Oracle® Communications Tekelec HLR Router

Network Impact Report

Release 4.1

E74585, Revision 1.0

May 2016

Oracle® Communications Network Impact Report for Tekelec HLR Router 4.1

CAUTION: Before installing any system, please access My Oracle Support (MOS) and review any Technical Service Bulletins (TSBs) that relate to these procedures.

My Oracle Support (MOS) 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.

Refer to paragraph 8 - *My Oracle Support (MOS),* for more information on contacting Oracle Customer

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1.0 INTRODUCTION

1.1 Purpose and Scope

The purpose of this Feature Guide is to highlight the changes in the Tekelec HLR Router 4.1 release that may have impact on the customer network, and should be considered by the customer during planning for this release.

1.2 Disclaimers

This document summarizes HLR Router 4.1's new features and the impacts of these features at a high level. The Feature Requirements (FRS) documents remain the defining source for the expected behavior of these features.

1.3 References

[1] HP Solutions Firmware Upgrade Pack Release Notes, Release 2.x.x

[2] HP Solutions Firmware Upgrade Pack Upgrade Guide, Release 2.x.x

[3] Network Interconnect for HP Hardware: Tekelec HLR Router 4.1 Technical Reference E-74584-01

1.4 Acronyms

Acronym	Meaning
COMCOL	HLR Router Database
DB	Database
DR	Disaster Recovery
HLR Router	Home Location Register Router
Guest	A simulated computer running in a Host. A Host can support multiple Guest VMs.
HA	High Availability
Host	A server that is running virtualization software
HLR	Home Location Register
IMI	Internal Management Interface
IMSI	International Mobile Station Identity
MP	Message Processor
MPS	Messages Per Second
MSISDN	Mobile Subscriber Integrated Services Digital Network (Number)
NOAM	Network OAM and Provisioning
NE	Network Element
NSP	Network Software Platform
NTP	Network Time Protocol
OAM	Operations, Administration & Maintenance
PDBI	Provisioning Database Interface
PMAC	Platform Management and Control
SOAM	Site Operation Administration and Maintenance
SDS	Subscriber Database Server
sFTP	Secure File Transfer Protocol
SMTP	Simple Network Management Protocol
STP	Signal Transfer Point (Eagle)
TPS	Transactions Per Second

Acronym	Meaning
TVOE	Tekelec Virtual Operating Environment
VM (Guest VM)	Guest Virtual Machine
XMI	External Management Interface
XSI	External Signaling Interface

1.5 Terminology

Acronym	Meaning
Active server	The server within an OAM server pair which is currently processing the real-time provisioning data.
DR NOAM	A geographically diverse site running as a cold "Standby" to the Primary HLR Router.
Network Element	A Primary Provisioning site, DR Provisioning site or HLR Router Signaling Site.
Provisioning data	Subscriber data provisioned via the PDBI interface hosted on the SDS or entered via the Primary HLR Router or SDS GUI.
Standby server	The server within the OAM server pair (HLR Router SOAM, HLR Router NOAMP) which is "not" currently processing the real-time provisioning data.

2.0 OVERVIEW OF TEKELEC HLR ROUTER 4.1

This section provides an overview of the HLR Router 4.1 release, as compared to the HLR Router 4.0 release.

2.1 Networking Changes

No networking changes are required to the current HLRR network for the implementation of the HLRR 4.1 software release. Migration to the DL-380(Gen9) servers will require new network interconnections as defined in ref [3] Network Interconnect for HP Hardware: Tekelec HLR Router 4.1 Technical Reference. Implementation of the optional IPv6 feature requires changes to the customer network that are beyond the scope of this document. Those requirements and procedures will be documented in the IPv6 migration documentation.

2.2 Architecture Changes

The following is a list of new optional features that are included in the Tekelec HLR Router 4.1 release, see Section 6 for more information on each feature:

- Feature# 22175497 - Support of HP Gen9 RMS Hardware

- Feature# 22244442 - Support for 1 Billion Routing Entities

- Feature# 22244415 - Support for IPv6

The following functional changes have been made to HLRR 4.1:

- SSH functionality for "root" user is no longer supported and is blocked for security purposes.

- A new limited capability user "admusr" has been added to the HLRR system and can be used for SSH, upgrade and installation.

- The NTP Sync function on the Status & Manage > Server GUI now requires you to place the server's Max Allowed HA role to standby before you can use the NTP Sync function.

- Intermittent Comcol database stability issues can occur if a database audit is executed in parallel with the automated Comcol database checksum validation process. To prevent this from happening the database audit functionality has been purposely disabled in HLRR 4.1. As a result, the Status & Manage > Database > Manual Audit GUI function will fail if the user attempts to start or suspend a manual database audit. Database checksum validation is being continuously performed on the Comcol database and any checksum discrepancies are automatically corrected.

2.3   HLR Router GUI Changes

This section will illustrate the new or modified HLRR 4.1 NOAM GUI changes. There are no changes to the SOAM GUIs. A brief explanation of each change is provided and detailed information on all the fields of the GUI are available in the HLR Router Online Help function provided in each GUI screen.

2.3.1 Administration Section

2.3.1.1   General Options GUI

The "Enable MMI" Variable enable/disable function field was added to the GUI.

2.3.1.2   Access Control > Users GUI

The "Enable MMI" Status was added to the GUI.
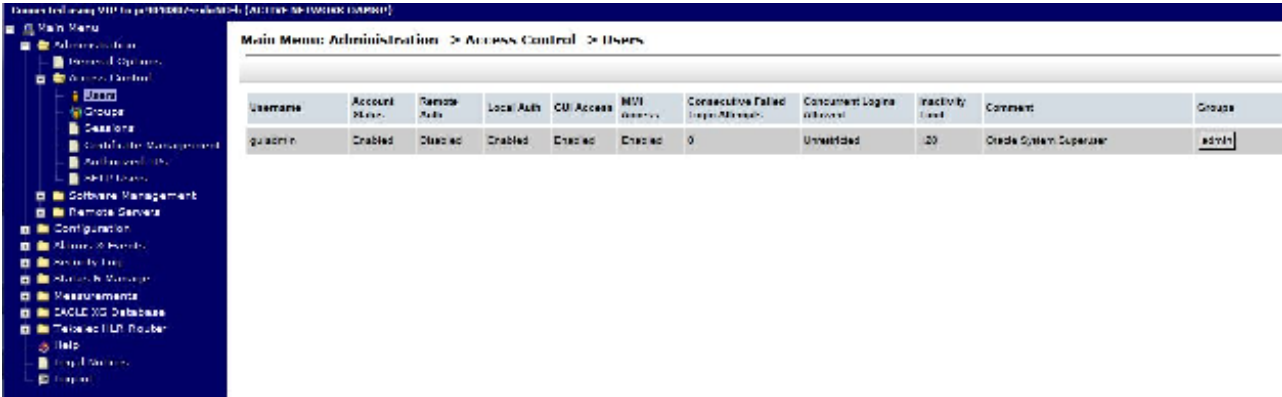
2.3.1.3   Access Control > Users > Edit GUI

