

**Oracle® Communications**  
**Diameter Signaling Router**  
DSR DTLS Feature Activation Procedure  
**E78942 Revision 01**

April 2017

**ORACLE®**

Oracle Communications Diameter Signaling Router DTLS feature activation procedure.

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See more information on MOS in the Appendix section.

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## 1. Introduction

### 1.1. Purpose and Scope

This document defines the procedure that is executed to activate the Datagram Transport Layer Security (DTLS) feature on a DSR network element (NE). This procedure may be run on an in-service DSR NE (which was upgraded from a DSR 7.1.0 or prior releases **without DTLS connections configured** to DSR 7.1.1 or later releases) during a planned maintenance window to minimize the impact to network traffic.

**Note:** The DTLS Feature Activation procedure need not be run in the following cases as it would be automatically activated in these cases.

1. On newly installed DSR 7.1.1 or later releases.
2. On DSR NE upgraded from a DSR 7.1.0 release or prior releases **with DTLS connections configured** to DSR 7.1.1 or later releases.

This document also provides a procedure to deactivate DTLS after it has been activated. Please see Section 3 for a discussion of deactivation.

No additional software installation is required prior to executing this procedure. The standard DSR installation procedure has loaded all of the required software, even if the DTLS feature is activated at a later time.

Please refer [1] Oracle Communications DSR Introducing SCTP Datagram Transport Layer Security (DTLS) in DSR 7.1 By Enabling SCTP AUTH Extensions By Default, Doc ID 2019141.1 for more background on the reason for having DTLS feature activation/deactivation procedure.

### 1.2. References

[1] Oracle Communications DSR Introducing SCTP Datagram Transport Layer Security (DTLS) in DSR 7.1 By Enabling SCTP AUTH Extensions By Default, Doc ID 2019141.1

### 1.3. Acronyms

**Table 1. Acronyms**

Acronym	Definition
DA-MP	Diameter Agent Message Processor
DB	Database
DSR	Diameter Signaling Router
DTLS	Datagram Transport Layer Security
GUI	Graphical User Interface
HA	High Availability
IP	Internet Protocol
MP	Message Processing or Message Processor
NE	Network Element
NO	Network OAM
NOAM	Network OAM
OAM	Operations, Administration and Maintenance
SSH	Secure Shell

Acronym	Definition
UI	User Interface
VIP	Virtual IP
SOAM	System OAM

## 1.4. Terminology

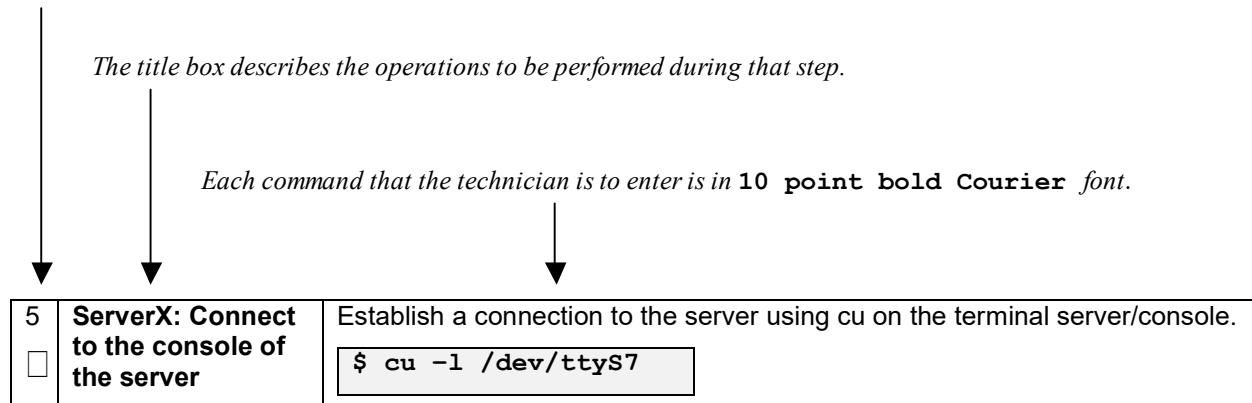
**Table 2. Terminology**

Term	Definition
DTLS	Datagram Transport Layer Security allows datagram based applications to communicate in a way that is designed to prevent eavesdropping, tampering or message forgery. The DTLS protocol is based on the stream oriented Transport Layer Security (TLS) protocol.
MP Server	It refers to DA-MP server.
SOAM	System Operations and Maintenance

## 1.5. General Procedure Step Format

Where it is necessary to explicitly identify the server on which a particular step is to be taken, the server name is given in the title box for the step (e.g., “ServerX” in Figure 1. Example of a Procedure Step).

*Each step has a checkbox for every command within the step that the technician should check to keep track of the progress of the procedure.*



**Figure 1. Example of a Procedure Step**

## 2. Feature Activation Overview

This section lists the required materials and information needed to execute the feature activation. In addition, Table 3. Pre-Feature Activation Overview through Table 8. Post-Feature Deactivation Overview provide estimates of the time required to execute the procedure. These tables can be used to estimate the total time necessary to complete the feature activation. The timing values shown are estimates only – use these tables to plan the timing of the activation, **not** to execute the procedure. The detailed procedure steps to be executed begin in Section 5.

### 2.1. Definition of Activation for the DTLS Feature

The precise meaning of activation varies from feature to feature. This section briefly defines what activation means with respect to the DTLS feature.

All software required to run DTLS is available by default as part of a DSR release installation or upgrade. The process of activating the feature simply makes proper use of software elements and file system files that are already present, to change the behavior of the DSR NE.

After feature activation, DTLS connections can be configured on the SOAM GUI, allowing DTLS provisioning.

#### After activation:

The DA-MP(s) are prepared to act on DTLS configuration and provisioning information entered at SOAM.

**Important:** Once the DTLS feature is activated, it is not automatically enabled. Activation simply means the mechanism for provisioning DTLS is in place. The DA-MP(s) act on DTLS provisioning information only after DA-MP(s) have been restarted (via the **Status & Manage->Servers** screen).

## 2.2. Feature Activation Overview

### 2.2.1 Pre-Feature Activation Overview

The pre-activation procedures shown in the following table may be executed outside a maintenance window if desired. Procedure completion times shown here are estimates. Times may vary due to differences in database size, network configuration and loading, user experience, and user preparation.

**Table 3. Pre-Feature Activation Overview**

Procedure	Elapsed Time (Hours: Minutes)		Activity Feature Activation Preparation	Impact
	This Step	Cum.		
System Topology Check (Procedure 1)	0:00-0:20	0:00-0:20	<ul style="list-style-type: none"><li>Verify Network Element Configuration data.</li><li>Verify Server Group Configuration data.</li><li>Analyze and plan DA-MP restart sequence.</li></ul>	None
Perform Health Check (Procedure 2)	0:01-0:05	0:21-0:25	<ul style="list-style-type: none"><li>Verify Server status.</li><li>Log all current alarms.</li></ul>	None

## 2.2.2 Feature Activation Execution Overview

The procedures shown in the following table are executed inside a single maintenance window. Procedure completion times shown here are estimates. Times may vary due to differences in database size, network configuration and loading, user experience, and user preparation.

**Table 4. Feature Activation Execution Overview**

Procedure	Elapsed Time (Hours: Minutes)		Activity Feature Activation Execution	Impact
	This Step	Cum.		
Perform Health Check (Procedure 3)	0:01-0:05	0:01-0:05	<ul style="list-style-type: none"> <li>Verify Server status.</li> <li>Verify server and server group configurations.</li> <li>Log all current alarms.</li> </ul>	None
Feature Activation (Procedure 4)	0:10-0:20	0:11-0:25	<ul style="list-style-type: none"> <li>SSH to Active NOAM.</li> <li>Log in as admusr</li> <li>Change directory to /usr/TKLC/dsr/prod/maint/loaders/.</li> <li>Execute the feature activation script.</li> <li>Restart each active DA-MP server.</li> </ul>	DTLS is activated

## 2.2.3 Post-Feature Activation Overview

The procedures shown in the following table are executed inside a maintenance window. Procedure completion times shown here are estimates. Times may vary due to differences in database size, network configuration and loading, user experience, and user preparation.

