState, cpfPeerOperState,**  
**cpfSeverity, cpfNotifText, cpfTimeStamp**, SnmpConstants.snmpTrapAddress

While some SDC trap variables are only relevant to particular traps, the SDC includes the following variables with every trap:

- **cpfNodeId** – the SDC component name that generated the trap.



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Note: This variable is not applicable for traps raised by the EMS.

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- **cpfSeverity** – the severity of the trap that was raised. The possible severities are: Normal, Minor, Major, Critical, and Urgent.
- **cpfNotifText** – a description of the behavior that triggered the trap.
- **cpfTimeStamp** – the time stamp given by the SDC.

*Table 2* displays the order of the trap variables, describes the specific trap variables included for each trap, and the trap's object ID in the MIB.

When applicable, traps are displayed in *Table 2* as part of a pair. Each pair of traps includes one trap that raises an alarm indicating the occurrence of a specific behavior, and a second trap that clears the alarm, indicating that the behavior has been rectified.

*Table 2* also illustrates (in bold) the SDC trap variables that should be used to correlate between a trap raising an alarm and the corresponding trap clearing that alarm. To complete the correlation between two traps, the SnmpConstants.sysLocation SNMP trap variables should also be used.




**Table 2: Generated Traps**

 Note: All traps in *Table 2* are raised or cleared by the SDC unless otherwise mentioned.

Trap Name and OID	Description	Common Trap Variables
cpfNodeStateChangedShutDown .enterprises.27611.1.4.2.1 <b>Trap severity:</b> Critical	Indicates that the CPF process is down.	<b>Trap variable order:</b> cpfNodeId, cpfSeverity, cpfNotifText, cpfTimeStamp
cpfNodeStateChangedWakeUp .enterprises.27611.1.4.2.2 <b>Trap severity:</b> Minor	Indicates that the CPF process that was down is now up.	<b>Trap specific variables:</b> No additional trap variables.
cpfPeerStateChangedChannelDown .enterprises.27611.1.4.2.3 <b>Trap severity:</b> Critical	Indicates a malfunction in the transport layer (TCP/UDP/SCTP) between the SDC and a remote server peer.	<b>Trap variable order:</b> cpfNodeId, cpfPeerId, cpfPeerType, cpfPeerAdminState, cpfPeerOperState, cpfSeverity, cpfNotifText, cpfTimeStamp
cpfPeerStateChangedChannelUp .enterprises.27611.1.4.2.4 <b>Trap severity:</b> Minor	Indicates that the transport layer (TCP/UDP/SCTP) between the SDC and a remote server peer that was down is now up again.	<b>Trap specific variables:</b> <ul style="list-style-type: none"><li>• cpfPeerId – the server peer that is experiencing state changes.</li><li>• cpfPeerType – the protocol that is processed by the server peer.</li><li>• cpfPeerAdminState – the user-defined state of the peer (enabled (1) or disabled (2)).</li></ul>




Trap Name and OID	Description	Common Trap Variables
		<ul style="list-style-type: none"> <li>• <b>cpfPeerOperState</b> – the peer operating status at the time the trap was issued (open (1), connecting (2), busy (3), closed (4), or out of service (5)).</li> <li>• <b>cpfPeerReason</b> – the reason that the peer state changed to down.</li> </ul> <hr/>  Appears for Peer State Changed Channel Down only.
<b>cpfPeerStateChangedServiceDown</b> .enterprises.27611.1.4.2.5 <b>Trap severity:</b> Critical	Indicates that a server peer is down.	<b>Trap variable order:</b> <b>cpfNodeId</b> , <b>cpfPeerId</b> , <b>cpfPeerType</b> , <b>cpfPeerAdminState</b> , <b>cpfPeerOperState</b> , <b>cpfSeverity</b> , <b>cpfNotifText</b> , <b>cpfTimeStamp</b>
<b>cpfPeerStateChangedServiceUp</b> .enterprises.27611.1.4.2.6 <b>Trap severity:</b> Minor	Indicates that a server peer that was previously down is now up.	<b>Trap specific variables:</b> <ul style="list-style-type: none"> <li>• <b>cpfPeerId</b> – the server peer that is experiencing state changes.</li> <li>• <b>cpfPeerType</b> – the protocol that is processed by the server peer.</li> <li>• <b>cpfPeerAdminState</b> – the user-defined state of the peer (enabled (1) or disabled (2)).</li> </ul>





Trap Name and OID	Description	Common Trap Variables
		<ul style="list-style-type: none"><li>• <code>cpfPeerOperState</code> – the peer operating status at the time the trap was issued (open (1), connecting (2), busy (3), closed (4), or out of service (5)).</li><li>• <code>cpfPeerStateReason</code> – the reason that the peer state changed to down.</li></ul> <hr/> <p> This variable appears in the <code>cpfPeerStateChangedServiceDown</code> trap only.</p> <hr/>
<p><code>cpfScriptInvocationFailed</code> .enterprises.27611.1.4.2.7</p> <p><b>Trap severity:</b> Major</p>	<p>Indicates that a script invocation has failed and specifies the reason for the failure.</p>	<p><b>Trap variable order:</b></p> <p><code>cpfNodeId</code>, <code>cpfScriptName</code>, <code>cpfScriptFailureMessage</code>, <code>cpfScriptFailuresNumber</code>, <code>cpfSessionId</code> , <code>cpfMessageId</code>, <code>cpfSeverity</code>, <code>cpfNotifText</code>, <code>cpfTimeStamp</code></p> <p><b>Trap specific variables:</b></p> <ul style="list-style-type: none"><li>• <code>cpfScriptName</code> – the name of the script that failed.</li></ul>



Trap Name and OID	Description	Common Trap Variables
		<ul style="list-style-type: none"><li>• <code>cpfScriptFailureMessage</code> – a message indicating the reason for the script’s failure.</li><li>• <code>cpfsScriptFailuresNumber</code> – the number of attempted to invoke the script that have failed at the time the trap was issued.</li><li>• <code>cpfSessionId</code> – the session ID of the session that the script is being invoked on.</li><li>• <code>cpfMessageId</code> – the message ID of the message that the script is being invoked on.</li></ul>
<code>cpfNodeClientsIncomingQueueOverload</code> <code>.enterprises.27611.1.4.2.11</code>		
 This trap is deprecated in release 4.4		



Trap Name and OID	Description	Common Trap Variables
cpfNodeServersIncomingQueueOverload .enterprises.27611.1.4.2.13  This trap is deprecated in release 4.4		
cpfNodeServersIncomingQueueOverloadClear .enterprises.27611.1.4.2.14  This trap is deprecated in release 4.4		
cpfConcurrentSessionsOverload .enterprises.27611.1.4.2.15  This trap is deprecated release 4.4		
cpfConcurrentSessionsOverloadClear .enterprises.27611.1.4.2.16  This trap is deprecated release 4.4		
cpfMemorySizeOverload .enterprises.27611.1.4.2.17 <b>Trap severity:</b> Critical	Indicates that the CPF memory usage has reached its limit.	<b>Trap variable order:</b> cpfNodeId, cpfCurrentMemoryUtilizationPercent





Trap Name and OID	Description	Common Trap Variables
<p>cpfMemorySizeOverloadClear .enterprises.27611.1.4.2.18</p> <p><b>Trap severity:</b> Minor</p>	<p>Indicates that the CPF memory usage has returned to below its limit.</p>	<p>, cpfCurrentMemorySize, cpfSeverity, cpfNotifText, cpfTimeStamp</p> <p><b>Trap specific variables:</b></p> <ul style="list-style-type: none"><li>• cpfCurrentMemoryUtilizationPercent – the percentage of used memory out of the CPF’s total available memory.</li></ul> <p>cpfCurrentMemorySize – the amount of used memory (in bytes) in the CPF at the time the trap was issued.</p>
<p>cpfRoutingFailed .enterprises.27611.1.4.2.19</p> <p><b>Trap severity:</b> Major</p>	<p>Indicates that a message failed to reach its destination.</p>	<p><b>Trap variable order:</b></p> <p>cpfNodeId, cpfPeerId, cpfFlowName, cpfRoutingName, cpfRoutingFailuresCount, cpfSeverity, cpfNotifText, cpfTimeStamp</p> <p><b>Trap specific variables:</b></p> <ul style="list-style-type: none"><li>• cpfPeerId – the peer that the message that could not be routed originated from.</li><li>• cpfFlowName – the ID of the routing rule that failed.</li></ul>





Trap Name and OID	Description	Common Trap Variables
		<ul style="list-style-type: none"> <li>• <code>cpfRoutingName</code> – the ID of the routing rule that failed.</li> <li>• <code>cpfRoutingFailuresCount</code> – the number of attempts to route the message that have failed at the time the trap was issued.</li> </ul>
<p><code>cpfLicenseClientRejected</code> .enterprises.27611.1.4.2.23</p> <p><b>Trap severity:</b> Major</p>	Indicates that a client peer was rejected by the SDC since it is not recognized by the SDC license.	<p><b>Trap variable order:</b> <code>cpfNodeId</code>, <code>cpfPeerId</code>, <code>cpfSeverity</code>, <code>cpfNotifText</code>, <code>cpfTimeStamp</code></p> <p><b>Trap specific variables:</b></p> <ul style="list-style-type: none"> <li>• <code>cpfPeerId</code> – the client peer that was rejected.</li> </ul>
<p><code>cpfLicenseAboutToExpire</code> .enterprises.27611.1.4.2.27</p> <p><b>Trap severity:</b> Major</p>	Indicates that the licensed period will end in less than 30 days.	<p><b>Trap variable order:</b> <code>cpfNodeId</code>, <code>cpfLicenseEntry</code>, <code>cpfSeverity</code>, <code>cpfNotifText</code>, <code>cpfTimeStamp</code></p>
<p><code>cpfLicenseAboutToExpireClear</code> .enterprises.27611.1.4.2.28</p> <p><b>Trap severity:</b> Minor</p>	Indicates that the licensed period has been extended, and is no longer about to end.	<p><b>Trap specific variables:</b></p> <p><code>cpfLicenseEntry</code> – the string name of the software license uploaded on the node.</p>
<p><code>cpfDNSResolvingFailure</code> .enterprises.27611.1.4.2.29</p>		







Trap Name and OID	Description	Common Trap Variables
 This trap is deprecated in release 4.4		
cpfDNSResolvingSuccess .enterprises.27611.1.4.2.30		
 This trap is deprecated in release 4.4		
cpfSCTPLinkDown .enterprises.27611.1.4.2.31 <b>Trap severity:</b> Critical	Indicates that a Multi-Homed mapping SCTP Link is down.	<b>Trap variable order:</b> <b>cpfNodeId, cpfPeerId,</b> associationId, cpfSeverity, cpfNotifText, cpfTimeStamp <b>Trap specific variables:</b> <ul style="list-style-type: none"> <li>• cpfPeerId – the name of the site peer that triggered the trap.</li> <li>• associationId – the specific SCTP link that triggered the trap.</li> </ul>
cpfSCTPLinkUp .enterprises.27611.1.4.2.32 <b>Trap severity:</b> Minor	Indicates that a Multi-Homed SCTP Link that was previously down is now up.	
cpfSiteReplicationTargetDown .enterprises.27611.1.4.2.33 <b>Trap severity:</b> Critical	Indicates that a replication site peer is down.	<b>Trap variable order:</b> <b>cpfNodeId, cpfPeerId, cpfSeverity,</b> cpfNotifText, cpfTimeStamp <b>Trap specific variables:</b> <ul style="list-style-type: none"> <li>• cpfPeerId – the name of the site peer that triggered the trap.</li> </ul>
cpfSiteReplicationTargetUp .enterprises.27611.1.4.2.34 <b>Trap severity:</b> Normal	Indicates that a replication site peer that was previously down is now up.	



Trap Name and OID	Description	Common Trap Variables
<p>cpfMaxTraceTPSReached .enterprises.27611.1.4.2.35</p> <p><b>Trap severity:</b> Major</p>	<p>Indicates that the system has reached the TPS limit.</p>	<p><b>Trap variable order:</b></p> <p>cpfNodeId, cpfMaxTracingTPS, cpfTracedTPS, cpfSeverity, cpfNotifText, cpfTimeStamp</p> <p><b>Trap specific variables:</b></p> <ul style="list-style-type: none"><li>• cpfMaxTracingTPS – the maximum limit of TPS that are allowed to be traced by the CPF each second.</li><li>• cpfTracedTPS – the number of TPS traced by the CPF at the time the trap was issued.</li></ul>
<p>cpfMaxTracePerDayReached .enterprises.27611.1.4.2.36</p> <p><b>Trap severity:</b> Major</p>	<p>Indicates that the system has reached the daily limit of traced transactions.</p>	<p><b>Trap variable order:</b></p> <p>cpfNodeId, cpfMaxTracingPerDay, cpfTracedDay, cpfSeverity, cpfNotifText, cpfTimeStamp</p> <p><b>Trap specific variables:</b></p> <ul style="list-style-type: none"><li>• cpfMaxTracingPerDay – the maximum limit of messages that are allowed to be traced by the CPF each day.</li></ul>