The Access Option "Allow MMI Access" was added to the User's GUI.
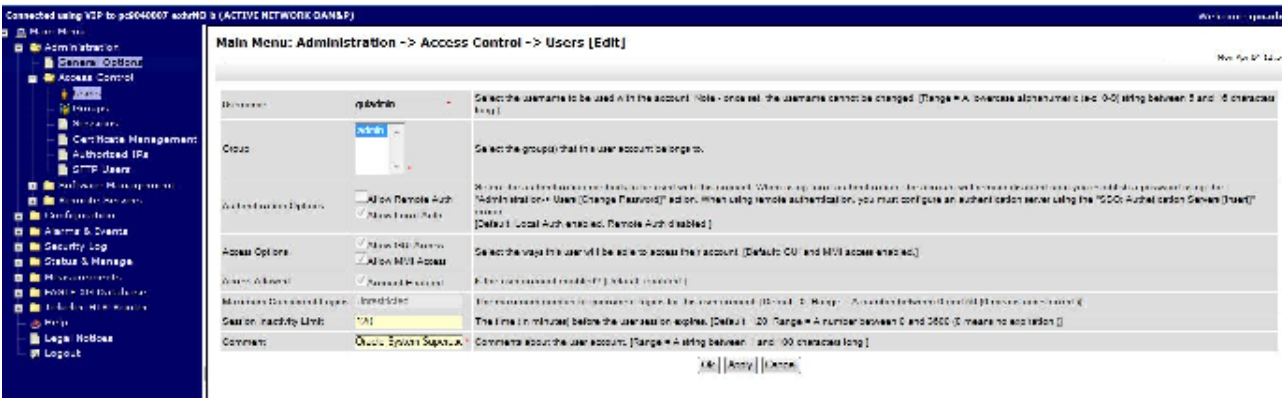
2.3.1.4   Certificate Management GUI

Added the capability to Import and Export Certificates from the Certificate Management GUI.
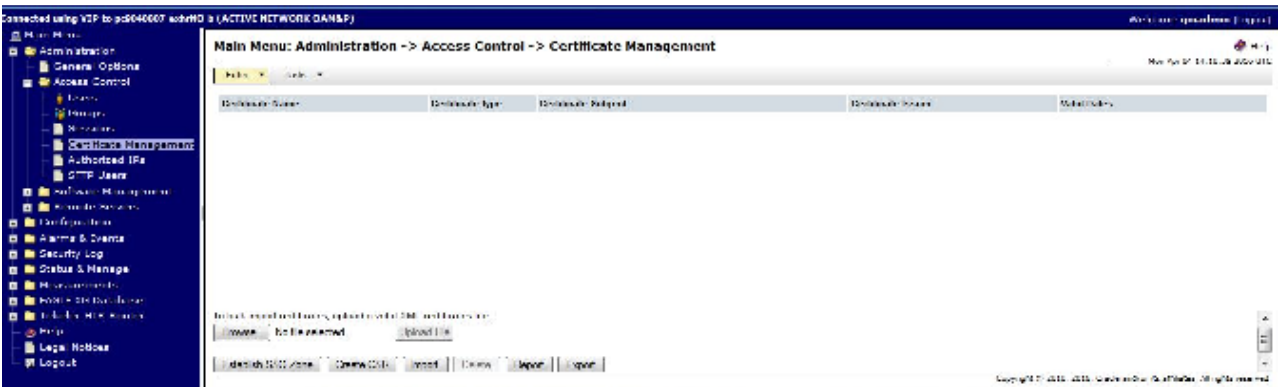
2.3.1.5   Software Management > Upgrade GUI

The ISO Deployment function was removed from the Software Management Menu and incorporated into the File functionality.

The following changes were made to the Upgrade GUI:
- Tabbed by server groups.

- Added Backup All Button.

- Added Auto Upgrade Button.

- Added Checkup and Checkup All Buttons (Not Used and Gray Out)

- Removed the ISO Cleanup, Prepare, Initiate, and Complete Buttons.

- Added Upgrade Server Button.

- The Report Button produces a report for just the tab that is selected.

- The Report All Button produces a report for all the tabs.

- Restructured the Information in the Title Section of the GUI.
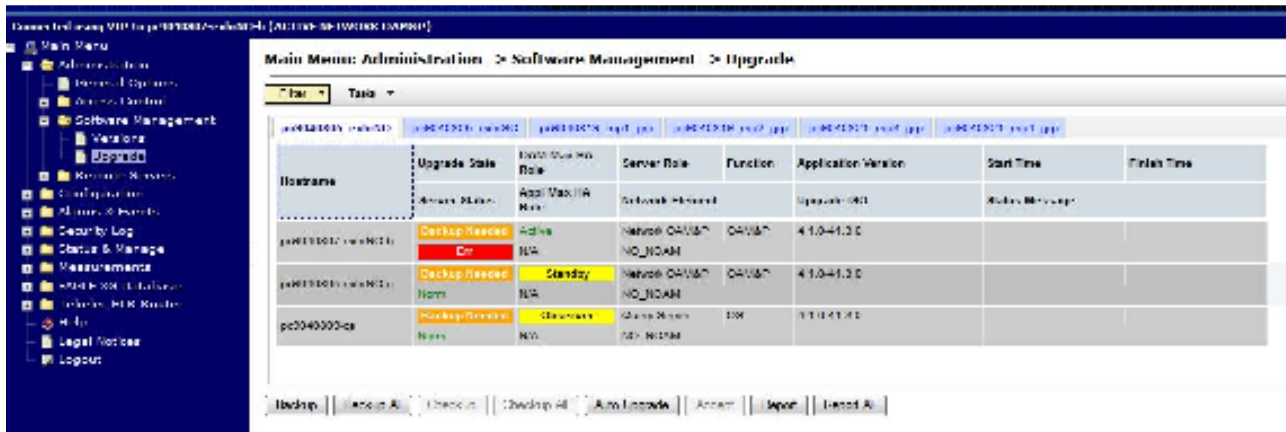
2.3.1.6   Software Management > Upgrade > Backup GUI