**Table 5. Post-Feature Activation Overview**

Procedure	Elapsed Time (Hours: Minutes)		Activity Feature Activation Completion	Impact
	This Step	Cum.		
Perform Health Check (Procedure 5)	0:01-0:15	0:12-0:40	<ul style="list-style-type: none"> <li>Establish GUI Session on the SOAM VIP</li> <li>Verify Server status.</li> <li>Log all current alarms.</li> <li>Verify DTLS has been activated on all DA-MP servers.</li> </ul>	DTLS has been activated on DSR

## 3. Feature Deactivation Overview

### 3.1. Pre-Feature Deactivation Overview

The procedures shown in the following table are executed inside a maintenance window. Deactivation procedure times are only estimates as the reason to execute a deactivation has a direct impact on any additional deactivation preparation that must be done. Times may vary due to differences in database size, network configuration and loading, user experience, and user preparation.

**Table 6. Pre-Feature Deactivation Overview**

Procedure	Elapsed Time (Hours or Minutes)		Activity Deactivation Procedures	Impact
	This Step	Cum.		
Perform Health Check (Procedure 6)	0:01- 0:05	0:01-0:05	<ul style="list-style-type: none"> <li>Verify server status.</li> <li>Log current alarms.</li> <li>Delete DTLS connections if configured</li> </ul>	None

### 3.2. Feature Deactivation Execution Overview

The procedures shown in the following table are executed inside a maintenance window. Deactivation procedure times are only estimates as the reason to execute a deactivation has a direct impact on any additional deactivation preparation that must be done. Times may vary due to differences in database size, network configuration and loading, user experience, and user preparation.

**Table 7. Feature Deactivation Overview**

<b>Procedure</b>	<b>Elapsed Time (Hours or Minutes)</b>		<b>Activity Deactivation Procedures</b>	<b>Impact</b>
	<b>This Step</b>	<b>Cum.</b>		
Deactivation (Procedure 7)	00:10-00:20	0:11-0:25	<ul style="list-style-type: none"><li>• SSH into active NOAM.</li><li>• Log in as admusr</li><li>• Change directory to /usr/TKLC/dsr/prod/maint/loaders/..</li><li>• Execute the feature deactivation script.</li><li>• Restart each active DA-MP server.</li></ul>	DTLS is deactivated

### 3.3. Post-Feature Deactivation Overview

The procedures shown in the following table are executed inside a maintenance window. Deactivation procedure times are only estimates as the reason to execute a deactivation has a direct impact on any additional deactivation preparation that must be done. Times may vary due to differences in database size, network configuration and loading, user experience, and user preparation.

**Table 8. Post-Feature Deactivation Overview**

<b>Procedure</b>	<b>Elapsed Time (Hours or Minutes)</b>		<b>Activity Deactivation Procedures</b>	<b>Impact</b>
	<b>This Step</b>	<b>Cum.</b>		
Perform Health Check (Procedure 8)	0:01-0:15	0:12-0:40	<ul style="list-style-type: none"><li>• Verify Server status.</li><li>• Log all current alarms.</li><li>• Verify DTLS has been deactivated on all DA-MP servers.</li></ul>	None

## 4. Feature Activation Preparation

This section provides detailed procedures to prepare a system for DTLS feature activation. These procedures are executed outside a maintenance window.

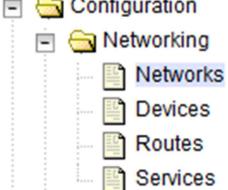
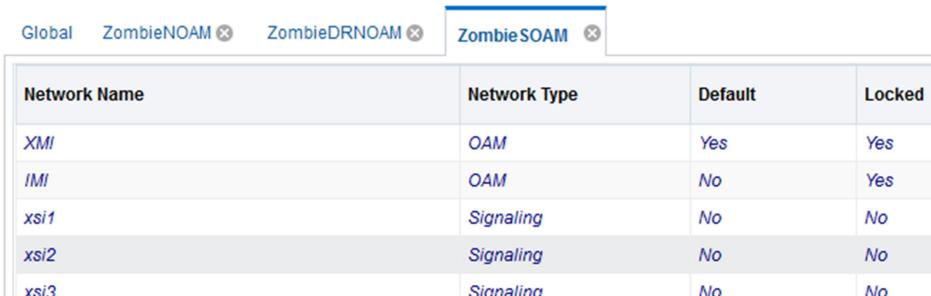
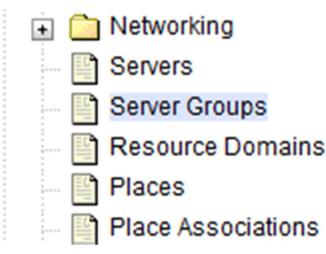
### 4.1. System Topology Check

This procedure is part of feature activation preparation and is used to verify the system topology of the DSR network and servers.

#### Procedure 1: System Topology Check

<b>S</b>	This procedure verifies system topology.	
<b>T</b>	Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.	
<b>E</b>		
<b>P</b>		
<b>#</b>	If this procedure fails, contact My Oracle Support (MOS) and ask for assistance.	
1	<b>NOAM VIP GUI:</b> <input type="checkbox"/> Login	Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of:  <b>http://&lt;Primary_NOAM_VIP_IP_Address&gt;</b>
		Login as the <b>guiadmin</b> user:  

## Procedure 1: System Topology Check

2	<p><b>NOAM VIP GUI:</b>  <input type="checkbox"/> Verify Network Configuration Data</p>	<p>Navigate to <b>Main Menu &gt; Configuration &gt; Networking -&gt; Networks.</b></p>  <p>Select the site network element tab:</p>  <p><b>Click Report.</b></p> <p><b>Report</b></p> <p>Verify the configuration data is correct for your network.  <b>Save or Print</b> this report, keep copies for future reference.</p> <p><b>Print</b> <b>Save</b> <b>Back</b></p>
3	<p><b>NOAM VIP GUI:</b>  <input type="checkbox"/> Verify Server Configuration</p>	<p>Navigate to <b>Main Menu &gt; Configuration &gt; Server Groups.</b></p>  <p><b>Click Report.</b></p> <p><b>Report</b></p> <p>Verify the configuration data is correct for your network.  <b>Save or Print</b> this report, keep copies for future reference.</p> <p><b>Print</b> <b>Save</b> <b>Back</b></p>

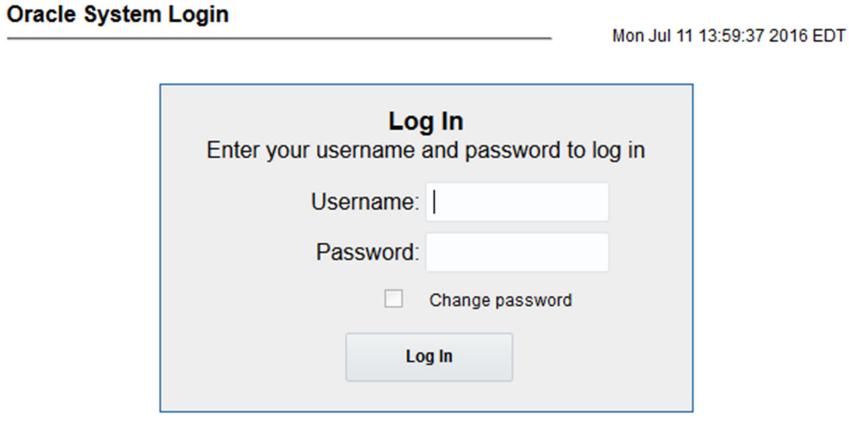
### Procedure 1: System Topology Check

4	<input type="checkbox"/> <b>Analyze and plan DA-MP restart sequence</b>	Analyze system topology and plan for any DA-MPs which will be out-of-service during the feature activation sequence.  Analyze system topology gathered in Steps 2 and 3.  Determine exact sequence which DA-MP servers will be restarted (with the expected out-of-service periods).  <b>Note:</b> It is recommended that no more than 50% of the MPs be restarted at once.
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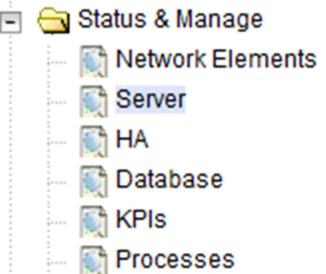
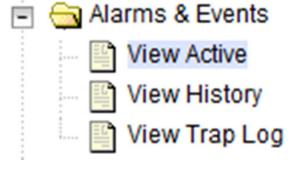
## 4.2. Perform Health Check

This procedure is part of feature activation preparation and is used to determine the health and status of the DSR release network and servers. This may be executed multiple times but must also be executed at least once within the time frame of 24-36 hours before the start of the maintenance window in which the feature activation will take place.