Trap Name and OID	Description	Common Trap Variables
<p>cpfUserAuthenticationFailure .enterprises.27611.1.4.2.37</p> <p><b>Trap severity:</b> Major</p>	<p>Indicates that a user log in attempt has failed.</p> <hr/> <p> This trap can be raised by either the SDC or the EMS.</p> <hr/>	<ul style="list-style-type: none"> <li>• cpfTracedDay – the number of messages traced by the CPF that day at the time the trap was issued.</li> </ul> <p><b>Trap variable order:</b> cpfNodeId, cpfUserName, cpfSeverity, cpfNotifText, cpfTimeStamp</p> <p><b>Trap specific variables:</b></p> <ul style="list-style-type: none"> <li>• cpfUserName – the name of the user that was used to log in to the system.</li> </ul>
<p>cpfNmsCollectingStatisticsFailure .enterprises.27611.1.4.2.38</p> <p><b>Trap severity:</b> Critical</p>	<p>Indicates that statistics collection has failed.</p>	<p><b>Trap variable order:</b> cpfNodeId, cpfSeverity, cpfNotifText, cpfTimeStamp</p> <p><b>Trap specific variables:</b> No additional trap variables.</p>
<p>cpfNmsResourcesAlarm .enterprises.27611.1.4.2.39</p>	<p>Provides the current usage status of one of the system resources.</p> <hr/> <p> This trap is raised by the EMS.</p> <hr/> <p> For more information See CPF NMS Resource Alarm.</p> <hr/>	<p> For a detailed description of the common trap variables See <i>CPF NMS Resource Alarm</i>.</p> <hr/>



Trap Name and OID	Description	Common Trap Variables
<p>cpfProxyGroupActiveProxyChanged .enterprises.27611.1.4.2.40</p> <p><b>Trap severity:</b> Normal</p>	<p>Indicates that the active proxy in a proxy group has changed.</p>	<p><b>Trap variable order:</b>  <b>cpfNodeId, proxyGroup, activeProxy, cpfSeverity, cpfNotifText, cpfTimeStamp</b></p> <p><b>Trap specific variables:</b></p> <ul style="list-style-type: none"> <li>• proxyGroup – the name of the proxy group.</li> <li>• activeProxy – the name of the current active proxy node.</li> </ul>
<p>cpfChannelBindFailed .enterprises.27611.1.4.2.41</p> <p><b>Trap severity:</b> Critical</p>	<p>Indicates that a virtual server or SCTP client could not bind to an IP address and port, thus preventing client connection.</p>	<p><b>Trap variable order:</b>  <b>cpfNodeId, cpfPeerId, cpfSeverity, cpfNotifText, cpfTimeStamp</b></p> <p><b>Trap specific variables:</b></p> <ul style="list-style-type: none"> <li>• cpfPeerId – the name of the client peer that triggered the trap.</li> </ul>
<p>cpfChannelBindFailedClear .enterprises.27611.1.4.2.46</p> <p><b>Trap severity:</b> Normal</p>	<p>Indicates that a virtual server or SCTP client that previously could not bind to an IP address and port, can now bind to an IP address and port.</p>	<p><b>Trap specific variables:</b></p> <ul style="list-style-type: none"> <li>• cpfPeerId – the name of the client peer that triggered the trap.</li> </ul>
<p>cpfPoolHealthStateChangedRed .enterprises.27611.1.4.2.42</p> <p><b>Trap severity:</b> Major</p>	<p>Indicates that the pool state has changed to Critical.</p>	<p><b>Trap variable order:</b>  <b>cpfNodeId, cpfPoolId, prevHealthState, newHealthState,</b></p>



Trap Name and OID	Description	Common Trap Variables
	 For additional information on the Pool Health State mechanism, refer to the <i>F5 SDC User Guide</i> .	cpfSeverity, cpfNotifText, cpfTimeStamp <b>Trap specific variables:</b>
cpfPoolHealthStateChangedYellow .enterprises.27611.1.4.2.43  <b>Trap severity:</b> Minor	Indicates that the Pool state has changed to Major   For additional information on the Pool Health State mechanism, refer to the <i>F5 SDC User Guide</i> .	<ul style="list-style-type: none"> <li>• cpfPoolId – the name of the pool that triggered the trap.</li> <li>• prevHealthState – the pool’s previous health state.</li> <li>• newHealthState – the pool’s current health state.</li> </ul>
cpfPoolHealthStateChangedGreen .enterprises.27611.1.4.2.44  <b>Trap severity:</b> Normal	Indicates that the Pool state has changed to Minor   For additional information on the Pool Health State mechanism, refer to the <i>F5 SDC User Guide</i> .	
cpfPeerStateChangedServicePartialDown .enterprises.27611.1.4.2.45  <b>Trap severity:</b> Warning	Indicates that an active server peer is now partially out of service.	<b>Trap variable order:</b>  cpfNodeId, cpfPeerId, cpfPeerType, cpfPeerAdminState, cpfPeerOperState, cpfSeverity, cpfNotifText, cpfTimeStamp



Trap Name and OID	Description	Common Trap Variables
		<p><b>Trap specific variables:</b></p> <ul style="list-style-type: none"> <li>• <code>cpfPeerId</code> – the server peer that is experiencing state changes.</li> <li>• <code>cpfPeerType</code> – the protocol that is processed by the server peer.</li> <li>• <code>cpfPeerAdminState</code> – the user-defined state of the peer (enabled (1) or disabled (2)).</li> </ul> <p><code>cpfPeerOperState</code> – the peer operating status at the time the trap was issued (open (1), connecting (2), busy (3), closed (4), or out of service (5)).</p>
<p><code>ss7LicenseAlarmActive</code> <code>.enterprises.27611.1.4.2.50</code></p> <p><b>Trap severity:</b> Critical</p>	<p>Indicates that the SS7 driver is processing more TPS than defined in the SS7 license.</p>	<p><b>Trap variable order:</b></p> <p><code>cpfNodeId</code>, <code>cpfSeverity</code>, <code>cpfNotifText</code>, <code>cpfTimeStamp</code></p> <p><b>Trap specific variables:</b></p> <ul style="list-style-type: none"> <li>• <code>cpfNodeId</code> – the name of the CPF that is connected to the SS7 driver that triggered the trap.</li> </ul>
<p><code>ss7LicenseAlarmInactive</code> <code>.enterprises.27611.1.4.2.51</code></p> <p><b>Trap severity:</b> Minor</p>	<p>Indicates that the SS7 driver is processing an amount of TPS that is within the SS7 license definition.</p>	



Trap Name and OID	Description	Common Trap Variables
cpfSiteConnectivityDown .enterprises.27611.1.4.2.61  <b>Trap severity:</b> Critical	Indicates that the connection to the EMS site is down.   This trap is raised only by the EMS.	<b>Trap variable order:</b> cpfSiteId, cpfSeverity, cpfNotifText, cpfTimeStamp  <b>Trap specific variables:</b> <ul style="list-style-type: none"> <li>• cpfSiteId – the name of the SDC site that the EMS site is trying to connect to.</li> </ul>
cpfSiteConnectivityUp .enterprises.27611.1.4.2.62  <b>Trap severity:</b> Normal	Indicates that a connection to the EMS site that was previously down is now up.   This trap is raised only by the EMS.	<ul style="list-style-type: none"> <li>• cpfSiteId – the name of the SDC site that the EMS site is trying to connect to.</li> </ul>
interCommunicationRetransmitTimeout .enterprises.27611.1.4.2.63  <b>Trap severity:</b> Major	Indicated that the CPF did not respond with an ACK message for over 1 minute. No retransmission attempt will be performed.	<b>Trap variable order:</b> cpfNodeId, cpfPeerId, cpfSeverity, cpfNotifText, cpfTimeStamp  <b>Trap specific variables:</b> <ul style="list-style-type: none"> <li>• cpfPeerId – the name of the client peer that triggered the trap.</li> </ul>
interCommunicationNoMoreRoomForPendingMessages .enterprises.27611.1.4.2.64  <b>Trap severity:</b> Minor	Indicated that the pending message data structure is full. Messages will be sent but not retransmit.	<b>Trap variable order:</b> cpfNodeId, cpfSeverity, cpfNotifText, cpfTimeStamp  <b>Trap specific variables:</b> cpfPeerId – the name of the client peer that triggered the trap.
cpfTripoIsDown enterprises. 27611.1.4.2.65	Indicates that the connection between CPF and Tripo was disconnected.	<b>Trap variable order:</b>








Trap Name and OID	Description	Common Trap Variables
<p><b>Trap severity:</b> Critical</p> <p>cpfTriposIsDownClear .enterprises.27611.1.4.2.66</p> <p><b>Trap severity:</b> Minor</p>	Indicates that the connection between CPF and Tripo was restored.	cpfNodeId, cpfSeverity, cpfNotifText, cpfTimeStamp
<p>cpfNodeClientsQueueHighWatermarkAlarm .enterprises.27611.1.4.2.67</p> <p><b>Trap severity:</b> Major</p>	Indicates that the size of MessageExecutor incoming queue or AsyncTaskExecutor queue exceeded the predefined high watermark (by default: 50% of the queue size).	<p><b>Trap variable order:</b></p> <p>cpfNodeId, cpfNodeThreadQueueType, cpfNodeIncomingQueueUtilizationPercent, cpfNodeIncomingQueueMessageCount, cpfSeverity, cpfNotifText, cpfTimeStamp</p>
<p>cpfNodeClientsQueueLowWatermarkAlarm .enterprises.27611.1.4.2.70</p> <p><b>Trap severity:</b> Normal</p>	<p>Indicates that the size of MessageExecutor incoming queue or AsyncTaskExecutor queue dropped below the predefined low watermark (by default: 10% of the queue size).</p> <p>The trap indicates clearance of cpfNodeClientsQueueLowWatermarkAlarm</p>	
<p>cpfPoolRateLimitState .enterprises.27611.1.4.2.68</p> <p><b>Trap severity:</b> In accordance with the threshold crossed.</p>	Indicates that the pool rate limit crossed one of the user-defined thresholds (normal, minor, major, critical, or exceeded).	<p><b>Trap variable order:</b></p> <p>cpfNodeId, cpfPoolId, prevRateLimitState, newRateLimitState, cpfSeverity, cpfNotifText, cpfTimeStamp</p> <p><b>Trap specific variables:</b></p>






Trap Name and OID	Description	Common Trap Variables
		<ul style="list-style-type: none"> <li>• prevRateLimitState – the previous pool rate limit state</li> <li>• newRateLimitState – the current pool rate limit state</li> </ul>
cpfPeerRateLimitState .enterprises.27611.1.4.2.69 <b>Trap severity:</b> In accordance with the threshold crossed.	Indicates that the peer rate limit crossed one of the user-defined thresholds (normal, minor, major, critical, or exceeded).	<b>Trap variable order:</b> cpfNodeId, cpfPeerId, prevRateLimitState, newRateLimitState, cpfSeverity, cpfNotifText, cpfTimeStamp <b>Trap specific variables:</b> <ul style="list-style-type: none"> <li>• prevRateLimitState – the previous peer rate limit state</li> <li>• newRateLimitState – the current peer rate limit state</li> </ul>
garbageCollectorLoopDetected .enterprises.27611.1.4.2.71 <b>Trap severity:</b> Urgent	Indicates that the garbage collector cannot clean enough memory to recover.	<b>Trap variable order:</b> cpfNodeId, cpfCurrentMemorySize, cpfCurrentMajorGcThreshold, cpfSeverity, cpfNotifText, cpfTimeStamp
garbageCollectorLoopDetectedClear .enterprises.27611.1.4.2.72 <b>Trap severity:</b> Normal	Indicates that the detected garbage collector loop was cleared. Enough memory was cleared for recovery.	




Trap Name and OID	Description	Common Trap Variables
cpfNmsCollectingStatisticsClear .enterprises.27611.1.4.2.73 <b>Trap severity:</b> Normal	Indicates that the node's statistics data collection was successful.	<b>Trap variable order:</b> cpfNodeId, cpfSeverity, cpfNotifText, cpfTimeStamp
uploaderReceiveRequest .enterprises.27611.3.1.2.1   This trap is deprecated in release 4.4		
uploaderAgentSftpConnFailure .enterprises.27611.3.1.2.2   This trap is deprecated in release 4.4		
uploaderAgentSftpUploadFailure .enterprises.27611.3.1.2.3   This trap is deprecated in release 4.4		
uploaderAgentFinishRequest .enterprises.27611.3.1.1.4		




Trap Name and OID	Description	Common Trap Variables
 This trap is deprecated in release 4.4		
fileServerStartedSuccessfully .enterprises.27611.4.2.1 <b>Trap severity:</b> Minor	Indicates that the File Server started successfully <hr/>  This trap is raised by the File Server.	<b>Trap variable order:</b> fileServerSeverity, fileServerNodeId, fileServerNotifText <b>Trap specific variables:</b> <ul style="list-style-type: none"><li>• fileServerSeverity – the severity of the trap.</li><li>• fileServerNodeId – the file server that generated the trap.</li><li>• fileServerNotifText – a description of the behavior that triggered the trap.</li></ul>
fileServerCreateDirFail .enterprises.27611.4.2.2 <b>Trap Severity:</b> Critical	Indicates that a new directory creation attempt has failed <hr/>  This trap is raised by the Uploader.	<b>Trap variable order:</b> fileServerSeverity, fileServerNodeId, fileServerNotifText, fileServerKey, fileServerValue <b>Trap specific variables:</b> <ul style="list-style-type: none"><li>• fileServerSeverity – the severity of the trap.</li></ul>





Trap Name and OID	Description	Common Trap Variables
		<ul style="list-style-type: none"><li>fileServerNodeId – the file server that generated the trap.</li><li>fileServerNotifText – a description of the behavior that triggered the trap.</li><li>fileServerKey – the parameter that the file server attempted to process.</li><li>fileServerValue – the value that the file server attempted to process.</li></ul>
<p>fileServerCreateFileFail .enterprises.27611.4.2.3</p> <p><b>Trap Severity:</b> Critical</p>	<p>Indicates that a new degraded file creation attempt has failed</p> <hr/> <p> This trap is raised by the File Server.</p> <hr/>	<p><b>Trap variable order:</b></p> <p>fileServerSeverity, fileServerNodeId, fileServerNotifText, fileServerKey, fileServerValue</p> <p><b>Trap specific variables:</b></p> <ul style="list-style-type: none"><li>fileServerSeverity – the severity of the trap.</li><li>fileServerNodeId – the file server that generated the trap.</li><li>fileServerNotifText – a description of the behavior that triggered the trap.</li></ul>