Selection of the Backup Button brings up a new screen where the user can select the backup options for the backup.
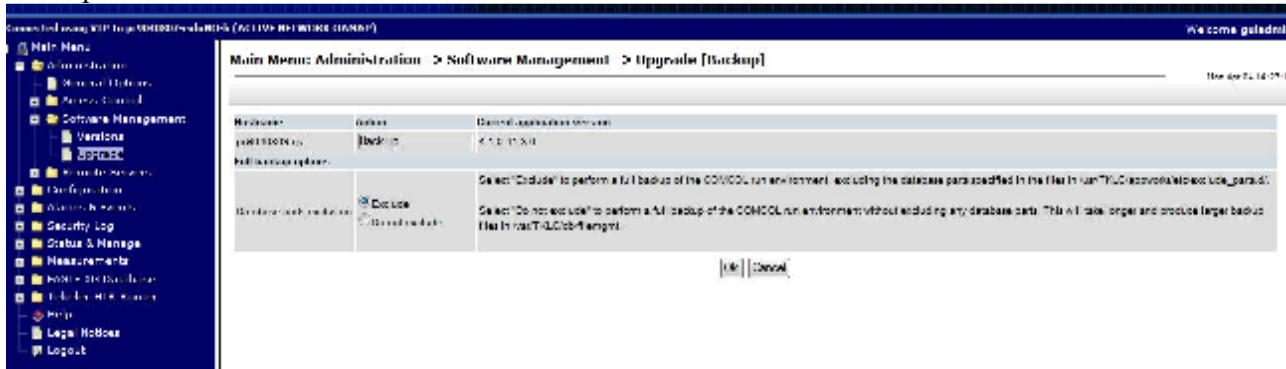
2.3.1.7   Software Management > Upgrade > Backup All GUI

Selection of the Backup ALL Button brings up a new screen where the user can select the Network Elements and backup options for the backup.
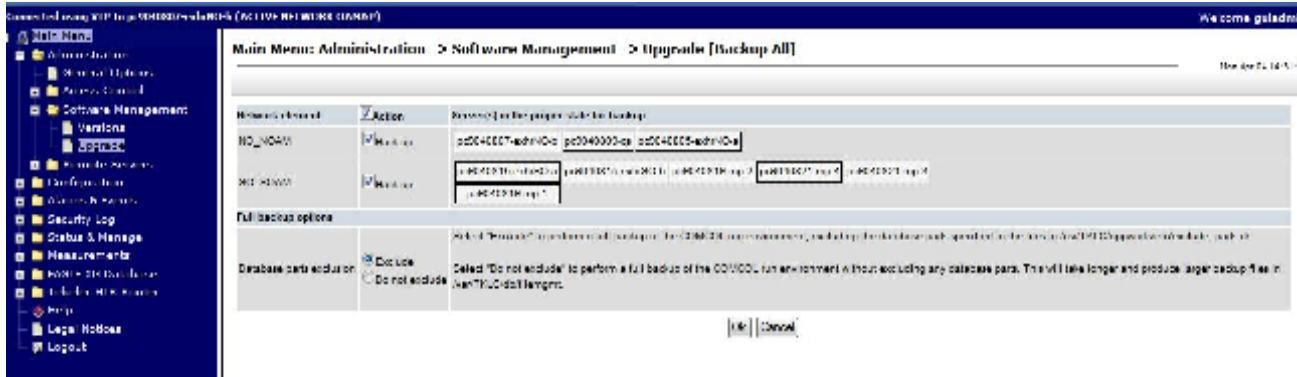
2.3.1.8   Software Management > Upgrade > Auto Upgrade GUI

Selection of the Auto Upgrade Button brings up a new screen where the user can select the hostname, upgrade ISO and mode of automatic upgrade they wish to perform.
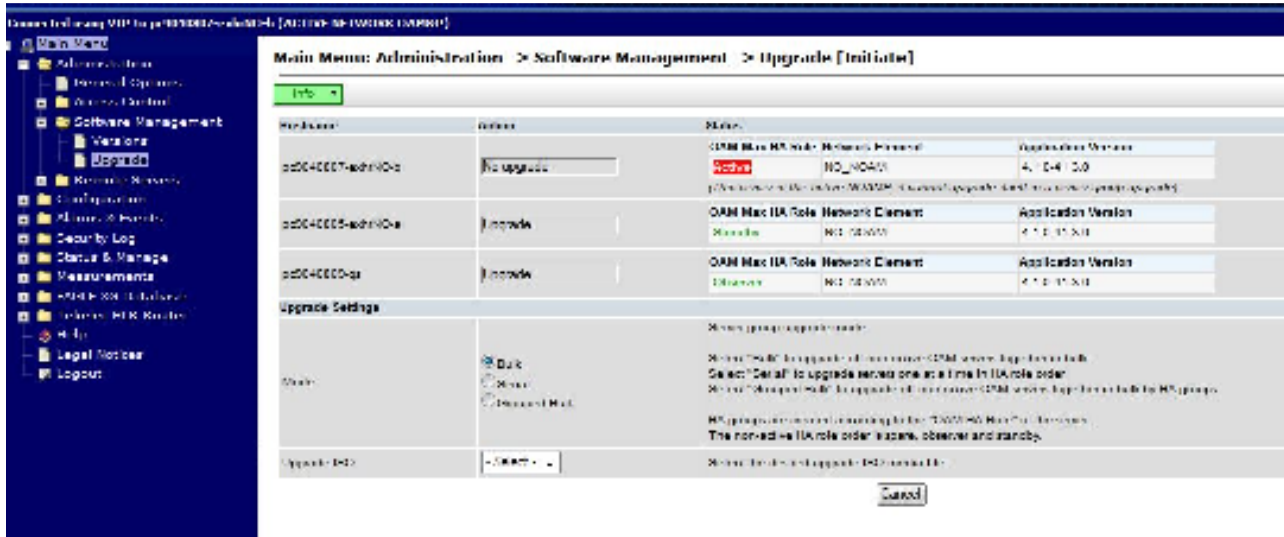
2.3.1.9 Remote Servers > Data Export GUI

