Oracle® Communications
Diameter Signaling Router (DSR)

SDS Disaster Recovery Guide

Release 5.0

909-2308-001, Revision C

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Oracle Communications Diameter Signaling Router SDS Disaster Recovery Guide, Release 5.0

CAUTION: Use only the Upgrade procedure included in the Upgrade Kit.
Before upgrading any system, please access Oracle's Tekelec Customer Support site and review any Technical Service Bulletins (TSBs) that relate to this upgrade.

Contact Oracle's Tekelec Customer Care Center and inform them of your upgrade plans prior to beginning this or any upgrade procedure.

Phone: 1-888-367-8552 or 919-460-2150 (international)
FAX: 919-460-2126

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1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

This document describes procedures to use during SDS 3.x product related disaster scenarios. The disaster scenarios covered in document are

1) Connectivity loss to primary SDS servers and DR SDS activation.
2) A defective DP server
3) A defective Query Server
4) A defective DP SOAM server
5) A defective SDS server
6) A defective SDS server pair
7) A defective DP SOAM server pair
8) A defective CISCO switch
9) Total loss of SDS frame.
10) Total loss of SOAM frame.

This document is intended for execution by Oracle's Tekelec Customer Service team on fielded SDS systems. It also could be used at Tekelec by PV and development team.

1.2 REFERENCES

External (*Customer Facing*)**:**

[1] *SDS Initial Installation and Configuration Guide*, UG006385

[2] *TPD Initial Product Manufacture User's Guide*, 909-2130-001

[3] *Platform 6.x Configuration Procedure Reference*, 909-2209-001, v. C or greater, 2012

[4] *DSR 4.0 Disaster Recovery Guide*, UG006190

[5] *Cabinet Assembly Instructions, 910-6083-001*

Internal (*Internal documents are available to Tekelec personnel only*)**:**

[6] *ALEXA 5.0 HP c-Class & Rack-mount Server Site Installation and Configuration*, TR007011

[7] *Platform 5.0 Generic HP c-Class Networking Interconnect*, TR006851

[8] *DSR Network Planning for AT&T Mobility – LTE*, MS006641

[9] *BL460cc Hardware Upgrade AT&T PAS Lab*, WI006803

[10] *SDS 4.0 Software Upgrade Procedure*, UG006386

1.3 ACRONYMS

Acronym	Meaning
CSV	Comma Separated Values
DP	Database Processor
DSR	Diameter Signaling Router
IMI	Internal Management Interface
ISL	Inter-Switch-Link
MP	Message Processor
NE	Network Element
NOAM	Network Operations, Administration & Maintenance
OAM	Operations, Administration & Maintenance
SDS	Subscriber Database Server
RMM	Remote Management Module
SOAM	Systems Operations, Administration & Maintenance
TPD	Tekelec Platform Distribution (Linux OS)
VIP	Virtual IP
XMI	External Management Interface

Table 1 - Acronyms

1.4 ASSUMPTIONS

This procedure assumes the following;

- The user conceptually understands SDS topology and network configuration.
- The user has at least an intermediate skill set with command prompt activities on an open systems computing environment such as Linux or TPD.

1.5 HOW TO USE THIS DOCUMENT

When executing this document, understanding the following helps to ensure that the user understands the manual's intent:

1) Before beginning a procedure, completely read the instructional text (it appears immediately after the Section heading for each procedure) and all associated procedural WARNINGS or NOTES.

2) Before execution of a STEP within a procedure, completely read the left and right columns including any STEP specific WARNINGS or NOTES.

If a procedural STEP fails to execute successfully, STOP and contact Oracle's Tekelec Customer Care Center (*US: 1-888-367-8552, Intl: +1-919-460-2150)* for assistance before attempting to continue.

2.0 DISASTER RECOVERY SCENARIOS

2.1 COMPLETE CONNECTIVITY LOSS OF PRIMARY SDS SERVERS

2.1.1 PRE CONDITION

- User cannot access GUI of the primary SDS
- User still can access GUI of the DR SDS
- Provisioning clients are disconnected from the primary SDS
- Provisioning has stopped

2.1.2 RECOVERY STEPS

In order to quickly make SDS GUI accessible and provisioning to continue, DR SDS servers are activated and made to serve as primary SDS via following steps.