Trap Name and OID	Description	Common Trap Variables
<p>fileServerCloseFileFail .enterprises.27611.4.2.4</p> <p><b>Trap Severity:</b> Critical</p>	<p>Indicates that a degraded file closing attempt has failed.</p> <hr/> <p> This trap is raised by the File Server.</p> <hr/>	<ul style="list-style-type: none"><li>fileServerKey – the parameter that the file server attempted to process.</li><li>fileServerValue – the value that the file server attempted to process.</li></ul> <p><b>Trap variable order:</b></p> <p>fileServerSeverity, fileServerNodeId, fileServerNotifText, fileServerKey, fileServerValue</p> <p><b>Trap specific variables:</b></p> <ul style="list-style-type: none"><li>fileServerSeverity – the severity of the trap.</li><li>fileServerNodeId – the file server that generated the trap.</li><li>fileServerNotifText – a description of the behavior that triggered the trap.</li><li>fileServerKey – the parameter that the file server attempted to process.</li><li>fileServerValue – the value that the file server attempted to process.</li></ul>





Trap Name and OID	Description	Common Trap Variables
<p>fileServerRenameFileFail .enterprises.27611.4.2.5</p> <p><b>Trap Severity:</b> Critical</p>	<p>Indicates that a degraded file renaming attempt has failed</p> <hr/> <p> This trap is raised by the File Server.</p> <hr/>	<p><b>Trap variable order:</b></p> <p>fileServerSeverity, fileServerNodeId, fileServerNotifText, fileServerKey, fileServerValue</p> <p><b>Trap specific variables:</b></p> <ul style="list-style-type: none"> <li>• fileServerSeverity – the severity of the trap.</li> <li>• fileServerNodeId – the file server that generated the trap.</li> <li>• fileServerNotifText – a description of the behavior that triggered the trap.</li> <li>• fileServerKey – the parameter that the file server attempted to process.</li> <li>• fileServerValue – the value that the file server attempted to process.</li> </ul>
<p>fileServerSplitByWrong .enterprises.27611.4.2.6</p> <p><b>Trap Severity:</b> Critical</p>	<p>Indicates that a file split attempt has failed.</p> <hr/> <p> This trap is raised by the File Server.</p> <hr/>	<p><b>Trap variable order:</b></p> <p>fileServerSeverity, fileServerNodeId, fileServerNotifText, fileServerKey, fileServerValue</p>






Trap Name and OID	Description	Common Trap Variables
		<p><b>Trap specific variables:</b></p> <ul style="list-style-type: none"> <li>fileServerSeverity – the severity of the trap.</li> <li>fileServerNodeId – the file server that generated the trap.</li> <li>fileServerNotifText – a description of the behavior that triggered the trap.</li> <li>fileServerKey – the parameter that the file server attempted to process.</li> <li>fileServerValue – the value that the file server attempted to process.</li> </ul>
<p>tripoStartedSuccessfully .enterprises.27611.5.2.1</p> <p><b>Trap severity:</b> Normal</p>	<p>Indicates that the Tripo started successfully.</p> <hr/>  This trap is raised by the Tripo.	<p><b>Trap variable order:</b> tripoSeverity, <b>tripoNodeId</b>, tripoNotifText</p> <p><b>Trap specific variables:</b> No additional trap variables.</p>
<p>tripoStoppedSuccessfully .enterprises.27611.5.2.3</p> <p><b>Trap severity:</b> Normal</p>	<p>Indicates that the Tripo stopped successfully.</p> <hr/>  This trap is raised by the Tripo.	<p><b>Trap variable order:</b> tripoSeverity, <b>tripoNodeId</b>, tripoNotifText, tripoKey, tripoValue</p> <p><b>Trap specific variables:</b></p>







Trap Name and OID	Description	Common Trap Variables
		<ul style="list-style-type: none"> <li>• tripoKey – the key that the Tripo received from the CPF</li> <li>• tripoValue – the value that the Tripo attempted to store.</li> </ul>
tripoMateConnectSuccessful .enterprises.27611.5.2.5 <b>Trap severity:</b> Normal	Indicates that the Tripo successfully connected to its mate within the site. <hr/>  This trap is raised by the Tripo.	<b>Trap variable order:</b> tripoSeverity, tripoNodeId, tripoNotifText, tripoKey, tripoValue <b>Trap specific variables:</b> <ul style="list-style-type: none"> <li>• tripoKey – the key that the Tripo received from the CPF</li> <li>• tripoValue – the value that the Tripo attempted to store.</li> </ul>
tripoMateConnectPending .enterprises.27611.5.2.6 <b>Trap severity:</b> Normal	Indicates that the Tripo connection to its mate within the site is pending. <hr/>  This trap is raised by the Tripo.	<b>Trap variable order:</b> tripoSeverity, tripoNodeId, tripoNotifText, tripoKey, tripoValue <b>Trap specific variables:</b> <ul style="list-style-type: none"> <li>• tripoKey – the key that the Tripo received from the CPF</li> <li>• tripoValue – the value that the Tripo attempted to store.</li> </ul>
tripoReplicationInProgress .enterprises.27611.5.2.7	Indicates that the Tripo nodes are synchronizing.	<b>Trap variable order:</b>






Trap Name and OID	Description	Common Trap Variables
Trap severity: Normal	 This trap is raised by the Tripo.	tripoSeverity, <b>tripoNodeId</b> , tripoNotifText, tripoKey, tripoValue <b>Trap specific variables:</b> <ul style="list-style-type: none"> <li>• tripoKey – the key that the Tripo received from the CPF</li> <li>• tripoValue – the value that the Tripo attempted to store.</li> </ul>
tripoMateReplied .enterprises.27611.5.2.8 Trap severity: Normal	Indicates that the first message replication between two connected Tripo nodes succeeded.  This trap is raised by the Tripo.	<b>Trap variable order:</b> tripoSeverity, <b>tripoNodeId</b> , tripoNotifText, tripoKey, tripoValue <b>Trap specific variables:</b> <ul style="list-style-type: none"> <li>• tripoKey – the key that the Tripo received from the CPF</li> <li>• tripoValue – the value that the Tripo attempted to store.</li> </ul>
tripoStorageOverflow .enterprises.27611.5.2.9 Trap severity: Critical	Indicates that the Tripo storage overflowed and the new entry was not successfully added.  This trap is raised by the Tripo.	<b>Trap variable order:</b> tripoSeverity, <b>tripoNodeId</b> , tripoNotifText, tripoKey, tripoValue <b>Trap specific variables:</b> <ul style="list-style-type: none"> <li>• tripoKey – the key that the Tripo received from the CPF</li> </ul>





Trap Name and OID	Description	Common Trap Variables
		<ul style="list-style-type: none"> <li>• tripoValue – the value that the Tripo attempted to store</li> </ul>
tripoReplicationQOverflow .enterprises.27611.5.2.10  <b>Trap severity:</b> Critical	Indicates that the replication queue has overflowed. Indicates that full replication will start when the connection to the mated SDC will be reestablished.  <hr/>  This trap is raised by the Tripo.	<b>Trap variable order:</b> tripoSeverity, <b>tripoNodeId</b> , tripoNotifText, tripoKey, tripoValue  <b>Trap specific variables:</b> <ul style="list-style-type: none"> <li>• tripoKey – the key that the Tripo received from the CPF</li> <li>• tripoValue – the value that the Tripo attempted to replicate</li> </ul>
tripoSRRQueueResyncStarted .enterprises.27611.5.2.11  <b>Trap severity:</b> Normal	Indicates that the replication queue has overflowed. Indicates that full replication will start when the connection to the mated SDC will be reestablished.  <hr/>  This trap is raised by the Tripo.	<b>Trap variable order:</b> tripoSeverity, <b>tripoNodeId</b> , tripoNotifText, tripoKey, tripoValue  <b>Trap specific variables:</b> <ul style="list-style-type: none"> <li>• tripoKey – the key that the Tripo received from the CPF</li> <li>• tripoValue – the value that the Tripo attempted to replicate</li> </ul>




Trap Name and OID	Description	Common Trap Variables
<p>tripoSRRQueueResyncFinished .enterprises.27611.5.2.12</p> <p><b>Trap severity:</b> Normal</p>	<p>Indicates that the resynchronization of the replication queue between the SDC mated sites has finished.</p> <hr/> <p> This trap is raised by the Tripo.</p> <hr/>	<p><b>Trap variable order:</b></p> <p>tripoSeverity, <b>tripoNodeId</b>, tripoNotifText, tripoKey, tripoValue</p> <p><b>Trap specific variables:</b></p> <ul style="list-style-type: none"><li>• tripoKey – the key that the Tripo received from the CPF</li><li>• tripoValue – the value that the Tripo attempted to replicate</li></ul>
<p>tripoResyncFailed .enterprises.27611.5.2.13</p> <p><b>Trap severity:</b> Critical</p>	<p>Indicates that at least one of the entries failed to be replicated between the SDC mated sites during the last minute.</p> <hr/> <p> This trap is raised by the Tripo.</p> <hr/>	<p><b>Trap variable order:</b></p> <p>tripoSeverity, <b>tripoNodeId</b>, tripoNotifText, tripoKey, tripoValue</p>
<p>tripoFullResyncStarted .enterprises.27611.5.2.14</p> <p><b>Trap severity:</b> Normal</p>	<p>Indicates that the full Tripo synchronization between the SDC mated sites has started.</p> <hr/> <p> This trap is raised by the Tripo.</p> <hr/>	<p><b>Trap variable order:</b></p> <p>tripoSeverity, <b>tripoNodeId</b>, tripoNotifText, tripoKey, tripoValue</p> <p><b>Trap specific variables:</b></p> <ul style="list-style-type: none"><li>• tripoKey – the key that the Tripo received from the CPF</li></ul>



Trap Name and OID	Description	Common Trap Variables
tripoFullResyncFinished .enterprises.27611.5.2.15 <b>Trap severity:</b> Normal	Indicates that the full Tripo synchronization between the SDC mated sites has finished.   This trap is raised by the Tripo.	<ul style="list-style-type: none"> <li>tripoValue – the value that the Tripo attempted to replicate</li> </ul> <b>Trap variable order:</b> tripoSeverity, <b>tripoNodeId</b> , tripoNotifText, tripoKey, tripoValue
tripoSRREnabled .enterprises.27611.5.2.17 <b>Trap severity:</b> Normal	Indicates that replication between SDC sites by Tripo is enabled. This trap is activated upon Tripo starting or after the Tripo Site Replication parameter has been manually changed.	<b>Trap variable order:</b> tripoSeverity, <b>tripoNodeId</b> , tripoNotifText, tripoKey, tripoValue
tripoSRRDisabled .enterprises.27611.5.2.18 <b>Trap severity:</b> Normal	Indicates that replication between SDC sites by Tripo is disabled. This trap is activated upon Tripo starting or after the Tripo Site Replication parameter has been manually changed.   This trap is raised by the Tripo.	<b>Trap specific variables:</b> <ul style="list-style-type: none"> <li>tripoKey – the key that the Tripo received from the CPF</li> <li>tripoValue – the value that the Tripo attempted to replicate</li> </ul>





### 2.1.1.1 CPF NMS Resource Alarm

The NMS Resource Alarm indicates the status of various system resources. The alarm is generated upon a system resource status change and indicates the new status (e.g., Syslog is up), and its utilization value (e.g., the percentage of used memory). *Figure 2* depicts the alarm indicating the percentage of File Utilization (Disk Percent) (83% and 90%), as it appears in the SDC Management Web UI Trap Viewer. The left icon (  ) indicates the alarm's severity (ok/minor), reflecting the resource's availability. The right column details the utilization value.

**Figure 2: SNMP Trap Viewer**



Time Stamp	Site	Trap OID	Severity	Source	Variable Bindings
11/18/2013 17:22:59	peervm105	cp/nmsResourcesAlarm	 OK	172.28.48.42	sysUpTimeInstance = 0:0:31:01:02 nmsElementName = "peervm05-01" nmsResourceName = "DiskPercent" nmsResourceInstance = "1" nmsResourceDesc = "Filesystem Utilization. The amount of used disk space in %" nmsResourceResult = 83 cp/riidText = " (Cp/RmsResourcesAlarm) Nms alarm indicated by nmsResourceName has been raised" cp/riidStamp = 1384788176585
11/18/2013 17:18:59	peervm105	cp/nmsResourcesAlarm	 Minor	172.28.48.42	sysUpTimeInstance = 0:0:27:01:05 nmsElementName = "peervm05-01" nmsResourceName = "DiskPercent" nmsResourceInstance = "1" nmsResourceDesc = "Filesystem Utilization. The amount of used disk space in %" nmsResourceResult = 90 cp/riidText = " (Cp/RmsResourcesAlarm) Nms alarm indicated by nmsResourceName has been raised" cp/riidStamp = 1384787938619

The NMS Resource Alarm contains several variable bindings. These variable bindings include the following default SNMP trap variables:

- **SnmConstants.sysUpTime** – the time that lapsed since the SDC element that raised the trap was last re-initialized.
- **SnmConstants.snmpTrapOID** – the SNMP trap identifier.
- **SnmConstants.sysLocation** – the SDC/EMS site that raised the trap.
- **SnmConstants.snmpTrapAddress** – the IP address of the component that generated the trap.

In addition, the NMS resource alarm includes the following SDC based variable bindings:

- **nmsElementName** – the name of the server that the monitored Operating System is running on.
- **nmsResourceName** – the name of the system resource that is being monitored.
- **nmsResourceInstance** – the specific resource instance that triggered the trap.



- **nmsResourceDesc** – a description of the behavior that triggered the trap.
- **nmsResourceResult** – the specific value of the behavior that triggered the trap.
- **nmsResourceSeverity** – the severity of the trap that was raised. The possible trap severities are down (0), critical (1), major (2), minor (3), warning (4), up (5), normal (6), ok (7), and na (8).



Note: The available severities for each resource are detailed in *Table 3*.