### Procedure 2: Perform Health Check (Feature Activation Preparation)

	<b>S</b> <b>T</b> <b>E</b> <b>P</b> <b>#</b>	This procedure provides steps to perform needed health checks.  Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.  If this procedure fails, contact My Oracle Support (MOS) and ask for assistance.
1	<input type="checkbox"/> <b>NOAM VIP GUI:</b> Login	Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of:  <code>http://&lt;Primary_NOAM_VIP_IP_Address&gt;</code>  Login as the <b>guiadmin</b> user:     <p>The Oracle System Login page shows a 'Log In' form with fields for Username and Password, and checkboxes for Change password and Log In. Below the form is a welcome message and a note about browser support. The page is dated Mon Jul 11 13:59:37 2016 EDT.</p> <p>Welcome to the Oracle System Login.</p> <p>This application is designed to work with most modern HTML5 compliant browsers and uses both JavaScript and cookies. Please refer to the <a href="#">Oracle Software Web Browser Support Policy</a> for details.</p> <p>Unauthorized access is prohibited.</p>

## Procedure 2: Perform Health Check (Feature Activation Preparation)

2	<p><b>NOAM VIP GUI:</b>  <input type="checkbox"/> Verify Server Status</p>	<p>Navigate to <b>Main Menu -&gt; Status &amp; Manage -&gt; Server</b>.</p>  <p>Verify all Server Status is Normal (Norm) for:      Alarm (Alm), Database (DB), Replication Status, and Processes (Proc).</p> <table border="1" data-bbox="489 696 1436 855"> <thead> <tr> <th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr> </thead> <tbody> <tr> <td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr> <tr> <td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr> <tr> <td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr> <tr> <td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr> </tbody> </table> <p>Do not proceed to feature activation if any of the above states are not Norm. If any of these are not Norm, corrective action should be taken to restore the non-Norm status to Norm before proceeding with the feature activation.</p> <p>If the Alarm (Alm) status is not Norm but only Minor alarms are present, it is acceptable to proceed with the feature activation. If there are Major or Critical alarms present, these alarms should be analyzed prior to proceeding with the feature activation. The activation may be able to proceed in the presence of certain Major or Critical alarms. Contact My Oracle Support (MOS) for assistance as necessary.</p>	Appl State	Alm	DB	Reporting Status	Proc	Enabled	Norm	Norm	Norm	Norm	Enabled	Norm	Norm	Norm	Norm	Enabled	Norm	Norm	Norm	Norm	Enabled	Norm	Norm	Norm	Norm
Appl State	Alm	DB	Reporting Status	Proc																							
Enabled	Norm	Norm	Norm	Norm																							
Enabled	Norm	Norm	Norm	Norm																							
Enabled	Norm	Norm	Norm	Norm																							
Enabled	Norm	Norm	Norm	Norm																							
3	<p><b>NOAM VIP GUI:</b>  <input type="checkbox"/> Log Current Alarms</p>	<p>Navigate to <b>Main Menu -&gt; Alarms &amp; Events -&gt; View Active</b>.</p>  <p>Click <b>Report</b>.</p>  <p><b>Save or Print</b> this report, keep copies for future reference.</p> 																									

## 5. Feature Activation

Before feature activation, perform the system health check in Section 4.2. This check ensures that the system is ready for feature activation. Performing the system health check determines which alarms are present in the system and if feature activation can proceed with alarms.

### \*\*\*\*\* **WARNING** \*\*\*\*\*

If there are servers in the system which are not in Normal state, these servers should be brought to the Normal or the Application Disabled state before the feature activation process is started.

If alarms are present on the server, contact My Oracle Support (MOS) to diagnose those alarms and determine whether they need to be addressed or if it is safe to proceed with the feature activation.

Please read the following notes on feature activation procedures:

- Where possible, command response outputs are shown as accurately as possible. EXCEPTIONS are as follows:
  - Session banner information such as time and date.
  - System-specific configuration information such as hardware locations, IP addresses and hostnames.
  - ANY information marked with "XXXX" or "YYYY." Where appropriate, instructions are provided to determine what output should be expected in place of "XXXX or YYYY"
  - Aesthetic differences unrelated to functionality such as browser attributes: window size, colors, toolbars, and button layouts.
- After completing each step and at each point where data is recorded from the screen, the technician performing the feature activation must initial each step. A check box should be provided. For procedures which are executed multiple times, the check box can be skipped, but the technician must initial each iteration the step is executed. The space on either side of the step number can be used (margin on left side or column on right side).
- Captured data is required for future support reference.

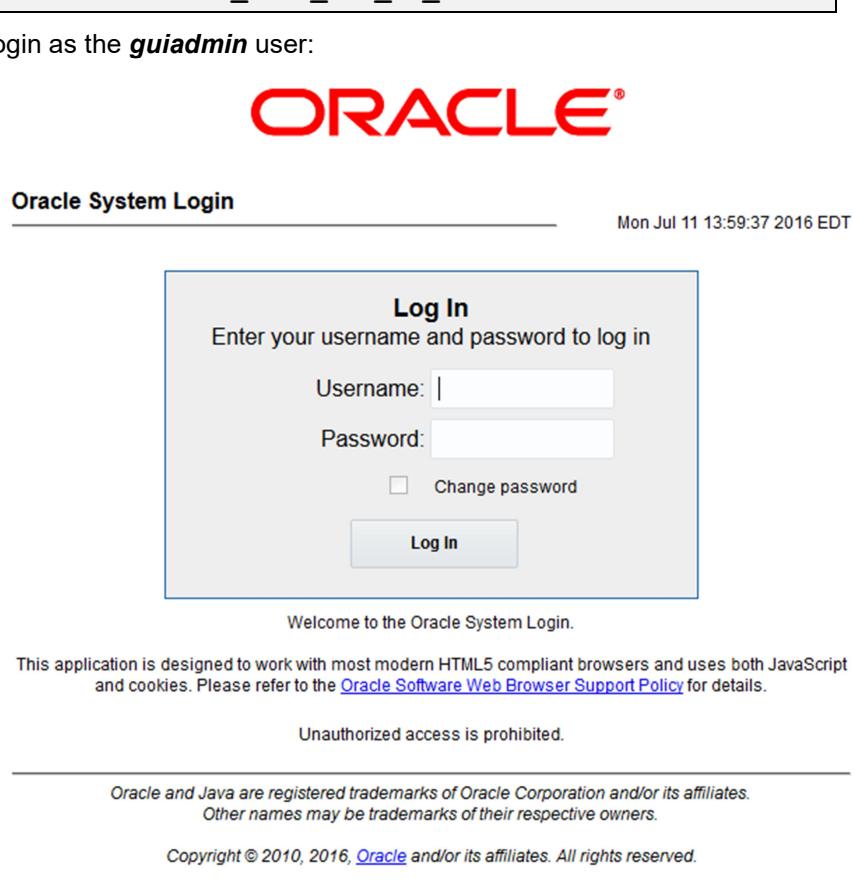
## 5.1. Pre-Activation Procedures

### 5.1.1 Perform Health Check

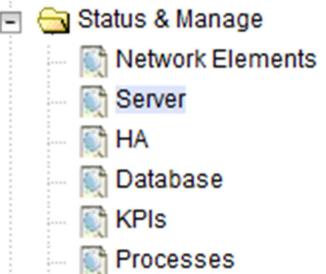
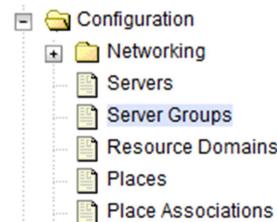
This procedure is used to determine the health and status of the network and servers. This must be executed at the start of every maintenance window.