Added Test Transfer and Keys Report Buttons to the Data Export GUI.
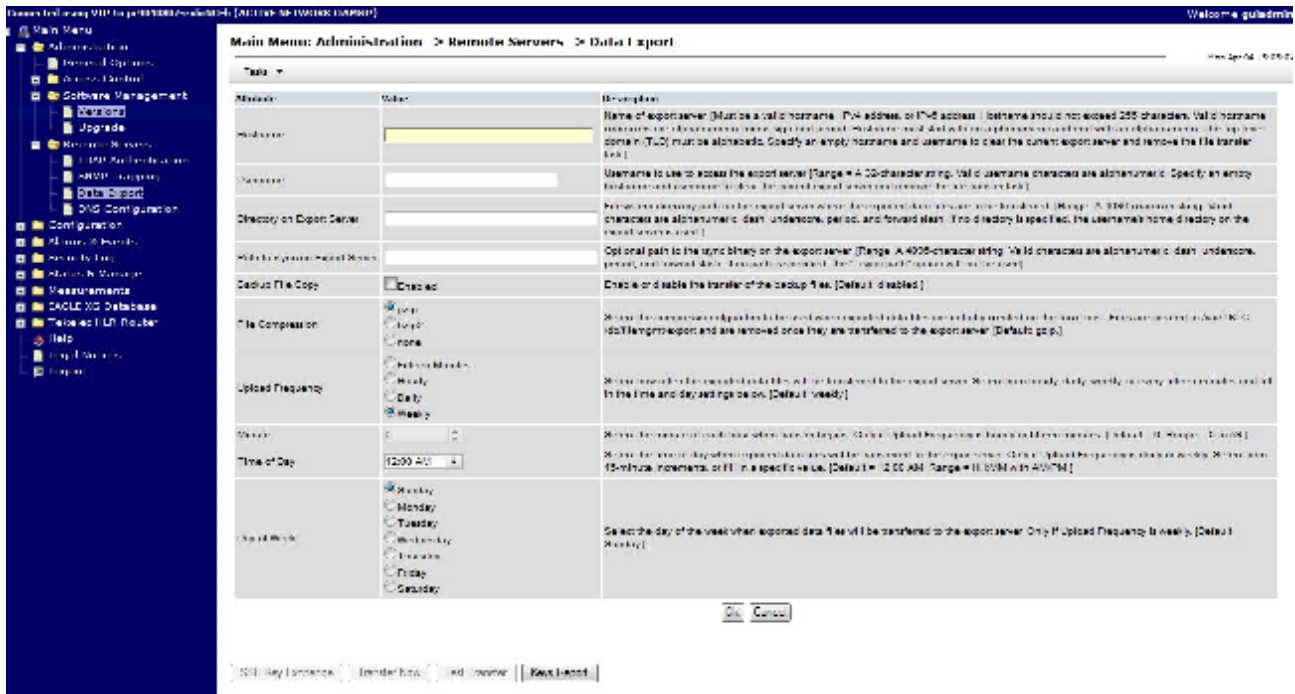
2.3.1.10 Remote Servers > DNS Configuration GUI

Reduced the number of External DNS Name Server Entries from 3 to 1.
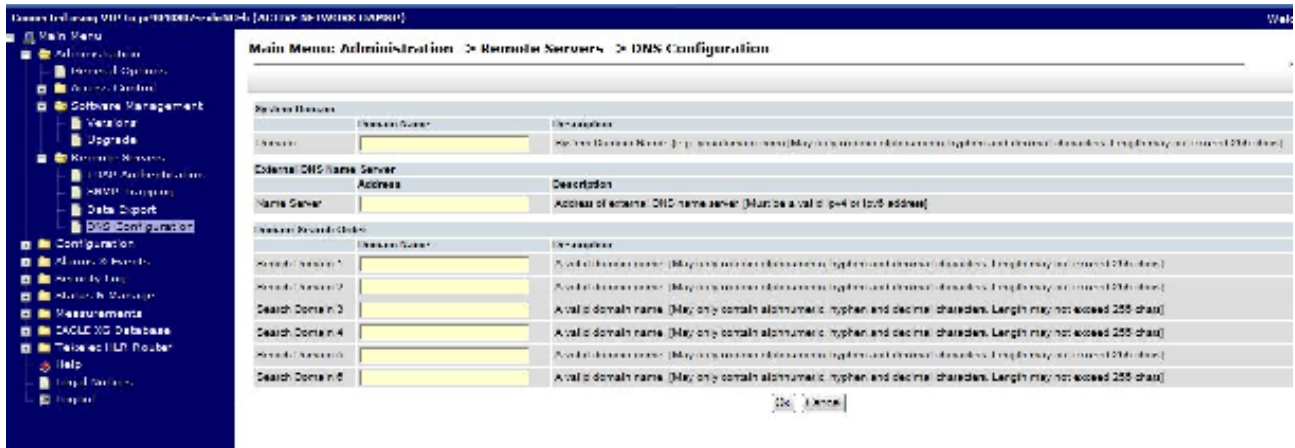
2.3.2 Configuration Section

The order of the Configuration Menu was changed so Network is now second from the top of the list instead of at the bottom of the list.