- **cpfNotifText** – a general notification that the NMS resource alarm was raised.
- **cpfTimeStamp** – the time stamp given by the SDC.

These NMS Resource Alarm variable bindings appear in the following format:

`SnmConstants.sysUpTime,` `SnmConstants.snmpTrapOID,`  
`SnmConstants.sysLocation,` **nmsResourceSeverity,** **nmsElementName,**  
**nmsResourceName,** **nmsResourceInstance,** **nmsResourceDesc,**  
**nmsResourceResult,** `SnmConstants.snmpTrapAddress`


To track and correlate the alarms issued for a specific system resource use the following variable bindings:

**SnmConstants.SysLocation,** **nmsElementName,** **nmsResourceName,**  
**nmsResourceInstance**

*Table 3* details the resources and the changes that trigger the alarm.




**Table 3: Alarm Trigger by Resource**




Trigger and Description	Optional Severities
<b>Resource: Pacemakerd (cluster)</b>	
Indicates whether the pacemakerd (cluster) process is running or not	Ok – when the process is up Critical - when the process is down N/A – when the process is unreachable
<b>Resource: Corosync (Cluster)</b>	
Indicates whether the corosync (cluster) process is running or not.	Ok – when the process is up Critical - when the process is down N/A – when the process is unreachable
<b>Resource: Snmpd</b>	
Indicates whether the Snmpd process is running or not. Snmpd provides data requested by “snmp get”. The alarm is triggered by a change in the availability of the Snmpd process/daemon.	Ok – when the process is up Critical - when the process is down N/A – when the process is unreachable
 When the resource is down, other CPF NMS Resource Alarms are not generated until the resource is up again.	
<b>Resource: Syslog</b>	







Trigger and Description	Optional Severities
Indicates whether the syslog process is running or not.	Ok – when the process is up Critical - when the process is down N/A – when the process is unreachable
<b>Resource: Hostalive</b>	
Indicates whether the host is up or down.	Up – when the host is up Down - when the host is down N/A – when the host is unreachable
<b>Resource: LoadAverage1MIN</b>	
Indicates the ratio between the operating system’s load average counter and the number of CPU cores. The trap is triggered when the ratio exceeds the configured thresholds.	OK – the ratio is between 0-1 (including) Minor - the ratio is between 2-3 (including) Major - the ratio is between 4-5 (including) Critical - the ratio is greater than 5
<b>Resource: CPU Utilization (IdleCpu)</b>	
Indicates the percentage of idle CPU, and is generated when one of the thresholds is crossed.	OK, Minor, Major, Critical <hr/>  The threshold values are set in <i>Threshold Management</i> <hr/>
<b>Resource: Disk Utilization (DiskIOReadByte and DiskIOWriteByte)</b>	



Trigger and Description	Optional Severities
<p>Indicates the percentage of disk utilization (reading and writing speed), and is generated when one of the thresholds is crossed.</p> <p>The name of the disk drive and the percentage of disc utilization are indicated with the alarm.</p>	<p>OK, Minor, Major, Critical</p> <hr/> <p> The threshold values are set in <i>Threshold Management</i></p> <hr/>
<b>Resource: File System Utilization (DiskPercent)</b>	
<p>Indicates the percentage of used file system space, and is generated when one of the thresholds is crossed.</p> <p>The name of the disk mount and the percentage of used disk space are indicated with the alarm.</p>	<p>OK, Minor, Major, Critical</p> <hr/> <p> The threshold values are set in <i>Threshold Management</i></p> <hr/>
<b>Resource: SWAP Utilization (AvailableSwap)</b>	
<p>Indicates the percentage of available virtual memory, and is generated when one of the thresholds is crossed.</p>	<p>OK: 51%-100%</p> <p>Minor: 41%-50%</p> <p>Major: 21%-40%</p> <p>Critical: 0%-20%</p>
<b>Resource: Memory Utilization (FreeRealMemory)</b>	
<p>Indicates the percentage of available physical memory, and is generated when one of the thresholds is crossed.</p>	<p>OK, Minor, Major, Critical</p> <hr/> <p> The threshold values are set in <i>Threshold Management</i></p> <hr/>



Trigger and Description	Optional Severities
<b>Resource: Total Free Memory</b>	
<p>Indicates the percentage of available memory (physical and virtual), and is generated when one of the thresholds is crossed.</p>	<p>OK: 51%-100%</p> <p>Minor: 41%-50%</p> <p>Major: 21%-40%</p> <p>Critical: 0%-20%</p>
<b>Resource: NIC Inbound Utilization (NetworkInOctets)</b>	
<p>Indicates the percentage of network utilization (used inbound bandwidth) and is generated when one of the thresholds is crossed.</p> <p>The name of the network interface is indicated with the alarm.</p>	<p>OK, Minor, Major, Critical</p> <hr/> <p> The threshold values are set in <i>Threshold Management</i></p> <hr/>
<b>Resource: NIC Outbound Utilization (NetworkOutOctets)</b>	
<p>Indicates the percentage of network utilization (used outbound bandwidth) and is generated when one of the thresholds is crossed.</p> <p>The name of the network interface is indicated with the alarm.</p>	<p>OK, Minor, Major, Critical</p> <hr/> <p> The threshold values are set in <i>Threshold Management</i></p> <hr/>
<b>Resource: Network Status</b>	
<p>The network interface availability changes.</p> <p>The name of the network interface is indicated by the alarm.</p>	<p>Ok – when the process is up</p> <p>Critical - when the process is down</p> <p>N/A – when the process is unreachable</p>



### 2.1.1.2 Threshold Management

Some alarms indicate the status of system resources. These alarms are generated upon a system resource status change and indicate the new status (e.g., Syslog is up), and its utilization value (e.g., the percentage of used memory).

Threshold Management allows setting the thresholds for alarms such as `cpfTotalFreeMemory` and `cpfAvailableSwap`. Each resource category is assigned a critical, a major and a normal (indicating a clearing state) threshold. When each of the thresholds is exceeded, the alarm, indicating the corresponding severity, is generated. Severity thresholds may be set to CPU Utilization, Memory Utilization, NIC Utilization, File system Utilization, Disk Utilization.

#### To set the severity thresholds:

1. From the Navigator pane in SDC Management Console, under **Administration**, browse and click **Threshold Management**. The **Threshold Management** screen is displayed, as depicted by *Figure 3*:

**Figure 3: Threshold Management**

Category	Critical Threshold	Major Threshold	Normal Threshold
<input checked="" type="checkbox"/> % CPU Utilization	70	30	0
<input type="checkbox"/> % Memory Utilization	70	30	0
<input type="checkbox"/> % NIC Utilization	100	90	70
<input type="checkbox"/> % Filesystem Utilization	100	90	70
<input type="checkbox"/> % Disk Utilization	100	90	70

2. Next to each category, set the critical, major and normal thresholds (i.e., next to CPU Utilization set 70, 50 and 20, respectively).

## 2.2 Cluster Generated Traps

A cluster generated trap is a message sent from the cluster. Cluster generated traps are sent according to their definition in the PCMK-MIB, located in `/usr/share/snmp/mibs/`



## 2.2.1 pacemakerNotification Trap

The pacemakerNotification trap (object ID: 1.3.6.1.4.1.32723.1) indicates that one of the SDC process states has changed from up to down or from down to up. This trap is sent with the following trap variables:

- **pacemakerNotificationNode** – the node name that runs the process that experienced a status change.
- **pacemakerNotificationResource** – the process name that experienced a status change.
- **pacemakerNotificationOperation** – the operation that caused the status change (start/stop).
- **pacemakerNotificationDescription** – the textual output relevant error code of the operation (if any) that caused the status change (for example: OK or ERROR).
- **pacemakerNotificationStatus** – the numerical representation of the status of the operation.
- **pacemakerNotificationReturnCode** – the actual return code of the operation, if the actual return code is different than the expected result code (“pacemakerNotificationTargetReturnCode”)
- **pacemakerNotificationTargetReturnCode** – the expected return code of the operation.
- **SnmConstants.sysLocation** – the cluster site that raised the trap.
- **SnmConstants.sysUpTime** – the time that lapsed since the cluster that raised the trap was last re-initialized.

As mentioned, a trap will be raised both when a process state changes from up to down and again when the process state returns to its original up state. To correlate between these two traps use the following variable bindings: **SnmConstants.sysLocation**, **pacemakerNotificationNode**, **pacemakerNotificationResource**, in addition to the **pacemakerNotificationOperation** variable binding that will appear once with a “stop” value and then again with a “start” value.

## 2.3 Configuring the SNMP Traps

SNMP alarm configuration includes changing the target to which SNMP traps are sent upon execution and preventing the alarms from flooding the system.



Note: When the site is managed by EMS all traps are sent to EMS by default.

### 2.3.1 SNMP Targets

SNMP Targets define where SDC’s alarms are sent upon execution. Traps invoked by the SDC site are sent to the configured targets and to the EMS Site.

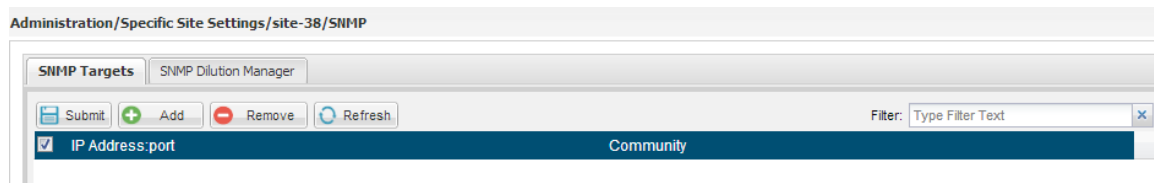


Note: All traps may be forwarded from the EMS site to the operator’s OEM system.

#### To set the SDC alarm targets:

1. Launch **SDC Management Console**.
2. From the Navigator pane, browse and click **SNMP**. The **SNMP Target** tab is displayed. The table presents a list of SNMP Targets.

**Figure 4: SNMP Targets**



3. Click **Add** to add a new SNMP Target IP and Port.

**Figure 5: New SNMP Targets**

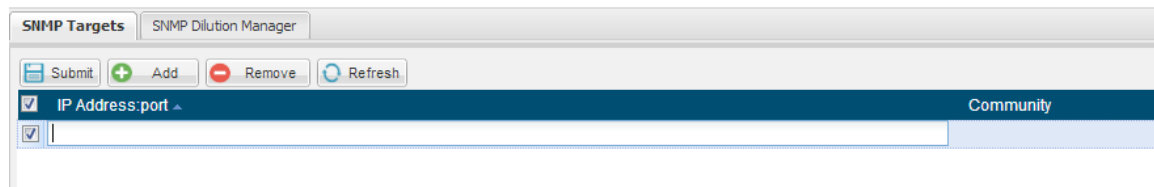



Table 4 details the SNMP Target table properties:

**Table 4: SNMP Targets Table**

Column	Description
Address	The IP address to which Alarms are sent upon execution.



Column	Description
Community	<p>Defines the SNMP community used by the SDC to publish its trap. It must correlate with the trap Target's community.</p> <hr/> <p> SNMP community string is set by default to “public”, and may be changed under “Community”.</p>

### 2.3.2 SNMP Dilution Manager

To prevent the alarms from flooding the system, SDC provides a dilution and filtering mechanism. Each alarm is assigned a maximum event occurrence number in a specified measuring interval, after which a dilution period, in which no traps are invoked, begins.

**To configure the SDC alarm dilution:**

1. Click the arrow symbol next to **Administration** folder to expand it and then click **SNMP**. Click **SNMP Dilution Manager** tab. The table presents a list of SNMP alarms and their dilution parameters. The *Table 5* details the alarm table properties:


**Figure 6: SNMP Dilution Manager**

Alarm Name	Events in Interval	Measuring Interval (Millis)	Dilution Period (Millis)
<input type="checkbox"/> CpConcurrentSessionsOverload	1	120000	120000
<input type="checkbox"/> CpConcurrentSessionsOverloadClear	1	120000	120000
<input type="checkbox"/> CpCmsResolvingFailure	1	120000	120000
<input type="checkbox"/> CpCmsResolvingSuccess	1	120000	120000
<input type="checkbox"/> CpLicenseAboutToExpire	1	120000	120000
<input type="checkbox"/> CpLicenseAboutToExpireClear	1	120000	120000
<input type="checkbox"/> CpLicenseClientRejected	1	120000	120000
<input type="checkbox"/> CpMaxTrapsPerDayReached	1	120000	120000
<input type="checkbox"/> CpMaxTrap790Reached	1	120000	120000
<input type="checkbox"/> CpMemorySizeOverload	1	120000	120000
<input type="checkbox"/> CpMemorySizeOverloadClear	1	120000	120000
<input type="checkbox"/> CpNimCollectingStatisticsFailure	1	120000	120000
<input type="checkbox"/> CpNodeClientIncommingQueueOverload	1	120000	120000
<input type="checkbox"/> CpNodeClientIncommingQueueOverloadClear	1	120000	120000
<input type="checkbox"/> CpNodeServerIncommingQueueOverload	1	120000	120000
<input type="checkbox"/> CpNodeServerIncommingQueueOverloadClear	1	120000	120000
<input type="checkbox"/> CpNodeStateChangeShutdown	1	120000	120000
<input type="checkbox"/> CpNodeStateChangeWakeUp	1	120000	120000
<input type="checkbox"/> CpPeerStateChangeChannelDown	1	120000	120000
<input type="checkbox"/> CpPeerStateChangeChannelUp	1	120000	120000
<input type="checkbox"/> CpPeerStateChangeServiceDown	1	120000	120000
<input type="checkbox"/> CpPeerStateChangeServiceUp	1	120000	120000
<input type="checkbox"/> CpRoutingFailed	1	120000	120000
<input type="checkbox"/> CpScriptInvocationFailed	1	120000	120000
<input type="checkbox"/> CpScriptLinkDown	1	120000	120000
<input type="checkbox"/> CpScriptLinkUp	1	120000	120000
<input type="checkbox"/> CpSiteReplicationTargetDown	1	120000	120000
<input type="checkbox"/> CpSiteReplicationTargetUp	1	120000	120000
<input type="checkbox"/> CpUserAuthenticationFailure	1	120000	120000