**Note:** The Health Check procedure below is the same as the Health Check procedure described in Section 4.2 when preparing for feature activation, but it is repeated here to emphasize that it is being re-executed if Section 4.2 was performed outside the maintenance window.

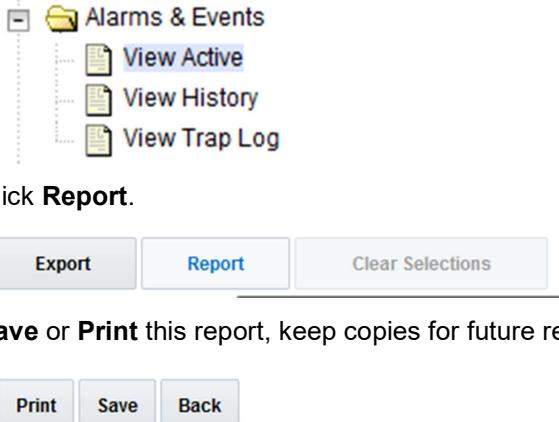
#### Procedure 3: Perform Health Check (Pre Feature Activation)

<b>S</b>	This procedure provides steps to perform needed health checks.
<b>T</b>	Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.
<b>E</b>	
<b>P</b>	
<b>#</b>	If this procedure fails, contact My Oracle Support (MOS) and ask for assistance.
1	<p><b>NOAM VIP GUI:</b></p> <p><input type="checkbox"/> Login</p> <p>Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of:</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"><code>http://&lt;Primary_NOAM_VIP_IP_Address&gt;</code></div> <p>Login as the <b>guiadmin</b> user:</p> 

### Procedure 3: Perform Health Check (Pre Feature Activation)

2	<b>NOAM VIP GUI:</b> <input type="checkbox"/> Verify Server Status	<p>Navigate to <b>Main Menu</b> &gt; <b>Status &amp; Manage</b> &gt; <b>Server</b>.</p>  <p>Verify all Server Status is Normal (Norm) for:          Alarm (Alm), Database (DB), Replication Status, and Processes (Proc).</p> <table border="1" data-bbox="489 696 1436 844"> <thead> <tr> <th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr> </thead> <tbody> <tr> <td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr> <tr> <td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr> <tr> <td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr> <tr> <td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr> </tbody> </table> <p>Do not proceed to feature activation if any of the above states are not Norm. If any of these are not Norm, corrective action should be taken to restore the non-Norm status to Norm before proceeding with the feature activation.</p> <p>If the Alarm (Alm) status is not Norm but only Minor alarms are present, it is acceptable to proceed with the feature activation. If there are Major or Critical alarms present, these alarms should be analyzed prior to proceeding with the feature activation. The activation may be able to proceed in the presence of certain Major or Critical alarms. Contact My Oracle Support (MOS) for assistance as necessary.</p>	Appl State	Alm	DB	Reporting Status	Proc	Enabled	Norm	Norm	Norm	Norm	Enabled	Norm	Norm	Norm	Norm	Enabled	Norm	Norm	Norm	Norm	Enabled	Norm	Norm	Norm	Norm
Appl State	Alm	DB	Reporting Status	Proc																							
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3	<b>NOAM VIP GUI:</b> <input type="checkbox"/> Verify Server Configuration	<p>Navigate to <b>Main Menu</b> &gt; <b>Configuration</b> &gt; <b>Server Groups</b>.</p>  <p>Verify the configuration data is correct for your network.</p>																									

### Procedure 3: Perform Health Check (Pre Feature Activation)

<b>4</b> <input type="checkbox"/> <b>NOAM VIP GUI:</b> Log Current Alarms	<p>Navigate to <b>Main Menu &gt; Alarms &amp; Events &gt; View Active</b>.</p>  <p>Click <b>Report</b>.</p> <p><b>Save or Print</b> this report, keep copies for future reference.</p>
---	--

## 5.2. Activation Procedures

This section provides the detailed procedure steps of the feature activation execution. These procedures are executed inside a maintenance window.

### 5.2.1 Feature Activation

Detailed steps for DTLS feature activation are given in the procedure below.

#### Procedure 4: Feature Activation

<b>S</b> <b>T</b> <b>E</b> <b>P</b> <b>#</b>	<p>This procedure provides steps to activate DTLS.</p> <p>Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.</p> <p>If this procedure fails, contact My Oracle Support (MOS) and ask for assistance.</p>
<b>1</b> <input type="checkbox"/> <b>NOAM VIP:</b> Establish an SSH session	Establish an SSH session to the NOAM VIP. Login as <b>admusr</b> .
<b>2</b> <input type="checkbox"/> <b>NOAM VIP:</b> Navigate to the Feature Activation Directory	<p>Navigate to the feature activation directory by executing the following command:</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <b>\$ cd /usr/TKLC/dsr/prod/maint/loaders/</b> </div>

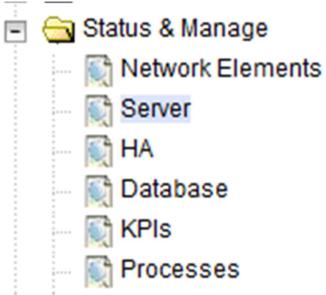
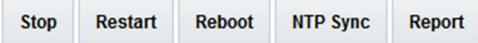
#### Procedure 4: Feature Activation

3	<p><input type="checkbox"/> <b>NOAM VIP:</b> Execute the Feature Activation Script</p>	<p>Run the feature activation script by executing the following command:</p> <pre>\$ ./featureActivateDeactivate</pre> <p>Choose <b>Activate</b>.</p> <pre>You want to Activate or Deactivate the Feature : 1.Activate 2.Deactivate  Enter your choice : [ ]</pre> <p>Choose <b>DTLS</b>.</p> <pre>List of Feature you can Activate : 1.RBAR 2.FABR 3.Mediation 4.LoadGen 5.GLA 6.MAP Interworking 7.DTLS 8.DCA Framework 9.DCA Application</pre> <p>Choose the SOAM site for which the application will be activated:</p> <p><b>Note:</b> As an alternative, you can also activate on all SOAM sites:</p> <pre>The Active SO server configured in the Topology are ===== === 1. Jetta-SO-2 2. ALL SOs  Enter your choice on which SO you want to Activate or Deactivate the Feature : [ ]</pre> <p>Refer to <b>Section 7.1</b> for output example.</p>
---	--	---

#### Procedure 4: Feature Activation

4	<p><b>SOAM VIP GUI:</b> Login</p> <p>Establish a GUI session on the SOAM server by using the VIP IP address of the SOAM server. Open the web browser and enter a URL of:</p> <div style="border: 1px solid black; padding: 2px; display: inline-block;"><b>http://&lt;Primary_SOAM_VIP_IP_Address&gt;</b></div> <p>Login as the <b>guiadmin</b> user:</p> Oracle Software Web Browser Support Policy for details.' A footer at the bottom includes a trademark notice and a copyright notice." data-bbox="318 121 886 599"/>
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#### Procedure 4: Feature Activation