1 ☐	Disable the application on DR SDS servers.	This step ensures that when the DR SDS assumes Primary SDS status in a controlled fashion. Disabling the application inhibits provisioning and can be started after successful validation. 1. Login to DR SDS GUI as one of the admin users. 2. Select [Main Menu: Status & Manage → Server] screen. 3. Select the row that has active DR SDS server. It highlights 'Stop' button at the bottom. 4. Click the 'Stop' button and then click the 'OK' button. At this time, HA switch over causes an automatic logout. 5. Login to DR SDS GUI as one of the admin user. 6. Repeat step 3 to 4 for new active DR SDS server. 7. Verify that 'PROC' column on both DR SDS servers show 'Man' indicating that application is manually stopped.
2 ☐	SSH to VIP address of the DR SDS as root and make it primary SDS	1. Login via SSH to VIP of DR SDS server as root user. 2. Execute the command top.setPrimary This step makes the DR SDS take over as the Primary SDS. 3. System generates several replication and collection alarms as replication/collection links to/from former Primary SDS servers becomes inactive.
3 ☐	Clear any persistent alarms	Wait at least 5 minutes for replication to rsync ("inetmerge" or "inetrep" alarms may remain present). If inetmerge or inetrep alarms persist beyond 5 minutes, then on the new primary SDS, restart the corresponding process(es): # pm.kill <inetmerge or inetrep> View alarms until all clear.
4 ☐	Verify replication	1. Monitor [Main Menu: Status & Manage → Server] screen at new-Primary SDS. 2. It may take several minutes for replication, afterward the DB and Reporting Status columns should show 'Normal.'

5 ☐	Re-enable the application on the now-Primary SDS using the Active new-Primary SDS GUI.	1. Login to new-Primary SDS GUI as one of the admin user. 2. Select [Main Menu: Status & Manage → Server] screen. 3. Select the row that has the active new-Primary SDS server. This action highlights the 'Restart' button at the bottom. 4. Click the 'Restart' button and then click the 'OK' button. 5. Verify that 'PROC' column now shows 'Norm'. 6. Repeat step 3 to 5 for standby new-Primary SDS server. Provisioning connections can now resume to the VIP of the new-Primary SDS.
6 ☐	Decrease the durability admin status and then reconfigure and reconnect the customer's provisioning clients.	1. Lower the durability admin status to (NO pair) to exclude former-Primary SDS servers from the provisioning database durability. A value greater than 2 must be adjusted downward. a. Login to new SDS GUI as admin user b. Select [Main Menu: Administration → General Options] c. Set *durableAdminState* to 2 (NO pair) d. Click the 'OK' button 2. Have customer reconfigure provisioning clients to connect to XMI VIP of the newly activated SDS servers. 3. Verify that provisioning from clients have started. a. Select [Main Menu: SDS → Maintenance → Command Log] b. Check that new commands have been executed
At this point, SDS provisioning is fully functioning. The remaining steps bring the old Primary SDS servers back into service as the new DR SDS site.		
7 ☐	Bring former-Primary SDS back to service.	1. Determine what has happened to former-Primary SDS site. SDS frame defective_____ SDS servers defective _____ Networking outage _____ Switch defective _____ 2. Based on the above disaster recovery scenario, execute procedure from this document to return the former-Primary SDS servers and site back to service.
8 ☐	Convert former Primary SDS servers to new DR SDS	1. SSH to active former-Primary SDS server as root. 2. Execute the command top.setSecondary This step allows the formerly Primary SDS to become the DR SDS. 3. Monitor [Main Menu: Status & Manage → Server] screen at new DR SDS GUI. 4. It may take several minutes for replication, afterward the DB and Reporting Status columns should show 'Normal.'

9 ☐	Stop Non-Service processes on DR	1. Select [Main Menu: Status & Manage → Server] for now Active DR SDS on GUI. 2. Press the 'Stop' button for new DR SDS (stops *all* processes). 3. Press the 'OK' button to confirm. 4. Again select [Main Menu: Status & Manage → Server] for new DR SDS on GUI. 5. Press the 'Restart' button for new DR SDS (starts *only* Service processes). 6. Press the 'OK' button to confirm. 7. Monitor [Main Menu: Status & Manage → Server] screen for new DR SDS on GUI. 8. It may take a few seconds, but afterward the Application State should be 'Enabled,' and the Alarm and Process Status columns should show 'Normal.'
10 ☐	Set durability admin status to include DR SDS	1. If you reduced the durability status in step 5, raise durability admin status to its former value (NO + DRNO) . a. Login to new primary SDS GUI as admin user b. Select [Main Menu: Administration → General Options] c. Set *durableAdminState* to 3(NO DRNO) d. Click the 'OK' button 2. Now new DR SDS servers are part of provisioning database durability.