**Table 5: SNMP Dilution Manager Table**

Column	Description
Alarm Name	The name of the alarm. e.g., Node State Change

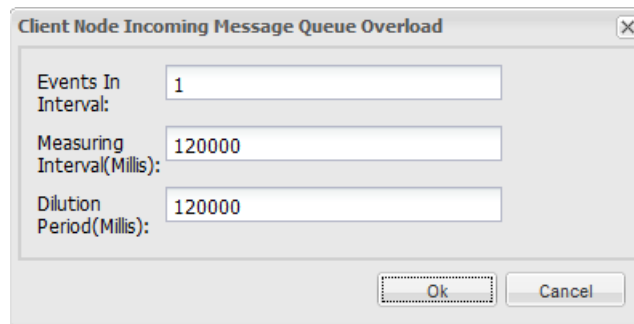


Column	Description
Events in Interval	The number of event occurrences that invoke an alarm, within the specified measuring interval, after which a dilution period begins (during which alarms are not generated). <hr/>  "0" will stop the alarm generation. <hr/>
Measuring Interval (Millis)	The interval in which the event occurrences are accumulated, after which a dilution period may begin (during which alarms are not generated).
Dilution Period (Millis)	The period in which no alarms are invoked (begins when the accumulated number of events is exceeded within the measuring interval)

**To change a specific alarm’s properties:**

1. Check the checkbox next to the alarm and click **Edit**. The alarm properties dialog box appears:

**Figure 7: Alarm Properties**



2. In **Events In Interval**, set the number of event occurrences that invoke an alarm, within the specified measuring interval, after which a dilution period (during which alarms are not generated) begins. The value “0” disables the trap.
3. In **Measuring Interval (Millis)**, set the interval in which the event occurrences are accumulated, after which a dilution period (during which alarms are not generated) may begin.
4. In **Dilution Period (Millis)**, set the period in which no alarms are invoked (the dilution period) begins when the accumulated number of events is exceeded within the measuring interval).
5. Click **OK**.





## 2.4 SNMP Logs

To facilitate monitoring and fault analysis in environments where SNMP traps are not supported SNMP traps are logged to SDC's log file.

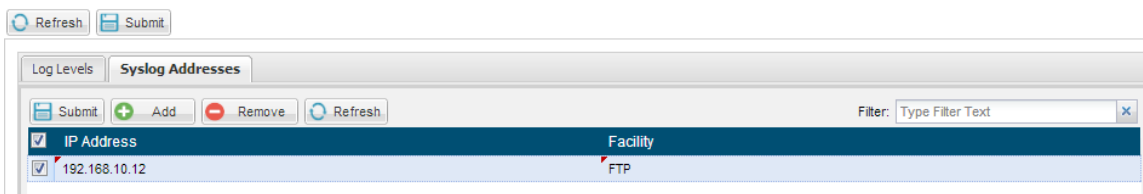
Log messages appear in the following format: **\*\*SNMP\*\*** Sending SNMP trap: <NOTIFICATION TEXT>, with properties: <ALL TRAP PROPERTIES> **\*\*SNMP\*\***

### 2.4.1 Setting the Syslog Daemon Addresses

To set the SDC Syslog Addresses:

1. From the Navigator pane, browse and click **Logging**.
2. The **Syslog Addresses** tab is displayed. The table presents a list of Syslog Daemon Addresses and *Table 6* details the Syslog Daemon addresses table properties:

**Figure 8: Syslog Addresses**



**Table 6: Facilities**

Column	Description
Address	The IP address to which log files are sent.
Facility	Provides a rough clue from what part of a system the message originated.

3. Click **Add** to add a Syslog Daemon (log messages receiver) and set its address and facility. Repeat this step for any additional Syslog Daemon that should receive the log message output.
4. Click **Submit** to save the log settings.

### 2.4.2 Log File Size Control

Log messages are stored in the local file system of each node (under /opt/traffix/sdc/logs and under /var/log/) and can be sent to a remote server via syslog. Each node's log file size



control is configured with a max threshold. The default parameter values are detailed in *Table 7*:

**Table 7: Log Categories**

Parameter	Default Value	Description
MaxBackupIndex	10	The maximum number of log files.
MaxFileSize	10MB	The maximum size (in bytes) of each log file.

## 2.5 Custom (User Defined) Traps

A user defined SNMP trap can be generated by calling the `sendTrap` method from any script in SDC Management Console.

To support the user defined trap, a notification object must be added to the SDC MIB file (located under `/opt/traffix/sdc/config/mibFiles/CPF-MIB.mib`) with the following arguments:

- `OID` - The OID of the trap (1.3.6.1.4.1.27611.1.4.6 is the recommended prefix)
- `Description` - The description of the trap. Encoded under `CpfNotifTextTrapProperty`.
- `alarmSeverity` – The severity argument is encoded in the outgoing trap.

The following is an example of a user defined trap:

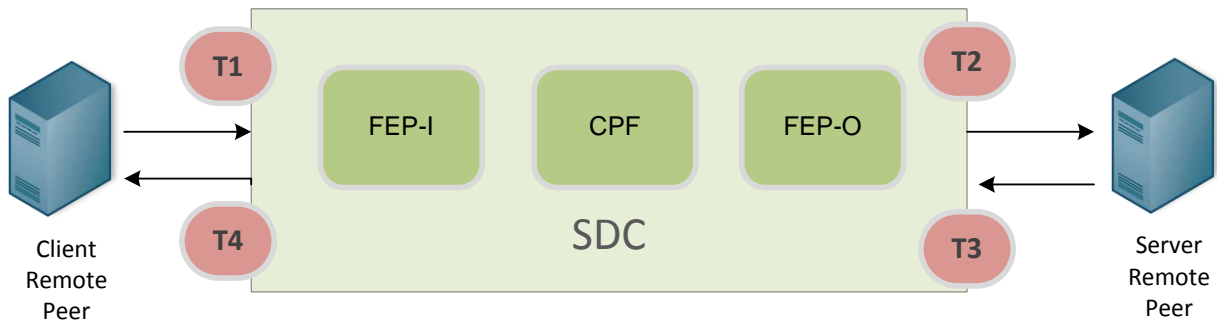
```
sendTrap("1.3.6.1.4.1.27611.1.4.3.27", " Indicates that the SDC License  
is about to expire", AlarmSeverity.MAJOR);
```

### 3. Statistics

Statistic data is collected by the SDC site from remote systems (SDC nodes or a Remote Peers). Each type of the collected data is represented by a unique ID.

Figure 9 depicts the different entities participating in each SDC transaction, and the timestamps collected upon each transaction’s performance. Table 8 details and describes the transaction’s timestamps.

**Figure 9: SDC Transaction’s Entities and Timestamps**



**Table 8: Transaction’s Roundtrip Timestamps**

Timestamp	Description
T1	The time when SDC received the request from the Client Remote Node
T2	The time when SDC sent the request to the Server Remote Node
T3	The time when SDC received the answer from the Server Remote Node
T4	The time when SDC sent the answer to the Client Remote Node

SDC uses the timestamps described in Table 8 to calculate some of the statistics data detailed in the following sections.

Table 9 and Table 12 detail the statistics collected by SDC.



Note: SNMP statistics data is retrieved by **SNMP\_GET**. Each statistic is collected per SDC node (CPF/FEP) and the measuring interval for all statistics is 1 minute.

Figure 10 depicts statistics display in a MIB viewer:









### 3.1 SDC Node Statistics Details



**Table 9: SDC Node Level Collected Statistics**

Statistics Details	Description
<b>RoutingCountRow</b>	
OID: .enterprises.27611.1.4.5.1	This statistic is deprecated in 4.4
<b>RoutingCountRowsFromCache</b>	
OID: .enterprises.27611.1.4.5.2	This statistic is deprecated in 4.4
<b>RoutingCountRowsGetFromTable</b>	
OID: enterprises.27611.1.4.5.3	This statistic is deprecated in 4.4
<b>NodeDiscardedMessagesDueToGlobalReadLimit</b>	
OID: .enterprises.27611.1.4.5.4	<p>This statistic counts the number of messages discarded as a result of reaching the Global Rate Limit. The Global Rate Limit is configurable by the user.</p> <p>Configure the Global Rate limit in Administration-&gt; Specific Site Settings-&gt; Default Transport Configuration -&gt; Rate Limit (Tab) -&gt; Message Receiving rate limit (from all peers).</p> <p> Unless “Read Limit Policy” (configured in the screen mentioned above) is set to “read and discard”, the statistics is not counted.</p>
Units: Messages, Counter32, 0-long max value	
SDC Title: Global Read Limit Message Discards	
Collected by: CPF, FEP	
<b>NodeDiscardedMessagesDueToOverload</b>	
OID: .enterprises.27611.1.4.5.5	This statistic is deprecated in release 4.4
<b>NodeConcurrentSessions</b>	



Statistics Details	Description
OID: enterprises.27611.1.4.5.6	 This statistic is deprecated in release 4.4
<b>NodeParsedMessages</b>	
OID: .enterprises.27611.1.4.5.7	 This statistic is deprecated in release 4.4
<b>NodeTotalParsedMessages</b>	
OID: .enterprises.27611.1.4.5.8	The statistics counts the total number of messages which were accepted for handling by SDC.
Units: Messages	
SDC Title: Total Parsed Incoming Messages	
Collected by: CPF	
<b>NodeTotalParsedRequests</b>	
OID: .enterprises.27611.1.4.5.9	SDC handles four types of messages: Incoming requests, outgoing requests, incoming answers and outgoing answers. This statistics counts the incoming requests.
Units: Messages, Counter, 0-long max value	
SDC Title: Total Parsed Requests	 See <i>Figure 9: SDC Transaction's Entities and Timestamps</i>
Collected by: CPF	
<b>NodeTotalParsedAnswers</b>	
OID: .enterprises.27611.1.4.5.10	SDC handles four types of messages: Incoming requests, outgoing requests, incoming answers and outgoing answers. This statistics counts the incoming answers.
Units: Messages, Counter32, 0-long max value	
SDC Title: Total Parsed Answers	 See <i>Figure 9: SDC Transaction's Entities and Timestamps</i>
Collected by: CPF	
<b>ResolvedSessionBindings</b>	
OID: enterprises.27611.1.4.5.11	The session binding functionality defines the dependency between different sessions initiated from different Remote
Units: Sessions, Counter32, 0-long max value	




Statistics Details	Description
<b>SDC Title:</b> Session Bindings	<p>Peers. Bound sessions are handled as a session bundle composed of several sub-sessions.</p> <p>The session binding is done using Binding Keys (AVPs or XML attributes).</p> <p>The statistics counts the total number of successfully Session Bindings performed using the Resolve/Resolve or Cache/Resolve or External method.</p> <hr/> <p> “Resolve” methods Indicate that cached routing decisions should be used for the bound session. Binding is not performed if cached routing decisions do not exist.</p> <hr/>
<b>Collected by:</b> CPF	
<b>FailedResolvedSessionBindings</b>	
<b>OID:</b> .enterprises.27611.1.4.5.12	<p>The session binding functionality defines the dependency between different sessions initiated from different Remote Peers. Bound sessions are handled as a session bundle composed of several sub-sessions.</p> <p>The session binding is done using Binding Keys (AVPs or XML attributes).</p> <p>The statistics counts the total number of failing Session Binding attempts performed using the Resolve/Resolve or Cache/Resolve or External method.</p> <hr/> <p> “Resolve” methods Indicate that cached routing decisions should be used for the bound session. Binding is not performed if cached routing decisions do not exist.</p> <hr/>
<b>Units:</b> Sessions, Counter32, 0-long max value	
<b>SDC Title:</b> Session Binding Failures	
<b>Collected by:</b> CPF	
<b>NodeMemoryUsage</b>	
<b>OID:</b> .enterprises.27611.1.4.5.13	<p>The statistics data refers to the memory consumption of the SDC processes.</p>
<b>Units:</b> Bytes. Gauge32, 0-the configured value.	