2.3.2.1   Network Elements GUI

Removed the Edit NE Networks and Delete NE Network Buttons from the NE GUI.
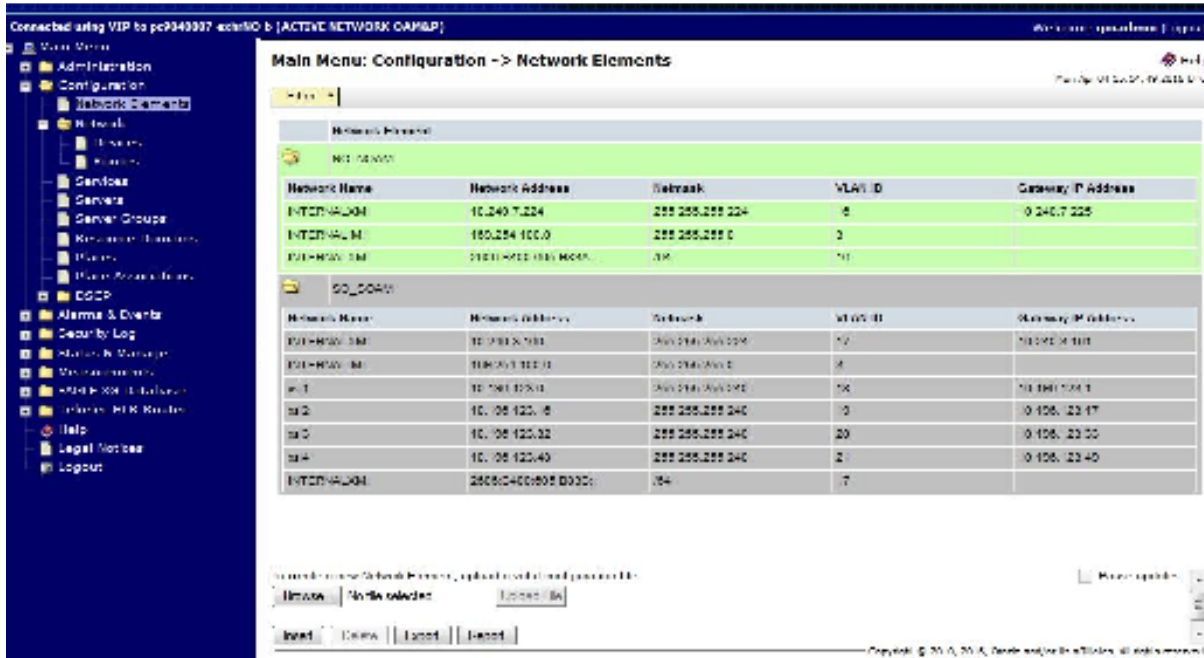
2.3.2.2   Network GUI

Expanded the GUI to include Network Locked, Routeable, and Configured Interfaces plus Network Elements.
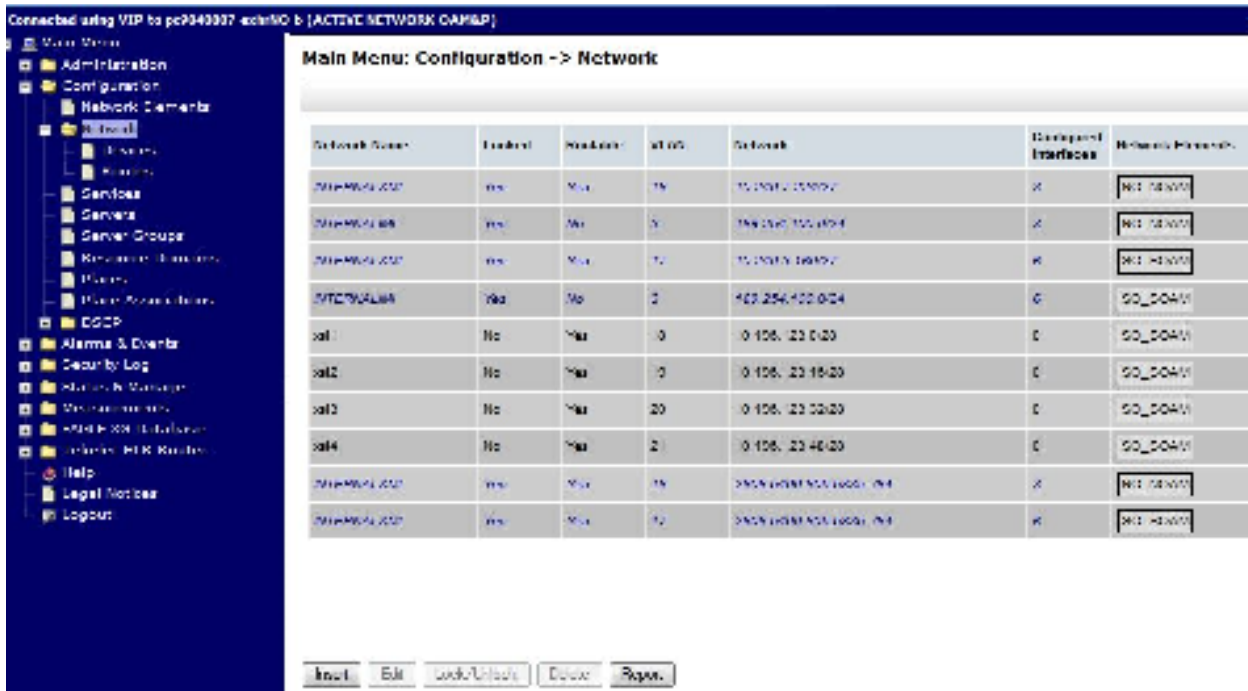
2.3.2.3   Services GUI