5	<p><b>SOAM VIP GUI:</b> Restart DA-MPs</p> <p>Multiple iterations of this step may be executed during the feature activation procedure. This is dependent on the number of DA-MP servers within your system. Make a written record of the number of times the step was performed. It is recommended that no more than 50% of the DA-MPs be restarted at once.</p> <p>Navigate to <b>Main Menu -&gt; Status &amp; Manage -&gt; Server</b>.</p>  <p>Select the desired DA-MPs, you can use 'Ctrl' to select multiple DA-MPs at once.</p> <p>Click <b>Restart</b>.</p>  <p>Verify the Server changes to the Err state and wait until it returns to the Enabled/Norm state.</p> <p>Repeat for the additional DA-MPs.</p>
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## 5.3. Post-Activation Procedures

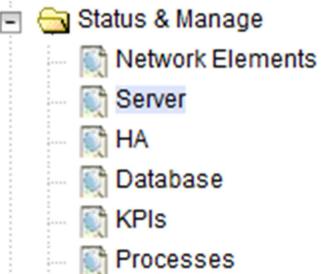
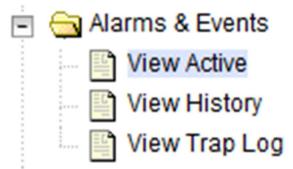
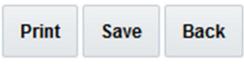
### 5.3.1 Perform Health Check

This procedure is used to determine the health and status of the DSR release network and servers.

#### Procedure 5: Perform Health Check (Post-Feature Activation)

S T E P	This procedure performs a post activation health check.  Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.  # If this procedure fails, contact My Oracle Support (MOS) and ask for assistance.
1 <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Login  Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of:  <b><code>http://&lt;Primary_NOAM_VIP_IP_Address&gt;</code></b>  Login as the <b>guiadmin</b> user:    Oracle System Login _____ Mon Jul 11 13:59:37 2016 EDT  <div style="border: 1px solid #ccc; padding: 10px; width: 300px; margin: 20px auto;"><p style="text-align: center;"><b>Log In</b> Enter your username and password to log in  Username: <input type="text"/> Password: <input type="password"/>  <input type="checkbox"/> Change password  <b>Log In</b></p><p style="text-align: center;">Welcome to the Oracle System Login.</p><p style="text-align: center;">This application is designed to work with most modern HTML5 compliant browsers and uses both JavaScript and cookies. Please refer to the <a href="#">Oracle Software Web Browser Support Policy</a> for details.</p><p style="text-align: center;">Unauthorized access is prohibited.</p><hr/><p style="text-align: center;">Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.</p><p style="text-align: center;">Copyright © 2010, 2016, <a href="#">Oracle</a> and/or its affiliates. All rights reserved.</p></div>

#### Procedure 5: Perform Health Check (Post-Feature Activation)

2	<b>NOAM VIP GUI:</b> <input type="checkbox"/> Verify Server Status	<p>Navigate to <b>Main Menu</b> &gt; <b>Status &amp; Manage</b> &gt; <b>Server</b>.</p>  <p>Verify all Server Status is Normal (Norm) for:          Alarm (Alm), Database (DB), Replication Status, and Processes (Proc).</p> <table border="1" data-bbox="514 696 1445 855"> <thead> <tr> <th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr> </thead> <tbody> <tr> <td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr> <tr> <td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr> <tr> <td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr> <tr> <td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr> </tbody> </table>	Appl State	Alm	DB	Reporting Status	Proc	Enabled	Norm	Norm	Norm	Norm	Enabled	Norm	Norm	Norm	Norm	Enabled	Norm	Norm	Norm	Norm	Enabled	Norm	Norm	Norm	Norm
Appl State	Alm	DB	Reporting Status	Proc																							
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Enabled	Norm	Norm	Norm	Norm																							
3	<b>NOAM VIP GUI:</b> <input type="checkbox"/> Log Current Alarms	<p>Navigate to <b>Main Menu</b> &gt; <b>Alarms &amp; Events</b> &gt; <b>View Active</b>.</p>  <p>Click <b>Report</b>.</p>  <p><b>Save or Print</b> this report, keep copies for future reference.</p>  <p>Compare this alarm report with those gathered in the pre-activation procedures. Contact My Oracle Support (MOS) if needed.</p>																									
4	<b>DA-MP Server:</b> <input type="checkbox"/> Login	<p>Establish an SSH session to the DA-MP server. Login as <b>admusr</b>.</p>																									
5	<b>DA-MP Server:</b> <input type="checkbox"/> Verify SCTP Auth Flag value	<p>Execute the following command to verify the SCTP Auth Enable Flag value:</p> <p><b>Note:</b> It is recommended to copy and paste directly as listed below to avoid errors.</p> <pre data-bbox="514 1679 1445 1721"><code>\$ sudo sysctl -a   grep net.sctp.auth_enable</code></pre> <p>The following output is expected:</p> <pre data-bbox="514 1763 1445 1805"><code>net.sctp.auth_enable = 1</code></pre>																									

#### Procedure 5: Perform Health Check (Post-Feature Activation)

6	<b>Additional DA-MP Servers:</b> <input type="checkbox"/> Repeat	Repeat Steps 4-Step 5 for all remaining DA-MP servers.
---	---	--

## 6. Feature Deactivation

Execute this section only if there is a problem and it is desired to revert back to the pre-activation version of the software.

### 6.1. Pre-Deactivation Procedures

Before beginning the feature deactivation, complete the Pre-Deactivation procedure below.

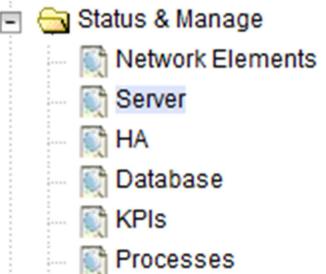
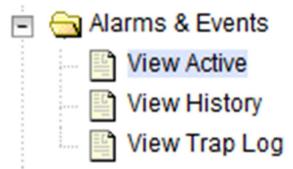
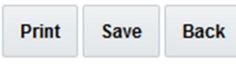
#### 6.1.1 Perform Health Check

This procedure is used to determine the health and status of the DSR network and servers.

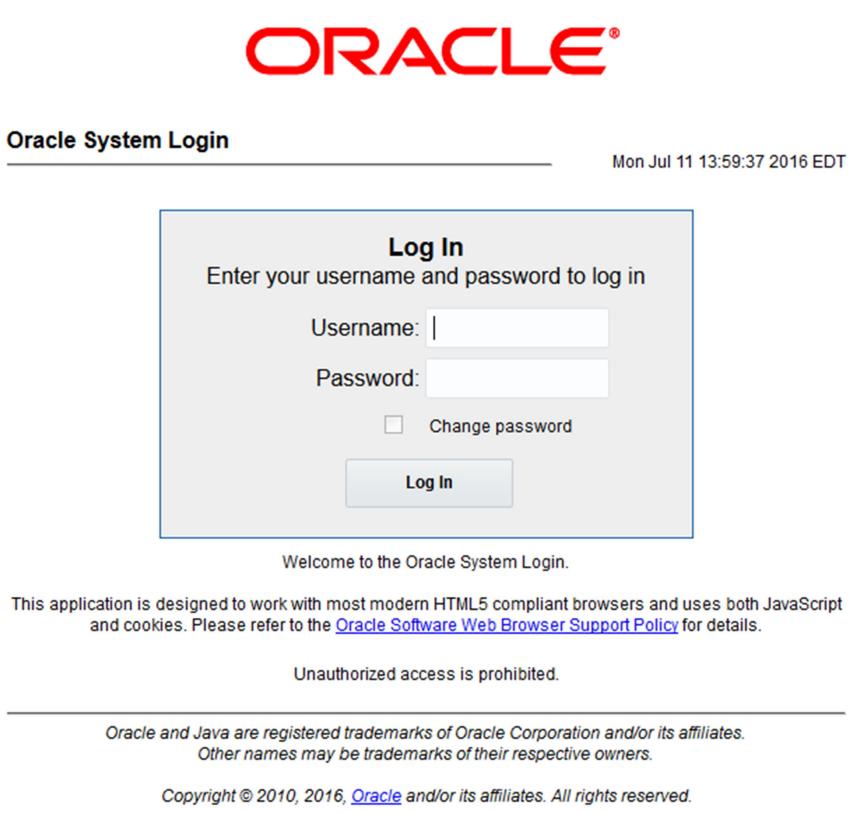
#### Procedure 6: Perform Health Check (Pre-Feature Deactivation)