Statistics Details	Description
<b>SDC Title:</b> The memory consumption of the node	
<b>Collected by:</b> CPF, FEP	
<b>FlowCompletionTime</b>	
<b>OID:</b> .enterprises.27611.1.4.5.14	 This statistic is deprecated in release 4.4
<b>RequestFlowHandleTime</b>	
<b>OID:</b> .enterprises.27611.1.4.5.15	 This statistic is deprecated in release 4.4
<b>ProtocolRequestFlowHandleTime</b>	
<b>OID:</b> enterprises.27611.1.4.5.16	 This statistic is deprecated in release 4.4
<b>AnswerFlowHandleTime</b>	
<b>OID:</b> .enterprises.27611.1.4.5.17	 This statistic is deprecated in release 4.4
<b>ProtocolAnswerFlowHandleTime</b>	
<b>OID:</b> .enterprises.27611.1.4.5.18	 This statistic is deprecated in release 4.4
<b>FlowTotalCompletionTime</b>	
<b>OID:</b> .enterprises.27611.1.4.5.19	 This statistic is deprecated in release 4.4
<b>PooledBuffers</b>	
<b>OID:</b> .enterprises.27611.1.4.5.20	 This statistic is deprecated in release 4.4
<b>ClientEventsQueueSize</b>	
<b>OID:</b> .enterprises.27611.1.4.5.21	








Statistics Details	Description
<b>Units:</b> Events, Gauge32, 0-the configured queue size. <b>SDC Title:</b> Incoming Message Events Queue Size <b>Collected by:</b> CPF, FEP	<p>Messages (requests and answers) retrieved from Remote Peers are set to a queue, awaiting the CPF/FEP node to handle them.</p> <p>The statistics counts the number of incoming message (requests and answers) events in the CPF/FEP node's queue.</p>
<b>ServerEventsQueueSize</b>	
<b>OID:</b> .enterprises.27611.1.4.5.22	 This statistic is deprecated in 4.4
<b>AsyncTasksEventsQueueSize</b>	
<b>OID:</b> .enterprises.27611.1.4.5.23 <b>Units:</b> Events, Gauge32, 0-the configured queue size. <b>SDC Title:</b> Async Task Events Queue Size <b>Collected by:</b> CPF	<p>The statistics counts the number of messages awaiting session database response.</p>
<b>TotalNumberOfPeers</b>	
<b>OID:</b> .enterprises.27611.1.4.5.24 <b>Units:</b> Peers, Gauge32, 0-the number of peers <b>SDC Title:</b> Number of Peers <b>Collected by:</b> CPF, FEP	<p>The statistics counts the total number of the CPF/FEP node's configured peers.</p>
<b>TotalNumberOfOpenedPeers</b>	
<b>OID:</b> .enterprises.27611.1.4.5.25 <b>Units:</b> Peers, Gauge32, 0-the number of peers <b>SDC Title:</b> Number of Active Peers <b>Collected by:</b> CPF, FEP	<p>The statistics counts the total number of the CPF/FEP node's currently open peers.</p>



Statistics Details	Description
<b>PooledSessions</b>	
<b>OID:</b> .enterprises.27611.1.4.5.26	This statistic is deprecated in 4.4
<b>UnpooledSessions</b>	
<b>OID:</b> .enterprises.27611.1.4.5.27	This statistic is deprecated in release 4.4
<b>SessionDurationTime</b>	
<b>OID:</b> .enterprises.27611.1.4.5.28	This statistic is deprecated in release 4.4
<b>AccessListStat</b>	
<b>OID:</b> .enterprises.27611.1.4.5.29	This statistic is deprecated in release 4.4
<b>PeerTypeAccessListStat</b>	
<b>OID:</b> .enterprises.27611.1.4.5.30	This statistic is deprecated in release 4.4
<b>FilteringHandlerRejectedAttempts</b>	
<b>OID:</b> .enterprises.27611.1.4.5.31	This statistic is deprecated in release 4.4
<b>ClientsExecutorRejections</b>	
<b>OID:</b> .enterprises.27611.1.4.5.32	<p>Messages (requests and answers) retrieved from Remote Peers are set to a queue, awaiting the CPF/FEP node to handle them.</p> <p>The statistics counts the number of incoming messages rejected due to queue overload.</p>
<b>Units:</b> Events, Counter32, 0-the configured queue size.	
<b>SDC Title:</b> Message Executor Rejection Events	
<b>Collected by:</b> CPF, FEP	
<b>ServersExecutorRejections</b>	



Statistics Details	Description
<b>OID:</b> .enterprises.27611.1.4.5.33	 This statistic is deprecated in release 4.4
<b>AsyncTasksExecutorRejections</b>	
<b>OID:</b> .enterprises.27611.1.4.5.34	The statistics counts the number of session database message rejection events.
<b>Units:</b> Events, Counter32, 0-the configured queue size.	
<b>SDC Title:</b> Async Executor Rejection Events	
<b>Collected by:</b> CPF	
<b>ExpiredSession</b>	
<b>OID:</b> .enterprises.27611.1.4.5.35	 This statistic is deprecated in release 4.4
<b>proxiedToReplicatorMessages</b>	
<b>OID:</b> .enterprises.27611.1.4.5.36	 This statistic is deprecated in release 4.4

## 3.2 Remote Peer Statistics

### 3.2.1 Peer Statistics





Each peer level statistics displays a unique value for each peer in the table, and therefore displays, in addition to the collected numeric data, the following parameters:

- **peerIndex** (OID: .enterprises.27611.1.4.5.100.2.1.1): a unique value for each peer in a table. The value ranges between 1 and the total number of peers.
- **peerName** (.enterprises.27611.1.4.5.100.2.1.2): a textual string containing the name of the peer.

Table 10 details the Peer Level statistics data that can be queried:

**Table 10: Peer Level Collected Statistics**



Statistics Details	Description
<b>PeerReceivedBytes</b>	
<b>OID:</b> .enterprises.27611.1.4.5.100.2.1.3	The statistics counts the number of bytes retrieved from the Transport Layer Peer.   Each SDC component (CPF or FEP) collects this statistic from each peer connected to it via the transport layer.
<b>Units:</b> Bytes , Counter32, 0-long max value	
<b>SDC Title:</b> Received Bytes	
<b>EMS Title:</b> Received Bytes	
<b>Collected by:</b> CPF, FEP	
<b>PeerSentBytes</b>	
<b>OID:</b> .enterprises. 27611.1.4.5.100.2.1.4	The statistics counts the number of bytes retrieved from the Transport Layer Peer.   Each SDC component (CPF or FEP) collects this statistic from each peer connected to it via the transport layer.
<b>Units:</b> Bytes, Counter32, 0-long max value	
<b>SDC Title:</b> Sent Bytes	
<b>EMS Title:</b> Sent Bytes	
<b>Collected by:</b> CPF	
<b>PeerRoundtripTimeAverage</b>	
<b>OID:</b> .enterprises.27611.1.4.5.100.2.1.5	The statistics data refers to the average of a peer's roundtrip distribution time of all messages (the elapsed time between sending the request by SDC and receiving an answer by SDC, [T2-T3]).   See <i>Figure 9: SDC Transaction's Entities and Timestamps</i>
<b>Units:</b> Milliseconds, Gauge 32, 0-100	
<b>SDC Title:</b> Peer Average Roundtrip Time	
<b>EMS Title:</b> Peer Average Roundtrip Time	
<b>Collected by:</b> CPF	
<b>PeerBetweenQueuesHandlingTime</b>	
<b>OID:</b> .enterprises.27611.1.4.5.100.2.1.6	 This statistic is deprecated in release 4.4
<b>PeerEndToEndTime</b>	



Statistics Details	Description
<b>OID:</b> .enterprises.27611.1.4.5.100.2.1.7	This statistic is deprecated in release 4.4
<b>PeerTakingFromQueueTime</b>	
<b>OID:</b> .enterprises.27611.1.4.5.100.2.1.8	This statistic is deprecated in release 4.4
<b>PeerOutgoingMessageQueueSize</b>	
<b>OID:</b> .enterprises.27611.1.4.5.100.2.1.9	This statistic is deprecated in release 4.4
<b>PeerOutOfServiceOccurrence</b>	
<b>OID:</b> .enterprises.27611.1.4.5.100.2.1.10	This statistic is deprecated in release 4.4
<b>PeerReceivedMessagesBeforeReadLimitDiscard</b>	
<b>OID:</b> .enterprises.27611.1.4.5.100.2.1.11	<p>The statistics counts the number of received messages before read discard began.</p> <p>Configure the Peer Rate limit in Administration-&gt; Specific Site Settings-&gt; Default Transport Configuration -&gt; Rate Limit (Tab) -&gt; Peer Rate Limits -&gt; Message Receiving rate limit (per peer).</p> <p> Each SDC component (CPF or FEP) collects this statistic from each Peer connected to it via the transport layer.</p>
<b>Units:</b> Messages, Counter32, 0-long max value	
<b>SDC Title:</b> Received Messages Before Read Discard	
<b>EMS Title:</b> Received Messages Before Read Discard	
<b>Collected by:</b> CPF, FEP	
<b>PeerDiscardedMessagesDueToChannelReadLimit</b>	
<b>OID:</b> .enterprises.27611.1.4.5.100.2.1.12	This statistic is deprecated in release 4.4
<b>PeerNumberSentMessages</b>	
<b>OID:</b> .enterprises.27611.1.4.5.100.2.1.13	



Statistics Details	Description
<b>Units:</b> Messages, Counter32, 0-long max value	The statistics counts the total number of messages - per message type - sent to the Remote Peer.
<b>SDC Title:</b> Channel Sent Messages	
<b>EMS Title:</b> Channel Sent Messages	
<b>Collected by:</b> CPF	
<b>PeerConcurrentSessions</b>	
<b>OID:</b> .enterprises.27611.1.4.5.100.2.1.14	This statistic is deprecated in release 4.4
<b>PipelineFrameDecoderBufferEvents</b>	
<b>OID:</b> .enterprises.27611.1.4.5.100.2.1.15	This statistic is deprecated in release 4.4
<b>HandlerProcessingTime</b>	
<b>OID:</b> .enterprises.27611.1.4.5.100.2.1.16	This statistic is deprecated in release 4.4
<b>ProxyStatistics</b>	
<b>OID:</b> .enterprises.27611.1.4.5.100.2.1.17	This statistic is deprecated in release 4.4
<b>ExecutionFalsesReadable</b>	
<b>OID:</b> .enterprises.27611.1.4.5.100.2.1.18	This statistic is deprecated in release 4.4


## 3.2.2 Message per Peer Statistics

### 3.2.2.1 Error Detection Script

When an answer is retrieved from a Remote Peer, answer error detection is performed by the Check Error in Answer Routing script. *Figure 10* lists the possible returned values of the script:



**Table 11: Check Error in Answer Returned Value**

Returned Value	Description
RemoteNodeEvent.OK	The answer is successfully transformed to the client (the returned value of the script is Null).
RemoteNodeEvent.CANNOT_ROUTE	CPF fails to select a Remote Peer for the request (e.g., when the pool is empty, all peers in pool are out of service or not connected). Handle Server Error script is invoked.
RemoteNodeEvent.REDIRECT	A new Pool must be set. The request is resent to the new Pool according to its policy.
RemoteNodeEvent.REQUEST_REJECTED	The request is rejected by the server. The request will NOT be resent according to the routing Resend mechanism. Handle Server Error script is invoked.
RemoteNodeEvent.TOO_BUSY	The server is too busy to handle the request. The Request is resent according to the routing resend mechanism.
RemoteNodeEvent.TIMEOUT	No answer was received from the server within the defined timeout interval. The Request is resent according to the routing resend mechanism. <hr/>  This event does not depend on the Check Error in Answer script and is counted after all retries/retransmission attempts failed <hr/>
RemoteNodeEvent.CHANNEL_DISCONNECTED	The server is disconnected while requests are pending it.
RemoteNodeEvent.APPLICATION_ERROR	Indicates an application error.

### 3.2.2.2 Message per Peer Statistics Details

Table 12 details the Message per Peer Level statistics data that can be queried.

Each Statistics is followed by a table which splits the number of events by message type and peer.



Note: The tables' statistics are detailed in *Appendix A*:



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Message per Peer Table Statistics.



**Table 12: Message per Peer Collected Statistics**

Statistics Details	Description
<b>peerRemoteNodeEventsOKCount</b>	
<b>OID:</b> .enterprises.27611.1.4.5.110.1	The statistics counts the number of successfully transmitted answer events.   <i>See Error Detection Script</i>
<b>Units:</b> Messages, Counter32, 0-long max value	
<b>SDC Title:</b> Peer OK Events	
<b>EMS Title:</b> Result Code Distribution per Peer	
<b>Collected by:</b> Result Code Distribution per Peer	
<b>peerRemoteNodeEventsTOOBUSYCount</b>	
<b>OID:</b> .enterprises.27611.1.4.5.110.3	The statistics counts the number of RemoteNodeEvent.TOO_BUSY answer events.   <i>See Error Detection Script</i>
<b>Units:</b> Messages, Counter32, 0-long max value	
<b>SDC Title:</b> peer TOO_BUSY events	
<b>EMS Title:</b> Result Code Distribution per Peer	
<b>Collected by:</b> CPF	
<b>peerRemoteNodeEventsCANNOTROUTECount</b>	
<b>OID:</b> .enterprises.27611.1.4.5.110.5	The statistics counts the number of RemoteNodeEvent.CANNOT_ROUTE answer events.
<b>Units:</b> Messages, Counter32, 0-long max value	




Statistics Details	Description
<b>SDC Title:</b> peer CANNOT_ROUTE events	 See <i>Error Detection Script</i>
<b>EMS Title:</b> Result Code Distribution per Peer	
<b>Collected by:</b> CPF	
<b>peerRemoteNodeEventsCHANNELDISCONNECTEDCount</b>	
<b>OID:</b> .enterprises.27611.1.4.5.110.7	The statistics counts the number of
<b>Units:</b> Messages, Counter32, 0-long max value	RemoteNodeEvent.CHANNEL_DISCONNECTED answer events.
<b>SDC Title:</b> peer CHANNEL_DISCONNECTED events	 See <i>Error Detection Script</i>
<b>EMS Title:</b> Result Code Distribution per Peer	
<b>Collected by:</b> CPF	
<b>peerRemoteNodeEventsTIMEOUTCount</b>	
<b>OID:</b> .enterprises.27611.1.4.5.110.9	The statistics counts the number of messages sent from the Peer and
<b>Units:</b> Messages, Counter32, 0-long max value	followed by RemoteNodeEvent.TIMEOUT answer events.
<b>SDC Title:</b> peer TIMEOUT events	 See <i>Error Detection Script</i>
<b>EMS Title:</b> Result Code Distribution per Peer	
<b>Collected by:</b> CPF	
<b>peerRemoteNodeEventsREQUESTREJECTEDCount</b>	
<b>OID:</b> .enterprises.27611.1.4.5.110.11	The statistics counts the number of
<b>Units:</b> Messages, Counter32, 0-long max value	RemoteNodeEvent.REQUEST_REJECTED answer events.