2.1.3 POST CONDITION

- GUI on the new primary SDS is accessible
- Provisioning clients are connected to the new primary SDS
- Database provisioning resumes
- New DR SDS GUI is accessible
- Replication and collection alarms have cleared
- Note: To swap new primary SDS and new DR SDS back to their original roles, run this procedure again.

2.2 REPLACEMENT OF A DP SERVER

2.2.1 PRE CONDITION

- DP blade server has stopped processing traffic
- It has been determined the DP blade server is defective and needs replacement
- New DP server is available

2.2.2 RECOVERY STEPS

1 ☐	**Note**: This step is optional and only executable if DP is powered on and functional. Stop software on DP server.	1. Login to DP SOAM GUI for the site where DP is located. 2. Select [Main Menu: Status & Manage → Server] and select DP by Hostname. 3. Click the 'Stop' button followed by the 'Ok' button on confirmation screen.
2 ☐	**Note**: This step is optional and only executable if DP is powered on and functional. Verify that no signaling traffic is processed at the DP.	1. Login to DP SOAM GUI for the site where DP is located. 2. Select [Main Menu: Status & Manage → KPIs] and select 'DP' tab. 3. Verify that 'Total Queries/Sec' KPI is now showing '0' for the DP's hostname.
3 ☐	Replace Server	1. Power down DP. 2. Label all connected cables. 3. Disconnect all necessary cables so the server can be physically removed from the enclosure for replacement. 4. Follow reference [9], BL460cc Hardware Upgrade, to remove and replace the DP blade. 5. Wire in the new DP blade server according to the cables you labeled and removed from the old blade.
4 ☐	Install the new DP server and wait for it to complete replication sync.	1. Execute procedure 10 (DP Installation) from reference [1]. 2. Execute procedure 10.2 (Applying the Database Processor Configuration File) from reference [1]. 3. Execute procedure 10.5 (Restarting Database Processor Application) from reference [1].
5 ☐	Verify status and traffic.	1. Login to DP SOAM GUI for the site where DP is located. 2. Select [Main Menu: Status & Manage → KPIs] and select 'DP' tab. 3. Verify that 'Total Queries/Sec' KPI is now showing a non-zero value for the DP's hostname.

2.2.3 POST CONDITION

- DP server is processing traffic

2.3 REPLACEMENT OF A DP SOAM

2.3.1 PRE CONDITION

- DP SOAM has stopped functioning
- It has been determined to replace the blade hosting DP SOAM
- New blade replacement is available
- SDS GUI is accessible

2.3.2 RECOVERY STEPS

1 ☐	Prepare for server replacement.	Identify the DP SOAM that needs replacement DP SOAM hostname = _____
2 ☐	Make DP SOAM server's Max Allowed HA Role "Standby" so it does not become active.	1. Go to the SDS GUI. 2. Select [Main Menu: Status & Manage → HA]. 3. Select the DP SOAM that needs replacement. 4. Change its "Max Allowed HA Role" to "Standby". 5. Click the "OK" button.
3 ☐	Remove DP SOAM from the server group.	1. Go to the SDS GUI. 2. Select [Main Menu: Configuration → Server Groups]. 3. Select DP SOAM's server group. 4. Click the "Edit" button. 5. Move DP SOAM out of the server group. 6. Click the "OK" button.
4 ☐	Remediate hardware and Recover DSR services	Execute Recovery Scenario 2, of reference [4] , DSR Disaster Recovery Guide, to remediate hardware and restore DSR blade services.
5 ☐	Prepare the new DP SOAM server	1. Execute Procedure 8 (OAM Installation for DP SOAM Sites) from reference [1]. 2. Execute procedure 8.3 (Applying the DP SOAM Server Configuration File) from reference [1].
6 ☐	Add DP SOAM server to the server group and validate pairing	From reference [1] execute following procedures in sequence on new DP SOAM server. a. Procedure 9.2 (Adding a Server to an DP SOAM Server Group) b. Procedure 9.3 (Restarting OAM Server Application)

2.3.3 POST CONDITION

- DP SOAM is back in service

2.4 REPLACEMENT OF A QUERY SERVER

2.4.1 PRE CONDITION

- Query server has stopped functioning
- It has been determined to replace the Query server
- New Query server replacement is available