Added the Service Name of ComAgent and changed the selection wording to internalIMI and InternalXMI on the GUI.
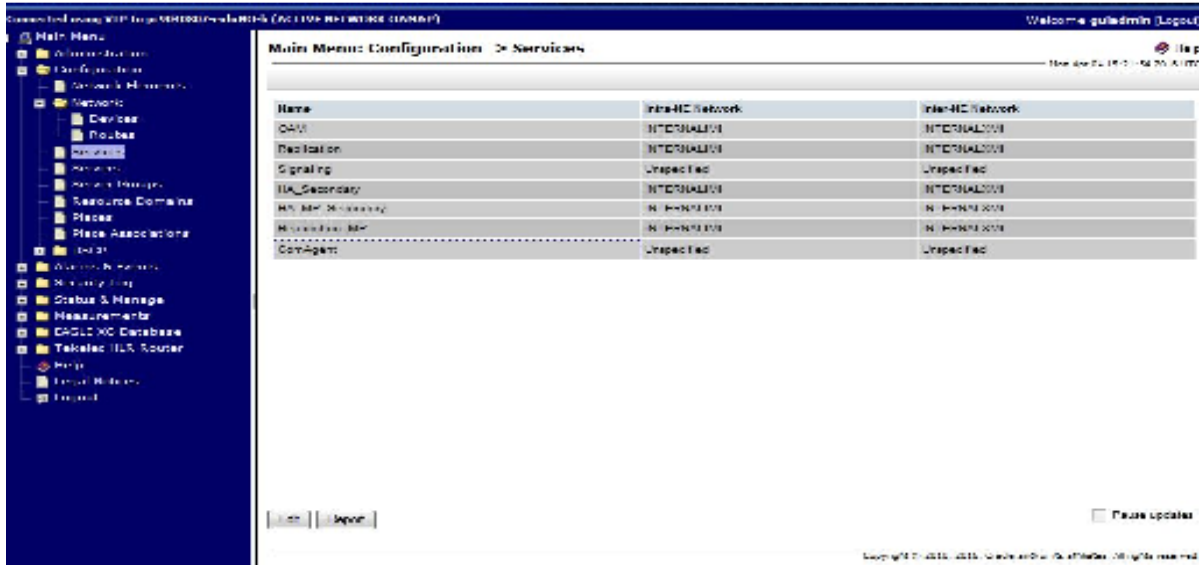
2.3.2.4   Service > Edit GUI

Added the Service Name of ComAgent and changed the selection wording to internalIMI and InternalXMI on the GUI.
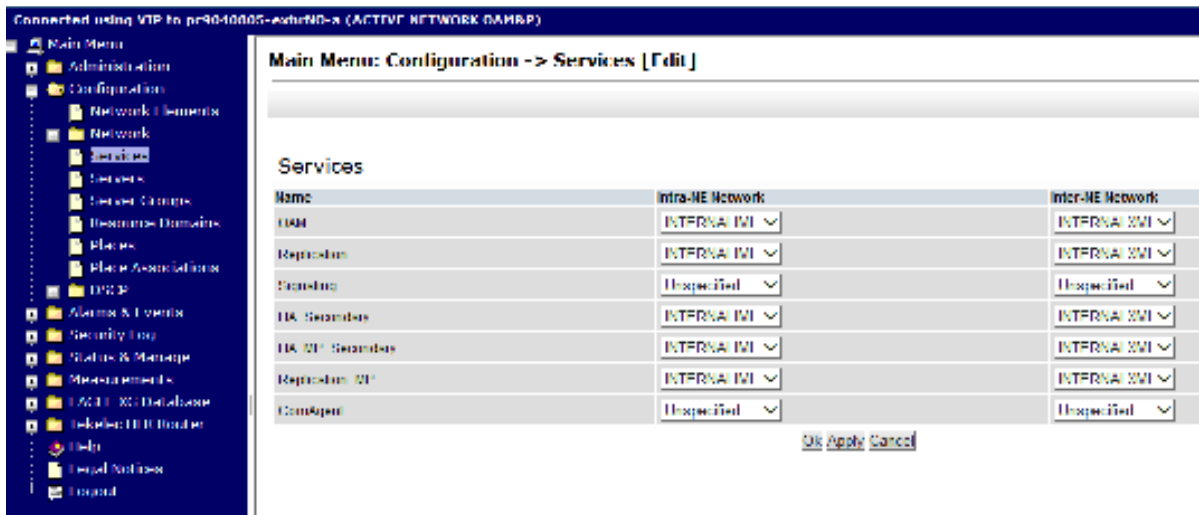
2.3.3 Status & Manage Section

2.3.3.1 HA GUI

Changed heading OAM Max HA Role to OAM HA Role and Application Max HA Role to Application HA Role.
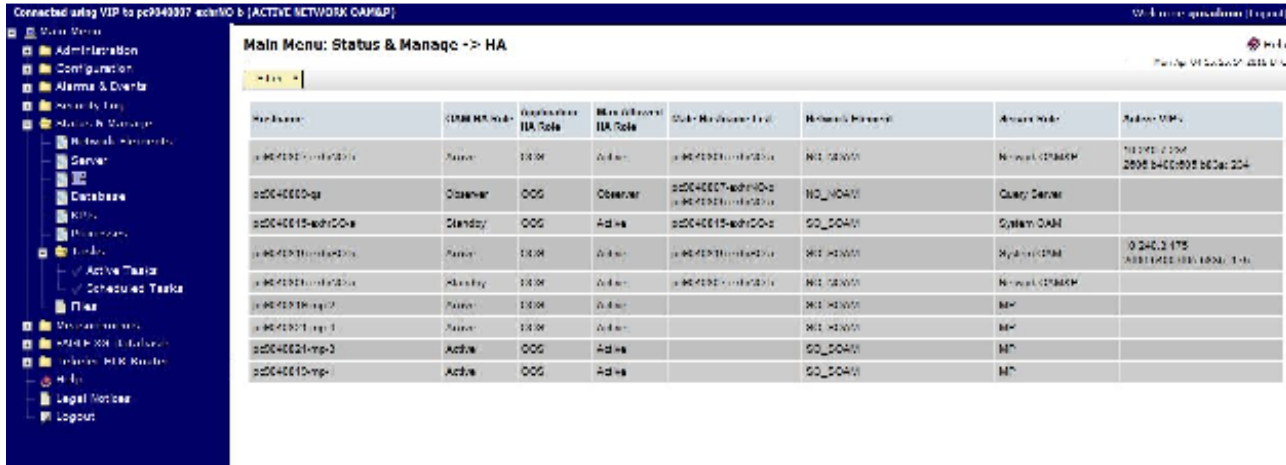
2.3.3.2 Database GUI