Statistics Details	Description
<b>SDC Title:</b> REQUEST_REJECTED events	 <i>See Error Detection Script</i>
<b>EMS Title:</b> Result Code Distribution per Peer	
<b>Collected by:</b> CPF	
<b>peerRemoteNodeEventsREDIRECTCount</b>	
<b>OID:</b> .enterprises.27611.1.4.5.110.13	The statistics counts the number of RemoteNodeEvent.REDIRECT
<b>Units:</b> Messages, Counter32, 0-long max value	answer events.
<b>SDC Title:</b> peer REDIRECT events	 <i>See Error Detection Script</i>
<b>EMS Title:</b> Result Code Distribution per Peer	
<b>Collected by:</b> CPF	
<b>peerRemoteNodeEventsDNSPREPARINGPOOLCount</b>	
<b>OID:</b> .enterprises.27611.1.4.5.110.15	The statistic counts the number of
<b>Units:</b> Messages, Integer 32, 0-long max value	peerRemoteNodeEventsDNSPREPARINGPOOL
<b>SDC Title:</b> peer DNSPREPARINGPOOL events	
<b>EMS Title:</b> Result Code Distribution per Peer	
<b>Collected by:</b> CPF	
<b>peerRemoteNodeEventsAPPLICATIONERRORCount</b>	
<b>OID:</b> .enterprises.27611.1.4.5.110.17	The statistics counts the number of
<b>Units:</b> Messages, Counter32, 0-long max value	RemoteNodeEvent.APPLICATION_ERROR answer events.




Statistics Details	Description
<b>SDC Title:</b> peer APPLICATION_ERROR events	<i>See Error Detection Script</i>
<b>EMS Title:</b> Result Code Distribution per Peer	
<b>Collected by:</b> CPF	
<b>PeerSentMessagesCount</b>	
<b>OID:</b> .enterprises.27611.1.4.5.110.19	The statistics counts the total number of messages – of all message types - sent to the Peer.
<b>Units:</b> Messages, Counter32, 0-long max value	
<b>SDC Title:</b> Sent Messages (by Message Type)	
<b>EMS Title:</b> Sent Messages (by Message Type)	
<b>Collected by:</b> CPF	
<b>PeerDiscardedMessagesCount</b>	
<b>OID:</b> .enterprises.27611.1.4.5.110.21	 This statistic is deprecated in release 4.4
<b>PeerReceivedMessagesCount</b>	
<b>OID:</b> .enterprises.27611.1.4.5.110.23	The statistics counts the number of messages retrieved from the Remote Peer per message type.
<b>Units:</b> Messages, Counter32, 0-long max value	
<b>SDC Title:</b> Received Messages (by Message Type)	
<b>EMS Title:</b> Received Messages (by Message Type)	
<b>Collected by:</b> CPF	
<b>PeerPendingRequestsCount</b>	



Statistics Details	Description
<b>OID:</b> .enterprises.27611.1.4.5.110.25	The statistic counts the number of peer requests awaiting server handling.
<b>Units:</b> Messages, Counter32, 0-long max value	
<b>SDC Title:</b> Pending Requests	
<b>EMS Title:</b> Pending Requests	
<b>Collected by:</b> CPF	
<b>PeerSentRequestTimeoutsCount</b>	
<b>OID:</b> .enterprises.27611.1.4.5.110.27	The statistic counts the number of requests not answered by the Remote Peer (per message type). <hr/>  This statistic is collected per remote server peer per message type. <hr/>  This event is counted after all retries/retransmission attempts failed.
<b>Units:</b> Messages, Counter32, 0-long max value	
<b>SDC Title:</b> Timeout Events	
<b>EMS Title:</b> Timeout Events	
<b>Collected by:</b> CPF	
<b>PeerSentRequestRetransmissionTimeoutsCount</b>	
<b>OID:</b> .enterprises.27611.1.4.5.110.29	The statistic counts the number of retransmitted requests per server peer per message type. <hr/>  This statistic is collected only for UDP based protocols (RADIUS and GTP).
<b>Units:</b> Messages, Counter32, 0-long max value	
<b>SDC Title:</b> Retransmission Timeout Events per server	
<b>EMS Title:</b> Retransmission Timeout Events per server	
<b>Collected by:</b> CPF	
<b>PeerRoundtripTimeCount</b>	



Statistics Details	Description
<b>OID:</b> .enterprises.27611.1.4.5.110.31	<p>The statistic data refers to a peer's roundtrip distribution time per message type (the elapsed time between sending the request by SDC and receiving an answer by SDC, [T2-T3]).</p> <hr/>  See <i>Figure 9</i> : SDC Transaction's Entities and Timestamps
<b>Units:</b> Milliseconds Gauge 32, 0-100	
<b>SDC Title:</b> Roundtrip Time	
<b>EMS Title:</b> Roundtrip Time	
<b>Collected by:</b> CPF	
<b>PeerProcessingTimeCount</b>	
<b>OID:</b> .enterprises.27611.1.4.5.110.33	
<b>Units:</b> Milliseconds Gauge 32, 0-100	
<b>Collected by:</b> CPF	

### 3.3 OS Level Statistics

The OS level statistics are represented in designated MIB files, separated from the statistics data detailed so far.

*Table 13* details the Cluster Level statistics data that can be queried:

**Table 13: Cluster Level Statistics**

Statistics Details	Description
<b>Corosync</b>	
<b>MIB Name:</b> UCD-SNMP-MIB	Checks whether corosync process is up and running
<b>OID:</b> 1.3.6.1.4.1.2021.2.1.100.2	



Statistics Details	Description
<b>pacemaker</b>	
MIB Name: UCD-SNMP-MIB	Checks whether pacemakerd process is up and running
OID: 1.3.6.1.4.1.2021.2.1.100.3	
<b>Cluster Resources</b>	
MIB Name: UCD-SNMP-MIB	Generates a list of the cluster resources and their statuses.
OID: 1.3.6.1.4.1.2021.8.1.101.1	

Table 14 details the Disk Level statistics data that can be queried:

**Table 14: Disk Level Statistics**

Statistics Details	Description
<b>dskPercent</b>	
MIB Name: UCD-SNMP-MIB	The percentage of space used on the disk.
OID: 1.3.6.1.4.1.2021.9.1.9	
<b>diskIONRead</b>	
MIB Name: UCD-DISKIO-MIB	The number of bytes read from the disk since boot.
OID: 1.3.6.1.4.1.2021.13.15.1.1.3	
<b>diskIONWritten</b>	
MIB Name: UCD-DISKIO-MIB	The number of bytes written to the disk since boot.
OID: 1.3.6.1.4.1.2021.13.15.1.1.4	



Statistics Details	Description
<b>diskIOReads</b>	
MIB Name: UCD-DISKIO-MIB	The number of read accesses from the disk since boot.
OID: 1.3.6.1.4.1.2021.13.15.1.1.5	
<b>diskIOWrites</b>	
MIB Name: UCD-DISKIO-MIB	The number of write accesses to the disk since boot.
OID: 1.3.6.1.4.1.2021.13.15.1.1.6	

Table 15 details the Load Level statistics data that can be queried:

**Table 15: Load Level Statistics**

Statistics Details	Description
<b>1 minute Load</b>	
MIB Name: UCD-SNMP-MIB 1min	1 minute system load average on the target host.
OID: 1.3.6.1.4.1.2021.10.1.3.1	
<b>5 minute Load</b>	
MIB Name: UCD-SNMP-MIB	5 minutes system load average on the target host.
OID: 1.3.6.1.4.1.2021.10.1.3.2	
<b>15 minute Load</b>	
MIB Name: UCD-SNMP-MIB	15 minutes system load average on the target host.
OID: 1.3.6.1.4.1.2021.10.1.3.3	





Table 16 details the Memory Level statistics data that can be queried:

**Table 16: Memory Level Statistics**

Statistics Details	Description
<b>memTotalSwap</b>	
MIB Name: UCD-SNMP-MIB	The total swap space on the target host (swap space is used when the physical memory [RAM] is full).
OID: 1.3.6.1.4.1.2021.4.3.0	
<b>memAvailSwap</b>	
MIB Name: UCD-SNMP-MIB	The available swap space on the target host (swap space is used when the physical memory [RAM] is full).
OID: 1.3.6.1.4.1.2021.4.4.0	
<b>memTotalReal</b>	
MIB Name: UCD-SNMP-MIB	The total physical memory (RAM) on the machine.
OID: 1.3.6.1.4.1.2021.4.5.0	
<b>memAvailReal</b>	
MIB Name: UCD-SNMP-MIB	The available physical memory (RAM) on the machine.
OID: 1.3.6.1.4.1.2021.4.6.0	
<b>memTotalFree</b>	
MIB Name: UCD-SNMP-MIB	The total amount of memory free or available for use on the machine. This value typically covers both real memory and swap space or virtual memory.
OID: 1.3.6.1.4.1.2021.4.11.0	
<b>memBuffer</b>	



Statistics Details	Description
MIB Name: UCD-SNMP-MIB	The buffered physical memory (RAM) on the machine.
OID: 1.3.6.1.4.1.2021.4.14.0	
<b>memCached</b>	
MIB Name: UCD-SNMP-MIB	The cached physical memory (RAM) on the machine.
OID: 1.3.6.1.4.1.2021.4.15.0	

Table 17 details the Network Level statistics data that can be queried:

**Table 17: Network Level Statistics**

Statistics Details	Description
<b>ifMtu</b>	
MIB Name: IF-MIB	The size of the largest packet which can be sent/received on the interface, specified in octets.
OID: 1.3.6.1.2.1.2.2.1.4	
<b>ifSpeed</b>	
MIB Name: IF-MIB	An estimate of the interface's current bandwidth in bits per second.
OID: 1.3.6.1.2.1.2.2.1.5	
<b>ifOperStatus</b>	
MIB Name: IF-MIB	The current operational state of the interface. The optional values are: 1 : up 2 : down
OID: 1.3.6.1.2.1.2.2.1.8	



Statistics Details	Description
	3 : testing 4 : unknown 5 : dormant 6 : not Present 7 : lowerLayerDown
<b>ifInOctets</b>	
MIB Name: IF-MIB	The total number of octets received on the interface, including framing characters.
OID: 1.3.6.1.2.1.2.2.1.10	
<b>ifInErrors</b>	
MIB Name: IF-MIB	The number of inbound packets that contained errors preventing them from being deliverable to a higher layer protocol.
OID: 1.3.6.1.2.1.2.2.1.14	
<b>ifOutOctets</b>	
MIB Name: IF-MIB	The total number of octets transmitted out of the interface, including framing characters.
OID: 1.3.6.1.2.1.2.2.1.16	
<b>ifOutErrors</b>	
MIB Name: IF-MIB	The number of outbound packets that could not be transmitted because of errors.
OID: 1.3.6.1.2.1.2.2.1.20	

Table 18 details the OS Level statistics data that can be queried:



**Table 18: OS Level Statistics**


Statistics Details	Description
<b>sysName</b>	
MIB Name: SNMPv2-MIB	The administrative name assigned to the node.
OID: 1.3.6.1.2.1.1.5.0	
<b>sysDescr</b>	
MIB Name: SNMPv2-MIB	A textual description of the entity. This value should include the full name and version identification of the system's hardware type, software operating system, and networking software. It is mandatory that this only contain printable ASCII characters.
OID: 1.3.6.1.2.1.1.1.0	
<b>hrSystemUptime</b>	
MIB Name: HOST-RESOURCES-MIB	The amount of time since this host was last initialized.   This statistics object also checks whether the SNMP process is up and running and whether the host is accessible by SNMP.
OID: 1.3.6.1.2.1.25.1.1.0	
<b>ssCpuIdle</b>	
MIB Name: UCD-SNMP-MIB	The percentage of processor time spent idle, calculated over the last minute.
OID: 1.3.6.1.4.1.2021.11.11.0	

Table 19 details the statistics data that can be reported to NOC via SYSLOG:



**Table 19: SYSLOG Level Statistic**

Statistics Details	Description
<b>Rsyslogd</b>	
MIB Name: UCD-SNMP-MIB	Checks whether syslog process is up and running.
OID: 1.3.6.1.4.1.2021.2.1.100.1	



## Appendix A: HW MIB Files

The following hardware MIB file are used by SDC:

- BLADETYPE4-NETWORK-MIB
- BRIDGE-MIB
- CPQHLTH-MIB
- CPQHOST-MIB
- CPQIDA-MIB
- CPQRACK-MIB
- CPQSINFO-MIB
- CPQSM2-MIB
- CPQSTDEQ-MIB
- HPVC-MIB
- HPVCMODULE-MIB
- IF-MIB
- RFC1215-MIB
- BGP4-MIB
- BLADESPPALT-MIB
- BNT-GbESM-1G-L2L3-MIB
- BNT-GbESM-24-10G-L2L3-MIB
- BRIDGE-MIB
- ENTITY-MIB
- IF-MIB
- IMMALERT-MIB
- LLDP-EXT-DCBX-MIB
- LLDP-MIB
- OSPF-TRAP-MIB
- RFC1215-MIB
- RMON-MIB



## Appendix B: Message per Peer Table Statistics

Each Message per Peer Statistics (detailed in *Table 12*) is followed by a table which splits the number of events by message type and peer. Each entry in the table displays the following data:

- The index of the entry
- The message type
- The Peer name
- The number of events per message type and peer



Note: The table data can be retrieved using the SNMP WALK command.