<b>S</b> <b>T</b> <b>E</b> <b>P</b> <b>#</b>	<p>This procedure performs a health check.</p> <p>Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.</p> <p>If this procedure fails, contact My Oracle Support (MOS) and ask for assistance.</p>
1 <input type="checkbox"/>	<p><b>NOAM VIP GUI:</b> Login</p> <p>Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of:</p> <p><code>http://&lt;Primary_NOAM_VIP_IP_Address&gt;</code></p> <p>Login as the <b>guiadmin</b> user:</p>  <p>Mon Jul 11 13:59:37 2016 EDT</p> <p>Welcome to the Oracle System Login.</p> <p>This application is designed to work with most modern HTML5 compliant browsers and uses both JavaScript and cookies. Please refer to the <a href="#">Oracle Software Web Browser Support Policy</a> for details.</p>

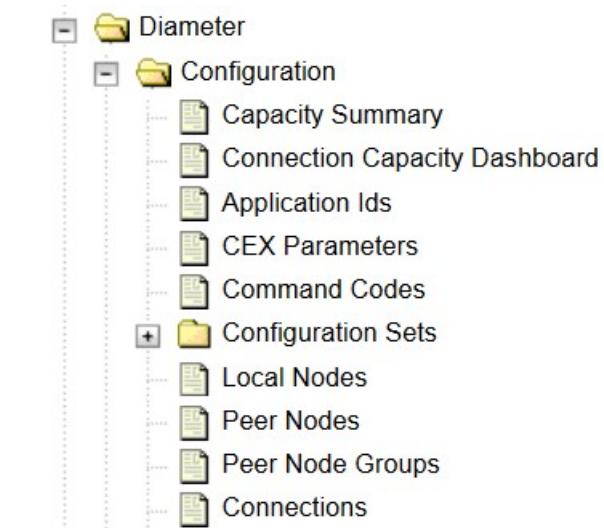
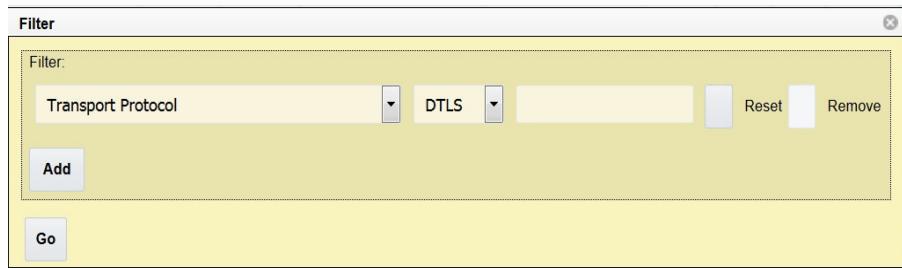
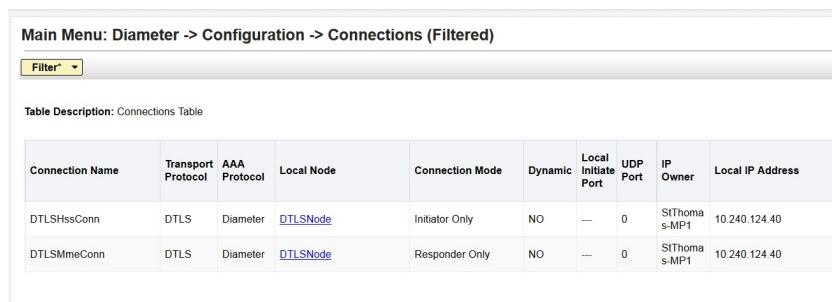
#### Procedure 6: Perform Health Check (Pre-Feature Deactivation)

2	<b>NOAM VIP GUI:</b> <input type="checkbox"/> Verify Server Status	<p>Navigate to <b>Main Menu -&gt; Status &amp; Manage -&gt; Server</b>.</p>  <p>Verify all Server Status is Normal (Norm) for:          Alarm (Alm), Database (DB), Replication Status, and Processes (Proc).</p> <table border="1" data-bbox="489 696 1436 855"> <thead> <tr> <th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr> </thead> <tbody> <tr> <td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr> <tr> <td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr> <tr> <td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr> <tr> <td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr> </tbody> </table>	Appl State	Alm	DB	Reporting Status	Proc	Enabled	Norm	Norm	Norm	Norm	Enabled	Norm	Norm	Norm	Norm	Enabled	Norm	Norm	Norm	Norm	Enabled	Norm	Norm	Norm	Norm
Appl State	Alm	DB	Reporting Status	Proc																							
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Enabled	Norm	Norm	Norm	Norm																							
Enabled	Norm	Norm	Norm	Norm																							
3	<b>NOAM VIP GUI:</b> <input type="checkbox"/> Log Current Alarms	<p>Navigate to <b>Main Menu -&gt; Alarms &amp; Events -&gt; View Active</b>.</p>  <p>Click <b>Report</b>.</p>  <p><b>Save or Print</b> this report, keep copies for future reference.</p>  <p>Compare this alarm report with those gathered in the pre-activation procedures.          Contact My Oracle Support (MOS) if needed.</p>																									

#### Procedure 6: Perform Health Check (Pre-Feature Deactivation)

4	<p><b>SOAM VIP GUI:</b> Login</p> <p>Establish a GUI session on the SOAM server by using the VIP IP address of the SOAM server. Open the web browser and enter a URL of:</p> <div style="border: 1px solid black; padding: 5px; text-align: center;"><b>http://&lt;Primary_SOAM_VIP_IP_Address&gt;</b></div> <p>Login as the <b>guiadmin</b> user:</p>  <p>Mon Jul 11 13:59:37 2016 EDT</p> <p><b>Log In</b> Enter your username and password to log in</p> <p>Username: <input type="text"/></p> <p>Password: <input type="password"/></p> <p><input type="checkbox"/> Change password</p> <p><b>Log In</b></p> <p>Welcome to the Oracle System Login.</p> <p>This application is designed to work with most modern HTML5 compliant browsers and uses both JavaScript and cookies. Please refer to the <a href="#">Oracle Software Web Browser Support Policy</a> for details.</p> <p>Unauthorized access is prohibited.</p> <hr/> <p><small>Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.</small></p> <p><small>Copyright © 2010, 2016, <a href="#">Oracle</a> and/or its affiliates. All rights reserved.</small></p>
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#### Procedure 6: Perform Health Check (Pre-Feature Deactivation)

<p>5 <input type="checkbox"/> <b>SOAM VIP GUI:</b> Delete DTLS connections if configured</p>	<p>Navigate to <b>Main Menu &gt; Diameter &gt; Configuration &gt; Connections</b>.</p>  <p>Verify by applying filter for Transport Protocol as DTLS to see if DTLS connections are configured.</p>  <p>If DTLS connections are configured, list of DTLS connections would be shown as shown in example below:</p>  <p>Disable all the configured DTLS connections by Navigating to <b>Main Menu &gt; Diameter &gt; Maintenance &gt; Connections</b>.</p> <p>Delete all the configured DTLS connections by Navigating back to <b>Main Menu &gt; Diameter &gt; Configuration &gt; Connections</b>.</p>
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## 6.2. Deactivation Procedures

### 6.2.1 Feature Deactivation

This section provides the detailed steps of the DTLS De-Activation procedures.