2.4.2 RECOVERY STEPS

1 ☐	Prepare for server replacement.	Identify the Query server that needs replacement Query server hostname = _____
2 ☐	Make Query Server's Max Allowed HA Role "Standby" so it does not become active.	1. Go to the SDS GUI. 2. Select [Main Menu: Status & Manage → HA]. 3. Select the Query Server that needs replacement. 4. Change its "Max Allowed HA Role" to "Standby". 5. Click the "OK" button.
3 ☐	Remove Query Server from the server group.	1. Go to the SDS GUI. 2. Select [Main Menu: Configuration → Server Groups]. 3. Select the Query Server's server group. 4. Click the "Edit" button. 5. Move Query Server out of the server group. 6. Click the "OK" button.
4 ☐	Power down Query Server	1. Power down the Query Server. 2. Label all cables connected to Query Server. 3. Replace Query server by instructions in reference [5]. 4. Wire in the new Query server according to the cables you labeled and removed from the old server.
5 ☐	Replace Query Server	1. Replace Query server by instructions in reference [5]. 2. Wire in the new Query server according to the cables you labeled and removed from the old server.
6 ☐	Prepare the new Query server	1. Execute Procedure 1 (Installing the SDS Application) from reference [1]. 2. Execute procedure 4.2 (Applying the Query Server Configuration File) from reference [1]. 3. Execute procedure 4.3 (Adding the Query Server to the SDS Server Group) from reference [1].
7 ☐	Start Query Server	Execute procedure 4.4 (Restarting Query Server Application) from reference [1].

2.4.3 POST CONDITION

- Query server is back in service

2.5 REPLACEMENT OF A SDS SERVER

2.5.1 PRE CONDITION

- SDS server has stopped functioning
- It has been determined to RMA the SDS server
- New SDS server replacement is available

2.5.2 RECOVERY STEPS

1 ☐	Prepare for server replacement.	Identify the SDS server that needs replacement Hostname = _____
2 ☐	Make SDS server's Max Allowed HA Role "Standby" so it does not become active.	1. Go to the SDS GUI. 2. Select [Main Menu: Status & Manage → HA]. 3. Select the SDS that needs replacement. 4. Change its "Max Allowed HA Role" to "Standby". 5. Click the "OK" button.
3 ☐	Remove SDS from the server group.	1. Go to the SDS GUI. 2. Select [Main Menu: Configuration → Server Groups]. 3. Select Primary SDS's server group. 4. Click the "Edit" button. 5. Move SDS out of the server group. 6. Click the "OK" button.
4 ☐	Power down and replace SDS Server	1. Power down SDS server. 2. Label all cables connected to SDS server. 3. Replace SDS server by instructions in reference [5]. 4. Wire in the new SDS server according to the cables you labeled and removed from the old server.
5 ☐	Prepare the new SDS server	1. Execute Procedure 1 (Installing the SDS Application) from reference [1]. 2. Execute procedure 2.4 (Applying The SDS Server Configuration File) from reference [1].
6 ☐	Add SDS server to the server group	From reference [1] execute following procedures in sequence on new Primary SDS server. a) Procedure 3.2 (Adding a Server to an OAM Server Group) b) Procedure 3.3 (Verifying the SDS Server Alarm status)
7 ☐	Install Netbackup Client Software	Execute Section *3.11.5 Application NetBackup Client Procedures* of reference [3] to complete this step. **NOTE**: Location of the bpstart_notify and bpend_notify scripts is required for the execution of this step. These scripts are located as follows: /usr/TKLC/appworks/sbin/bpstart_notify /usr/TKLC/appworks/sbin/bpend_notify

8 ☐	Link notify scripts to well-known path stated in the above step	# ln -s <path>/bpstart_notify /usr/openv/netbackup/bin/bpstart_notify # ln -s <path>/bpend_notify /usr/openv/netbackup/bin/bpend_notify

2.5.3 POST CONDITION

- SDS server is back in service

2.6 REPLACEMENT OF PRIMARY SDS SERVER PAIR

2.6.1 PRE CONDITION

- Active and Standby SDS server have stopped functioning
- DR SDS servers are not available or not installed
- It has been determined to replace both SDS servers
- New SDS servers for replacement are available
- Recent backup archives of SDS configuration and provisioning databases are available