*Table 20* details the names and OIDs of each table's entry objects:

**Table 20: Message per Peer Table Statistics**

Name	OID
<b>peerRemoteNodeEventsOKTable</b>	<b>enterprises.27611.1.4.5.110.2</b>
<b>peerRemoteNodeEventsOKEntry</b>	<b>enterprises.27611.1.4.5.110.2.1</b>
peerRemoteNodeEventsOKIndex	enterprises.27611.1.4.5.110.2.1.1
peerRemoteNodeEventsOKMessageType	enterprises.27611.1.4.5.110.2.1.2
peerRemoteNodeEventsOKPeerName	enterprises.27611.1.4.5.110.2.1.3
peerRemoteNodeEventsOK	enterprises.27611.1.4.5.110.2.1.4



Name	OID
<b>peerRemoteNodeEventsTOOBUSYTable</b>	<b>enterprises.27611.1.4.5.110.4</b>
peerRemoteNodeEventsTOOBUSYEntry	<b>enterprises.27611.1.4.5.110.4.1</b>
peerRemoteNodeEventsTOOBUSYIndex	enterprises.27611.1.4.5.110.4.1.1
peerRemoteNodeEventsTOOBUSYMessageType	enterprises.27611.1.4.5.110.4.1.2
peerRemoteNodeEventsTOOBUSYPeerName	enterprises.27611.1.4.5.110.4.1.3
peerRemoteNodeEventsTOOBUSY	enterprises.27611.1.4.5.110.4.1.4
<b>peerRemoteNodeEventsCANNOTROUTETable</b>	<b>enterprises.27611.1.4.5.110.6</b>
<b>peerRemoteNodeEventsCANNOTROUTEEntry</b>	<b>enterprises.27611.1.4.5.110.6.1</b>
peerRemoteNodeEventsCANNOTROUTEIndex	enterprises.27611.1.4.5.110.6.1.1
peerRemoteNodeEventsCANNOTROUTEMessageType	enterprises.27611.1.4.5.110.6.1.2
peerRemoteNodeEventsCANNOTROUTEPeerName	enterprises.27611.1.4.5.110.6.1.3
peerRemoteNodeEventsCANNOTROUTE	enterprises.27611.1.4.5.110.6.1.4
<b>peerRemoteNodeEventsCHANNELDISCONNECTEDTable</b>	<b>enterprises.27611.1.4.5.110.8</b>
<b>peerRemoteNodeEventsCHANNELDISCONNECTEDEntry</b>	<b>enterprises.27611.1.4.5.110.8.1</b>
peerRemoteNodeEventsCHANNELDISCONNECTEDIndex	enterprises.27611.1.4.5.110.8.1.1
peerRemoteNodeEventsCHANNELDISCONNECTEDMessageType	enterprises.27611.1.4.5.110.8.1.2
peerRemoteNodeEventsCHANNELDISCONNECTEDPeerName	enterprises.27611.1.4.5.110.8.1.3
peerRemoteNodeEventsCHANNELDISCONNECTED	enterprises.27611.1.4.5.110.8.1.4











Name	OID
<b>peerRemoteNodeEventsTIMEOUTTable</b>	<b>enterprises.27611.1.4.5.110.10</b>
<b>peerRemoteNodeEventsTIMEOUTEntry</b>	<b>enterprises.27611.1.4.5.110.10.1</b>
peerRemoteNodeEventsTIMEOUTIndex	enterprises.27611.1.4.5.110.10.1.1
peerRemoteNodeEventsTIMEOUTMessageType	enterprises.27611.1.4.5.110.10.1.2
peerRemoteNodeEventsTIMEOUTPeerName	enterprises.27611.1.4.5.110.10.1.3
peerRemoteNodeEventsTIMEOUT	enterprises.27611.1.4.5.110.10.1.4
<b>peerRemoteNodeEventsREQUESTREJECTEDTable</b>	<b>enterprises.27611.1.4.5.110.12</b>
<b>peerRemoteNodeEventsREQUESTREJECTEDEntry</b>	<b>enterprises.27611.1.4.5.110.12.1</b>
peerRemoteNodeEventsREQUESTREJECTEDIndex	enterprises.27611.1.4.5.110.12.1.1
peerRemoteNodeEventsREQUESTREJECTEDMessageType	enterprises.27611.1.4.5.110.12.1.2
peerRemoteNodeEventsREQUESTREJECTEDPeerName	enterprises.27611.1.4.5.110.12.1.3
peerRemoteNodeEventsREQUESTREJECTED	enterprises.27611.1.4.5.110.12.1.4
<b>peerRemoteNodeEventsREDIRECTTable</b>	<b>enterprises.27611.1.4.5.110.14</b>
<b>peerRemoteNodeEventsREDIRECTEntry</b>	<b>enterprises.27611.1.4.5.110.14.1</b>
peerRemoteNodeEventsREDIRECTIndex	enterprises.27611.1.4.5.110.14.1.1
peerRemoteNodeEventsREDIRECTMessageType	enterprises.27611.1.4.5.110.14.1.2
peerRemoteNodeEventsREDIRECTPeerName	enterprises.27611.1.4.5.110.14.1.3
peerRemoteNodeEventsREDIRECT	enterprises.27611.1.4.5.110.14.1.4



Name	OID
<b>peerRemoteNodeEventsDNSPREPARINGPOOLTable</b>	<b>enterprises.27611.1.4.5.110.16</b>
<b>peerRemoteNodeEventsDNSPREPARINGPOOLEntry</b>	<b>enterprises.27611.1.4.5.110.16.1</b>
peerRemoteNodeEventsDNSPREPARINGPOOLIndex	enterprises.27611.1.4.5.110.16.1.1
peerRemoteNodeEventsDNSPREPARINGPOOLMessageType	enterprises.27611.1.4.5.110.16.1.2
peerRemoteNodeEventsDNSPREPARINGPOOLPeerName	enterprises.27611.1.4.5.110.16.1.3
peerRemoteNodeEventsDNSPREPARINGPOOL	enterprises.27611.1.4.5.110.16.1.4
<b>peerRemoteNodeEventsAPPLICATIONERRORTable</b>	<b>enterprises.27611.1.4.5.110.18</b>
<b>peerRemoteNodeEventsAPPLICATIONERROREntry</b>	<b>enterprises.27611.1.4.5.110.18.1</b>
peerRemoteNodeEventsAPPLICATIONERRORIndex	enterprises.27611.1.4.5.110.18.1.1
peerRemoteNodeEventsAPPLICATIONERRORMessageType	enterprises.27611.1.4.5.110.18.1.2
peerRemoteNodeEventsAPPLICATIONERRORPeerName	enterprises.27611.1.4.5.110.18.1.3
peerRemoteNodeEventsAPPLICATIONERROR	enterprises.27611.1.4.5.110.18.1.4
<b>peerSentMessagesTable</b>	<b>enterprises.27611.1.4.5.110.20</b>
<b>peerSentMessagesEntry</b>	<b>enterprises.27611.1.4.5.110.20.1</b>
peerSentMessagesIndex	enterprises.27611.1.4.5.110.20.1.1
peerSentMessagesMessageType	enterprises.27611.1.4.5.110.20.1.2
peerSentMessagesPeerName	enterprises.27611.1.4.5.110.20.1.3
peerSentMessages	enterprises.27611.1.4.5.110.20.1.4





Name	OID
<b>peerDiscardedMessagesTable</b>	<b>enterprises.27611.1.4.5.110.22</b>
 This statistic is deprecated in 4.4	
<b>peerDiscardedMessagesEntry</b>	<b>enterprises.27611.1.4.5.110.22.1</b>
 This statistic is deprecated in 4.4	
peerDiscardedMessagesIndex	enterprises.27611.1.4.5.110.22.1.1
 This statistic is deprecated in 4.4	
peerDiscardedMessagesMessageType	enterprises.27611.1.4.5.110.22.1.2
 This statistic is deprecated in 4.4	
peerDiscardedMessagesPeerName	enterprises.27611.1.4.5.110.22.1.3
 This statistic is deprecated in 4.4	
peerDiscardedMessages	enterprises.27611.1.4.5.110.22.1.4
 This statistic is deprecated in 4.4	
<b>peerReceivedMessagesTable</b>	<b>enterprises.27611.1.4.5.110.24</b>







Name	OID
<b>peerReceivedMessagesEntry</b>	<b>enterprises.27611.1.4.5.110.24.1</b>
peerReceivedMessagesIndex	enterprises.27611.1.4.5.110.24.1.1
peerReceivedMessagesMessageType	enterprises.27611.1.4.5.110.24.1.2
peerReceivedMessagesPeerName	enterprises.27611.1.4.5.110.24.1.3
peerReceivedMessages	enterprises.27611.1.4.5.110.24.1.4
<b>peerPendingRequestsTable</b>	<b>enterprises.27611.1.4.5.110.26</b>
<b>peerPendingRequestsEntry</b>	<b>enterprises.27611.1.4.5.110.26.1</b>
peerPendingRequestsIndex	enterprises.27611.1.4.5.110.26.1.1
peerPendingRequestsMessageType	enterprises.27611.1.4.5.110.26.1.2
peerPendingRequestsPeerName	enterprises.27611.1.4.5.110.26.1.3
peerPendingRequests	enterprises.27611.1.4.5.110.26.1.4
<b>peerSentRequestTimeoutsTable</b>	<b>enterprises.27611.1.4.5.110.28</b>
<b>peerSentRequestTimeoutsEntry</b>	<b>enterprises.27611.1.4.5.110.28.1</b>
peerSentRequestTimeoutsIndex	enterprises.27611.1.4.5.110.28.1.1
peerSentRequestTimeoutsMessageType	enterprises.27611.1.4.5.110.28.1.2
peerSentRequestTimeoutsPeerName	enterprises.27611.1.4.5.110.28.1.3
peerSentRequestTimeouts	enterprises.27611.1.4.5.110.28.1.4
<b>peerSentRequestRetransmissionTimeoutsTable</b>	<b>enterprises.27611.1.4.5.110.30</b>



Name	OID
<b>peerSentRequestRetransmissionTimeoutsEntry</b>	<b>enterprises.27611.1.4.5.110.30.1</b>
peerSentRequestRetransmissionTimeoutsIndex	enterprises.27611.1.4.5.110.30.1.1
peerSentRequestRetransmissionTimeoutsMessageType	enterprises.27611.1.4.5.110.30.1.2
peerSentRequestRetransmissionTimeoutsPeerName	enterprises.27611.1.4.5.110.30.1.3
peerSentRequestRetransmissionTimeouts	enterprises.27611.1.4.5.110.30.1.4
<b>peerRoundtripTimeTable</b>	<b>enterprises.27611.1.4.5.110.32</b>
<b>peerRoundtripTimeEntry</b>	<b>enterprises.27611.1.4.5.110.32.1</b>
peerRoundtripTimeIndex	enterprises.27611.1.4.5.110.32.1.1
peerRoundtripTimeMessageType	enterprises.27611.1.4.5.110.32.1.2
peerRoundtripTimePeerName	enterprises.27611.1.4.5.110.32.1.3
peerRoundtripTime	enterprises.27611.1.4.5.110.32.1.4
<b>peerMessageProcessingTimeTable</b>	<b>enterprises.27611.1.4.5.110.34</b>
 This statistic is deprecated in 4.4	
<b>peerMessageProcessingTimeEntry</b>	<b>enterprises.27611.1.4.5.110.34.1</b>
 This statistic is deprecated in 4.4	
peerMessageProcessingTimeIndex	enterprises.27611.1.4.5.110.34.1.1



Name	OID
 This statistic is deprecated in 4.4	
peerMessageProcessingTimeMessageType	enterprises.27611.1.4.5.110.34.1.2
 This statistic is deprecated in 4.4	
peerMessageProcessingTimePeerName	enterprises.27611.1.4.5.110.34.1.3
 This statistic is deprecated in 4.4	
peerMessageProcessingTime	enterprises.27611.1.4.5.110.34.1.4
 This statistic is deprecated in 4.4	



## Glossary

The following table lists the terms and abbreviations used in this document.

**Table 21: Terms and Abbreviations**

Term	Definition
AAA	Authentication, Authorization and Accounting
ACL	Access Control List
AF	Application Function
Answer	A message sent from one Client/Server Peer to the other following a request message
API	Application Programming Interface
AVP	Attribute Value Pair
CLI	Command Line Interface
Client Peer	A physical or virtual addressable entity which consumes AAA services
CPF	Control Plane Function
Data Dictionary	Defines the format of a protocol's message and its validation parameters: structure, number of fields, data format, etc.
DEA	Diameter Edge Agent
Destination Peer	The Client/Server peer to which the message is sent
DRA	Diameter Routing Agent
EMS Site	Element Management System Site
FEP-In	In-Front End Proxy
FEP-Out	Out-Front End Proxy
Geo Redundancy	A mode of operation in which more than one geographical location is used in case one site fails



Term	Definition
HA	High Availability
HSS	Home Subscriber Server
HTTP	Hypertext Transfer Protocol
IMS	IP Multimedia Subsystem
JMS	Java Message Service
KPI	Key Performance Indicator
LDAP	Lightweight Directory Access Protocol
LTE	Long Term Evolution
Master Session	The session for which the routing selection is performed based on the routing rules (Slave Sessions are applied with routing rules inherited from the Master Session)
MME	Mobility Management Entity
NGN	Next Generation Networking
Node	Physical or virtual addressable entity
OAM	Operation, Administration and Maintenance
OCS	Online Charging System
Origin Peer	The peer from which the message is received
PCEF	Policy and Charging Enforcement Function
PCRF	Policy and Charging Rules Function
PLMN	Public Land Mobile Network
Pool	A group of Server Peers
RADIUS	Remote Authentication Dial In User Service
Request	A message sent from one Client/Server peer to the other, followed by an answer message





<b>Term</b>	<b>Definition</b>
SCCP	Signaling Connection Control Part
SCTP	Stream Control Transmission Protocol
SDC	Signaling Delivery Controller
SDC Site	The entire list of entities working in a single site
Server Peer	A physical or virtual addressable entity which provides AAA services
Session	An interactive information interchange between entities
Slave (Bound) Session	A session which inherits properties from a master session
SNMP	Simple Network Management Protocol
SS7	Signaling System No. 7
TCP	Transmission Control Protocol
TLS	Transport Layer Security
Transaction	A request message followed by an answer message
Tripo	Session data repository
UDP	User Datagram Protocol
UE	User Equipment
URI	Universal Resource Identification.
Virtual Server	A binding point used by SDC to communicate with the Remote Peers (Clients and Servers)
VPLMN	Visited Public Land Mobile Network
Web UI	Web User Interface
WS	Web Service