#### Procedure 7: Feature Deactivation

<b>S</b>	This procedure provides steps to deactivate DTLS.	
<b>T</b>	Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.	
<b>E</b>	# If this procedure fails, contact My Oracle Support (MOS) and ask for assistance.	
1	<b>NOAM VIP:</b> Establish an SSH session	Establish an SSH session to the NOAM VIP. Login as <b>admusr</b> .
2	<b>NOAM VIP:</b> Navigate to the Feature Activation Directory	Navigate to the feature activation directory by executing the following command: <pre>\$ cd /usr/TKLC/dsr/prod/maint/loaders/</pre>
3	<b>NOAM VIP:</b> Execute the Feature Activation Script	Run the feature activation script by executing the following command: <pre>\$ ./featureActivateDeactivate</pre> Choose <b>Deactivate</b> . <pre>You want to Activate or Deactivate the Feature : 1.Activate 2.Deactivate  Enter your choice : [ ]</pre> Choose <b>DTLS</b> . <pre>Which Feature you want to DeActivate : 1.RBAR 2.FABR 3.Mediation 4.LoadGen 5.GLA 6.MAP Interworking 7.DTLS 8.DCA Framework 9.DCA Application</pre> Choose the SOAM site for which the application will be deactivated: <b>Note:</b> As an alternative, you can also deactivate on all SOAM sites: <pre>The Active SO server configured in the Topology are ===== === 1. Jetta-SO-2 2. ALL SOs  Enter your choice on which SO you want to Activate or Deactivate the Feature : [ ]</pre> Refer to <b>Section 7.2</b> for output example.

#### Procedure 7: Feature Deactivation

4	<p><b>SOAM VIP GUI:</b> Login</p> <p>Establish a GUI session on the SOAM server by using the VIP IP address of the SOAM server. Open the web browser and enter a URL of:</p> <div style="border: 1px solid black; padding: 2px; display: inline-block;"> <a href="http://&lt;Primary_SOAM_VIP_IP_Address&gt;">http://&lt;Primary_SOAM_VIP_IP_Address&gt;</a> </div> <p>Login as the <b>guiadmin</b> user:</p>
5	<p><b>SOAM VIP GUI:</b> Restart DA-MPs</p> <p>Multiple iterations of this step may be executed during the feature activation procedure. This is dependent on the number of DA-MP servers within your system. Make a written record of the number of times the step was performed. It is recommended that no more than 50% of the DA-MPs be restarted at once.</p> <p>Navigate to <b>Main Menu -&gt; Status &amp; Manage -&gt; Server</b>.</p> <p>Select the desired DA-MPs, you can use 'Ctrl' to select multiple DA-MPs at once.</p> <p>Click <b>Restart</b>.</p> <div style="border: 1px solid black; padding: 2px; display: inline-block;"> <input type="button" value="Stop"/> <input type="button" value="Restart"/> <input type="button" value="Reboot"/> <input type="button" value="NTP Sync"/> <input type="button" value="Report"/> </div> <p>Verify the Server changes to the Err state and wait until it returns to the Enabled/Norm state.</p> <p>Repeat for the additional DA-MPs.</p>

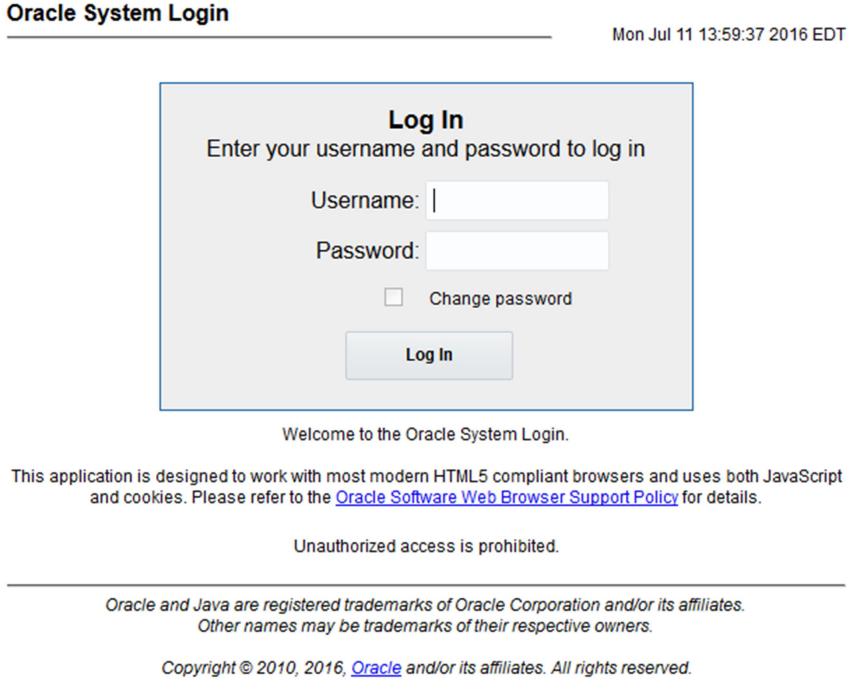
## 6.3. Post-Deactivation Procedures

To complete a deactivation, complete the Post-Deactivation procedure below.

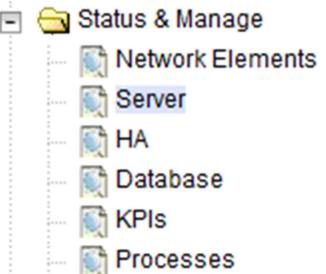
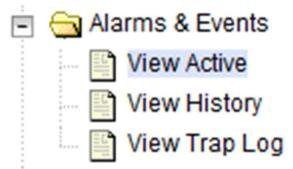
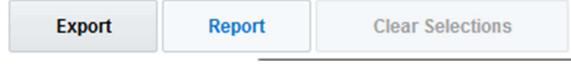
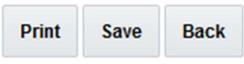
### 6.3.1 Perform Health Check

This procedure is used to determine the health and status of the network and servers.

#### Procedure 8: Perform Health Check (Post-Feature Deactivation)

S	This procedure performs a post activation health check.	
T	Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.	
E		
P		
#	If this procedure fails, contact My Oracle Support (MOS) and ask for assistance.	
1	<b>NOAM VIP GUI:</b> <input type="checkbox"/> Login	Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of:  <code>http://&lt;Primary_NOAM_VIP_IP_Address&gt;</code>  Login as the <b>guiadmin</b> user:     <p>The image shows the Oracle System Login page. At the top, it says "Oracle System Login" and "Mon Jul 11 13:59:37 2016 EDT". Below that is a "Log In" box with the text "Enter your username and password to log in". It has fields for "Username" and "Password", a "Change password" checkbox, and a "Log In" button. Below the login box, it says "Welcome to the Oracle System Login." and "Unauthorized access is prohibited." At the bottom, there is a copyright notice: "Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners. Copyright © 2010, 2016, Oracle and/or its affiliates. All rights reserved."</p>