2.6.2 RECOVERY STEPS

1 ☐	Determine SDS backup archive	**Note:** If DR SDS servers are available, follow recovery steps from section 2.1 of this document instead. Make sure that you have access to SDS backup archive that contains provisioning data as well as configuration data. This backup archive should be in uncompressed format.
2 ☐	Power down and remove old SDS servers. Replace with new SDS servers.	1. Power down SDS servers. 2. Label all cables connected to SDS servers. 3. Physically remove both SDS servers from the frame. 4. Follow reference [5] for the physical installation of SDS server. 5. Wire in the new SDS servers according to the cables you labeled and removed from the old servers.
3 ☐	Install first SDS server in the frame	Execute procedure 1(Installing the SDS Application) from reference [1] on the first SDS server.
4 ☐	Configure first SDS server in the frame	Execute procedure 2 (Configuring SDS Server A) **(omit step 51 to configure SDS B) (omit step between 51 and 52 to configure switches unless this is a complete frame replacement)**, from reference [1] on the first SDS server.
5 ☐	Copy SDS backup archive to new SDS server.	1. Login via SSH to the console of new SDS server. 2. Copy the uncompressed backup archive identified in step 1 to /var/TKLC/db/filemgmt area on newly installed first SDS server. 3. Execute "`prod.stop`" to stop running applications. Leave database running. 4. Restore the configuration DB by executing `idb.restore -n -t /var/TKLC/db/filemgmt -v <configuration archive file name>` 5. Restore the provisioning DB by executing `idb.restore -n -t /var/TKLC/db/filemgmt -v <provisioning archive file name>` 6. SDS database is now restored. Start application by executing "`prod.start`".
6 ☐	Install the new second SDS server in the frame.	Follow recovery steps from section 2.5 of this document to restore second SDS server.

2.6.3 POST CONDITION

- Both SDS servers are back in service
- Provisioning clients are connected to SDS VIP address
- Provisioning continues

2.7 REPLACEMENT OF DP SOAM SERVER PAIR

2.7.1 PRE CONDITION

- Active and Standby DP SOAM servers have stopped functioning
- It has been determined to replace both blades that host DP SOAM
- New blades for replacement are available
- Access to Primary SDS GUI is available
- DPs are not receiving provisioning database updates.

2.7.2 RECOVERY STEPS

1 ☐	Prepare for server replacement.	Identify the DP SOAM servers that needs replacement DP SOAM 1 = _____ DP SOAM 2 = _____
2 ☐	Remediate hardware and Recover DSR services	If DSR recovery has not already been performed, execute Recovery Scenario 2, of reference [4], DSR Disaster Recovery Guide**.**
3 ☐	Install SDS on DP SOAM servers	Execute procedure 8 (OAM Installation for DP SOAM sites) from reference [1].
4 ☐	Configure software on DP SOAM servers	Execute procedure 8.3 (Applying the DP SOAM Server Configuration File) from reference [1].
5 ☐	Start DP SOAM	Execute procedure 9.3 (Restarting OAM Server Application) from reference [1].
6 ☐	Verify that DP SOAM servers received SDS provisioning	1. Login to active DP SOAM GUI using VIP address. 2. Select [Main Menu: Status & Manage → Servers] screen. 3. Make sure that new DP SOAM servers show 'Norm' for DB, Reporting Status and Appl State.

2.7.3 POST CONDITION

- Both DP SOAM servers are back in service
- DP SOAM configuration changes can be made from DP SOAM GUI
- DPs are now receiving provisioning updates

2.8 REPLACEMENT OF DR SDS SERVER PAIR

2.8.1 PRE CONDITION

- Active and Standby DR SDS servers have stopped functioning
- It has been determined to RMA the both DR SDS servers
- New DR SDS servers for replacement are available
- Access to Primary SDS GUI is functional