Changed the Inhibit Replication Button to the Inhibit/Allow Replication Button on the Database GUI.
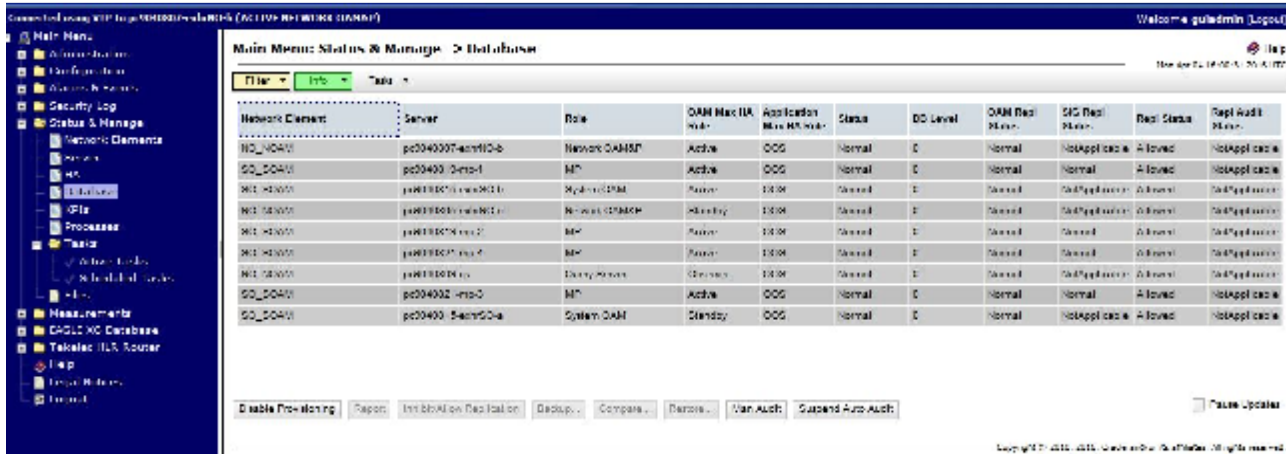
2.3.3.3   KPIs GUI

Removed the following KPI's from the PDBI KPIs GUI:

- Received Msgs/Sec

- Successful Msgs/Sec

- Sent Msgs/Sec

- Discarded Msgs/Sec

2.3.3.4   Tasks > Files GUI

When selecting the Active NOAM the new Deploy/Undeploy ISO, Validate ISO buttons are shown. When an ISO file is selected in the GUI the View ISO Deployment Report Button is also shown.
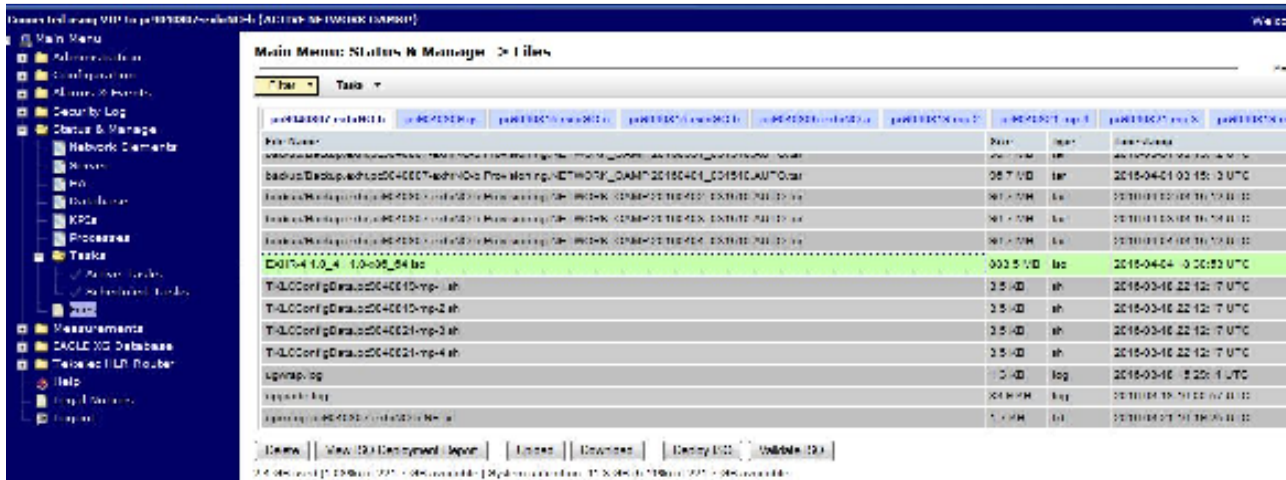
2.3.3.5   Tasks > Files > Deploy ISO GUI

Selecting the Deploy ISO Button transfers the selected ISO file to all servers in the current HLR Router topology.
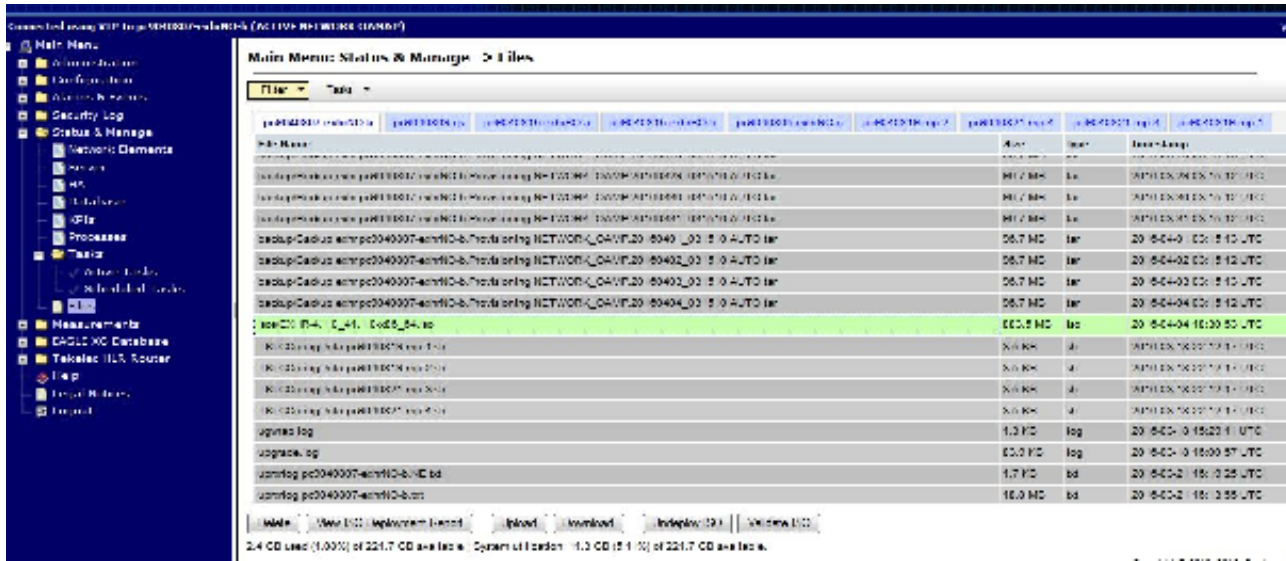
2.3.3.6   Tasks > Files > Deploy ISO Status