#### Procedure 8: Perform Health Check (Post-Feature Deactivation)

2	<b>NOAM VIP GUI:</b> <input type="checkbox"/> Verify Server Status	<p>Navigate to <b>Main Menu</b> &gt; <b>Status &amp; Manage</b> &gt; <b>Server</b>.</p>  <p>Verify all Server Status is Normal (Norm) for:          Alarm (Alm), Database (DB), Replication Status, and Processes (Proc).</p> <table border="1" data-bbox="489 696 1428 855"> <thead> <tr> <th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr> </thead> <tbody> <tr> <td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr> <tr> <td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr> <tr> <td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr> <tr> <td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr> </tbody> </table>	Appl State	Alm	DB	Reporting Status	Proc	Enabled	Norm	Norm	Norm	Norm	Enabled	Norm	Norm	Norm	Norm	Enabled	Norm	Norm	Norm	Norm	Enabled	Norm	Norm	Norm	Norm
Appl State	Alm	DB	Reporting Status	Proc																							
Enabled	Norm	Norm	Norm	Norm																							
Enabled	Norm	Norm	Norm	Norm																							
Enabled	Norm	Norm	Norm	Norm																							
Enabled	Norm	Norm	Norm	Norm																							
3	<b>NOAM VIP GUI:</b> <input type="checkbox"/> Log Current Alarms	<p>Navigate to <b>Main Menu</b> &gt; <b>Alarms &amp; Events</b> &gt; <b>View Active</b>.</p>  <p>Click <b>Report</b>.</p>  <p><b>Save or Print</b> this report, keep copies for future reference.</p>  <p>Compare this alarm report with those gathered in the pre-Deactivation procedures. Contact My Oracle Support (MOS) if needed.</p>																									
4	<b>DA-MP Server:</b> <input type="checkbox"/> Login	<p>Establish an SSH session to the DA-MP server. Login as <b>admusr</b>.</p>																									
5	<b>DA-MP Server:</b> <input type="checkbox"/> Verify SCTP Auth Flag value	<p>Execute the following command to verify the SCTP Auth Enable Flag value:</p> <p><b>Note:</b> It is recommended to copy and paste directly as listed below to avoid errors.</p> <pre data-bbox="497 1679 1215 1721"><code>\$ sudo sysctl -a   grep net.sctp.auth_enable</code></pre> <p>The following output is expected:</p> <pre data-bbox="497 1763 889 1805"><code>net.sctp.auth_enable = 0</code></pre>																									

#### Procedure 8: Perform Health Check (Post-Feature Deactivation)

6	<b>Additional DA-MP Servers:</b> <input type="checkbox"/> Repeat	Repeat Steps 4-Step 5 for all remaining DA-MP servers.
---	---	--

## 7. Engineering Notes

**FIPS integrity verification test failed:** In DSR 7.1+, you may see 'FIPs integrity verification test failed' message displayed during the activation/Deactivation output, this message is expected and harmless.

### 7.1. Sample Output of Activation (Active NOAM)

```
[admusr@Barbados-NO1 loaders]$ ls
activate           helper           upgrade
deactivate         install          verifyFeatureActivation
featureActivateDeactivate load.ds.r.install
[admusr@Barbados-NO1 loaders]$ ./featureActivateDeactivate
Wed Sep 30 11:10:45 EDT 2015::Starting featureActivateDeactivate main...
Start the Automation script , To run the Feature Activation/DeActivation on Active NO.

You want to Activate or Deactivate the Feature :
1.Activate
2.Deactivate

Enter your choice : 1

List of Feature you can Activate :
1.RBAR
2.FABR
3.Mediation
4.LoadGen
5.GLA
6.MAP Interworking
7.DTLS
8.DCA Framework
9.DCA Application

Enter the choice : 7

Run script to Activate dtls Feature
=====
=====S-T-A-R-T=====

=====
Execution of Activation/Deactivation Process Starts
=====
Starting Activation/Deactivation process....
Executing /usr/TKLC/dsr/prod/maint/loaders/activate/load.dtlsActivateAsourced script on Barbados-NO1
=====
Starting to Execute the Loaders on Mate server
=====
Executing /usr/TKLC/dsr/prod/maint/loaders/activate/load.dtlsActivateAsourced script on Barbados-NO2
=====
FIPS integrity verification test failed.
FIPS integrity verification test failed.
=====
The Active SO server configured in the Topology are
=====
1. Barbados-SO1
2. ALL SOs

Enter your choice on which SO you want to Activate or Deactivate the Feature :1
=====
This is a 3 Tier Setup , So run the B sourced loaders on SO server : Barbados-SO1
Executing /usr/TKLC/dsr/prod/maint/loaders/activate/load.dtlsActivateBsourced script on Barbados-SO1
FIPS integrity verification test failed.
=====
Current server is HA ACTIVE
=====
=====
DtlsFeatureEnabled is Yes, DTLS feature is already activated
```

```
=====
FIPS integrity verification test failed.
=====
Executing the Loaders and Clearing Cache on Standby SO servers.
=====
=====
Starting to Execute the Loaders on Mate server
=====
Executing /usr/TKLC/dsr/prod/maint/loaders/activate/load.dtlsActivateBsourced script on Barbados-SO2
=====
FIPS integrity verification test failed.
=====
Current server is HA STANDBY
=====
FIPS integrity verification test failed.
=====
Do you want to activate/deactivate this feature on another System OAM Server[Y/N] : n
[admusr@Barbados-NO1 loaders]$
```

## 7.2. Sample Output of Deactivation (Active NOAM)

```
[admusr@Barbados-NO1 loaders]$ ./featureActivateDeactivate
Wed Sep 30 11:41:10 EDT 2015::Starting featureActivateDeactivate main...
Start the Automation script , To run the Feature Activation/DeActivation on Active NO.

You want to Activate or Deactivate the Feature :
1.Activate
2.Deactivate

Enter your choice : 2

Which Feature you want to DeActivate :
1.RBAR
2.FABR
3.Mediation
4.LoadGen
5.GLA
6.MAP Interworking
7.DTLS
8.DCA Framework
9.DCA Application

Enter your choice : 7

Run script to Deactivate dtls Feature
=====
=====S-T-A-R-T=====

=====
Execution of Activation/Deactivation Process Starts
=====
Starting Activation/Deactivation process....
=====
The Active SO server configured in the Topology are
=====
1. Barbados-SO1
2. ALL SOs

Enter your choice on which SO you want to Activate or Deactivate the Feature :1
Verifying feature is activated or not on Barbados-SO1
FIPS integrity verification test failed.
=====
DTLS is activated on Barbados-SO1
=====
Executing /usr/TKLC/dsr/prod/maint/loaders/deactivate/load.dtlsDeactivateBsourced script on Barbados-NO1
=====
Starting to Execute the Loaders on Mate server
=====
Executing /usr/TKLC/dsr/prod/maint/loaders/deactivate/load.dtlsDeactivateBsourced script on Barbados-NO2
=====
FIPS integrity verification test failed.
FIPS integrity verification test failed.

=====
This is a 3 Tier Setup , So run the B sourced loaders on SO server : Barbados-SO1
Executing /usr/TKLC/dsr/prod/maint/loaders/deactivate/load.dtlsDeactivateBsourced script on Barbados-SO1
FIPS integrity verification test failed.
=====
```

```

Current server is HA ACTIVE
=====
==== changed 1 records ===
=====
Verify DtlsFeatureEnabled in DpiOption Table
=====
name=DtlsFeatureEnabled
value=No
=====
All DA-MPs must be restarted to use DTLS
=====
FIPS integrity verification test failed.
=====
Executing the Loaders and Clearing Cache on Standby SO servers.
=====
Starting to Execute the Loaders on Mate server
=====
Executing /usr/TKLC/dsr/prod/maint/loaders/deactivate/load.dtlsDeactivateBsourced script on Barbados-SO2
=====
FIPS integrity verification test failed.
=====
Current server is HA STANDBY
=====
FIPS integrity verification test failed.
=====
Do you want to activate/deactivate this feature on another System OAM Server[Y/N] : n
[admusr@Barbados-NO1 loaders]$

```

## Appendix A. My Oracle Support (MOS)

MOS (<https://support.oracle.com>) is your initial point of contact for all product support and training needs. A representative at Customer Access Support (CAS) can assist you with MOS registration.

Call the CAS main number at **1-800-223-1711** (toll-free in the US), or call the Oracle Support hotline for your local country from the list at <http://www.oracle.com/us/support/contact/index.html>. When calling, make the selections in the sequence shown below on the Support telephone menu:

1. Select 2 for New Service Request.
2. Select 3 for Hardware, Networking and Solaris Operating System Support.
3. Select one of the following options:

For technical issues such as creating a new Service Request (SR), select 1.

For non-technical issues such as registration or assistance with MOS, select 2.

You are connected to a live agent who can assist you with MOS registration and opening a support ticket. MOS is available 24 hours a day, 7 days a week, 365 days a year.