2.8.2 RECOVERY STEPS

1 ☐	Prepare for server replacement.	Identify the DR SDS servers that needs replacement DR SDS 1 = _____ DR SDS 2 = _____
2 ☐	Power down and remove old DR SDS servers.	1. Power down DR SDS Servers. 2. Label all cables connected to DR SDS servers. 3. Physically remove both DR SDS servers from the frame.
3 ☐	Replace with new DR SDS servers	1. Install new DR SDS servers by instructions in reference [5]. 2. Wire in the new DR SDS servers according to the cables you labeled and removed from the old servers.
4 ☐	Install software on DR SDS servers in the frame.	Execute procedure 1 (Installing the SDS Application) from reference [1].
5 ☐	Pair DR SDS servers and bring them online	1. Execute procedure 5.3 (Applying the OAM Server Configuration File) from reference [1] **(omit the step to configure switches unless this is a complete frame replacement).** 2. Execute procedure 6.2 (Adding a Server to OAM Server Group) from reference [1]. 3. Execute procedure 6.3 (Restarting OAM Server Application) from reference [1].
6 ☐	Install Netbackup Client Software	Execute Section *3.11.5 Application NetBackup Client Procedures* of reference [3] to complete this step. **NOTE**: Location of the bpstart_notify and bpend_notify scripts is required for the execution of this step. These scripts are located as follows: /usr/TKLC/appworks/sbin/bpstart_notify /usr/TKLC/appworks/sbin/bpend_notify **NOTE**: Neetbackup client software must be installed on each DR server of the pair.
7 ☐	Link notify scripts to well-known path stated in the above step	# ln -s <path>/bpstart_notify /usr/openv/netbackup/bin/bpstart_notify # ln -s <path>/bpend_notify /usr/openv/netbackup/bin/bpend_notify

2.8.3 POST CONDITION

- Both DR SDS servers are back in service

2.9 REPLACEMENT OF SDS FRAME

2.9.1 PRE CONDITION

- SDS frame is destroyed
- A replacement SDS frame with 2 SDS servers and a Query Server is available
- DR SDS servers and GUI are available

2.9.2 RECOVERY STEPS

1 ☐	Determine SDS site and status of provisioning	If SDS frame is the Primary SDS frame, execute procedure from section 2.1 to activate DR SDS site. This allows provisioning to continue and makes the defective frame a defective DR SDS frame.
2 ☐	Install new replacement frame	Follow reference [5] to install new DR SDS frame.
3 ☐	Install DR SDS servers and connect	1. Install new DR SDS servers by instructions in reference [5]. 2. Wire in the new DR SDS servers according to reference [7].
4 ☐	Install switches	Follow reference [5] to install new switches into the DR SDS frame.
5 ☐	Recover DR SDS server pair	Follow recovery steps from section 2.8 of this document.
6 ☐	Recover Query server	Follow recovery steps from section 2.4 of this document.

2.9.3 POST CONDITION

- DR SDS frame is back in service

2.10 REPLACEMENT OF DP SOAM FRAME

2.10.1 PRE CONDITION

- DP SOAM frame is destroyed
- A replacement DP SOAM frame with 2 DP SOAM servers and DP servers is available

2.10.2 RECOVERY STEPS

1 ☐	Install new DP SOAM frame	Follow procedure in reference [4] to install new DP SOAM frame.
2 ☐	Install DP SOAM Cabinet	Presently DSR recovery documentation lacks material to replace the blade cabinet. Follow reference [5] chapter 7 for installation of HP BladeSystem enclosure.
3 ☐	Install DSR	Execute Recovery Scenario 1, of reference [4] , DSR Disaster Recovery Guide, to restore DSR services.
4 ☐	Recover DP SOAM server pair	Follow recovery steps from section 2.7 of this document.
5 ☐	Recover DP servers	For each DP server, follow recovery steps from section 2.2 of this document.

2.10.3 POST CONDITION

- DP SOAM frame is back in service

APPENDIX A. ACCESSING ORACLE'S TEKELEC CUSTOMER SUPPORT SITE

Access to Oracle's Tekelec Customer Support site is restricted to current Tekelec customers. This section describes how to log into Oracle's Tekelec Customer Support site and how to locate upgrade procedures. Viewing these files requires Adobe Acrobat Reader.

1. Go to Oracle's Tekelec Customer Support login page at https://support.tekelec.com/index.asp
2. Enter your assigned username and chosen password and click **Login.**

   Or, if you do not have access to the Customer Support site, click **Need an Account?**
   Follow instructions on the screen.

   NOTE: After 20 minutes of inactivity, you will be logged off, and you must repeat this step to regain access.
3. After successful login, select a product from the Product Support drop-down menu.
4. Select a release number from the Product Support Release drop-down menu.
5. Locate the Upgrade Procedures section.
6. To open the procedure in the same window, click the procedure name. To open the procedure in a new window, right-click the procedure name and select **Open in New Window**.
7. To download the procedure, right-click the procedure name and select **Save Target As**.