Selecting the Tasks Button shows the current progress of the ISO file transfer.
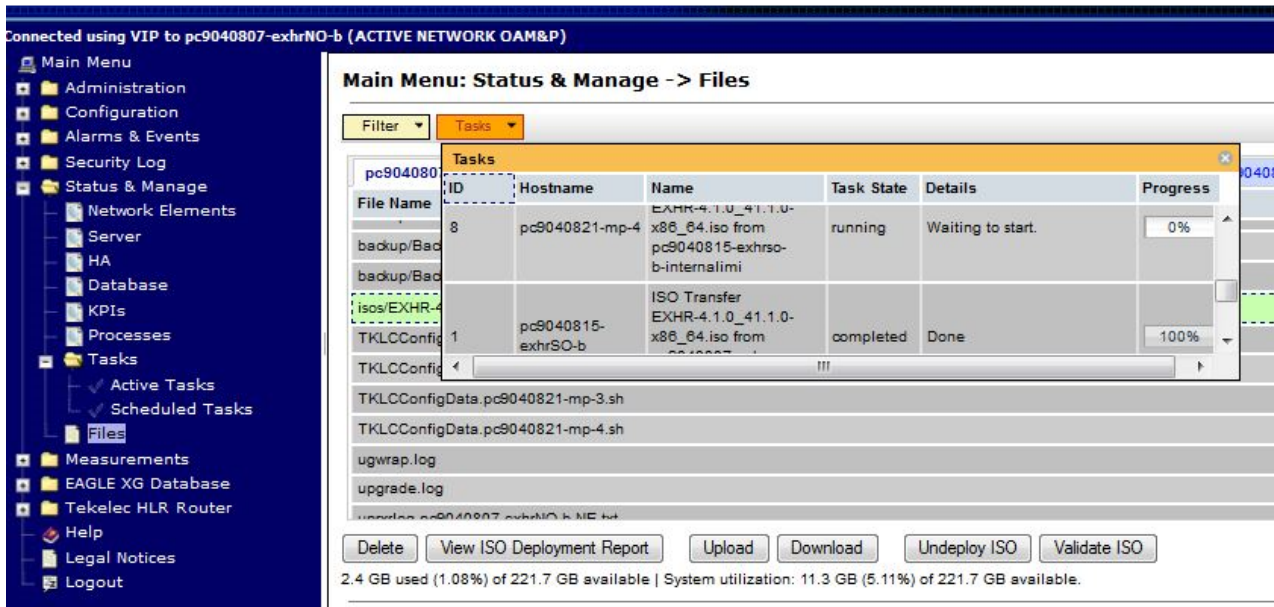
2.3.3.7   Tasks > Files > Deploy/Undeploy ISO Report

If an ISO is currently being deployed and the user selects the ISO file in the GUI and then the View ISO Deployment Report Button the current progress of the ISO file transfer will be displayed. If the ISO is currently being undeployed when selecting the View ISO Deployment Report Button the report will show the current status of the updeployment.
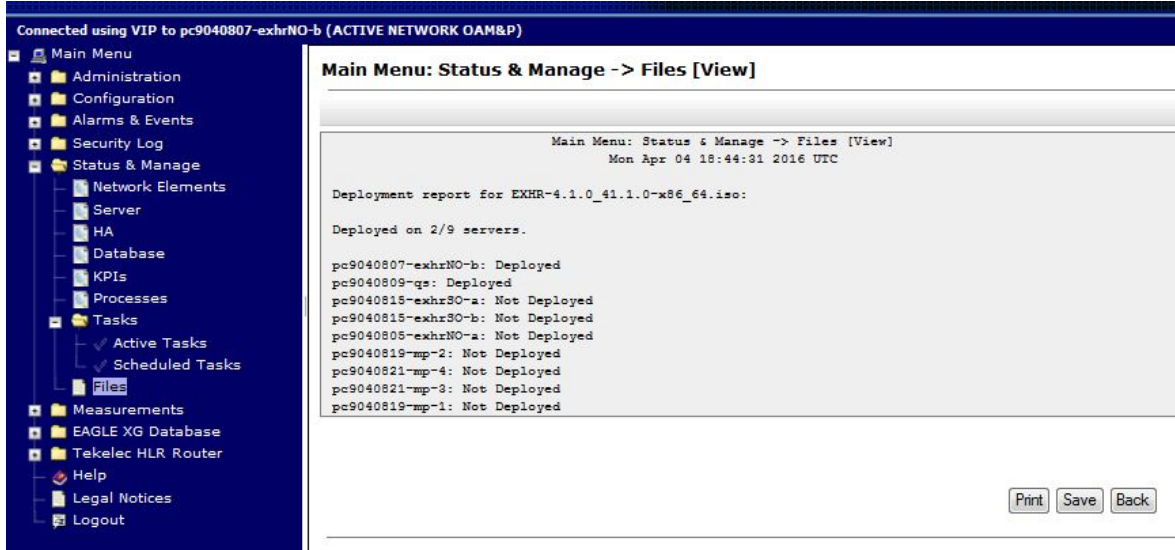
2.3.4 Eagle XG Database Section

2.3.4.1   Configuration Menu > PDBI > Options GUI

The Options GUI's Remote Import Host IP Address and the Remote Export Host IP Address fields have been updated to support 39 characters for IPv6 addressing. The various fields need to support PDB Relay and Audit to an EPAP were removed since these they are no longer functional in HLRR 4.1.
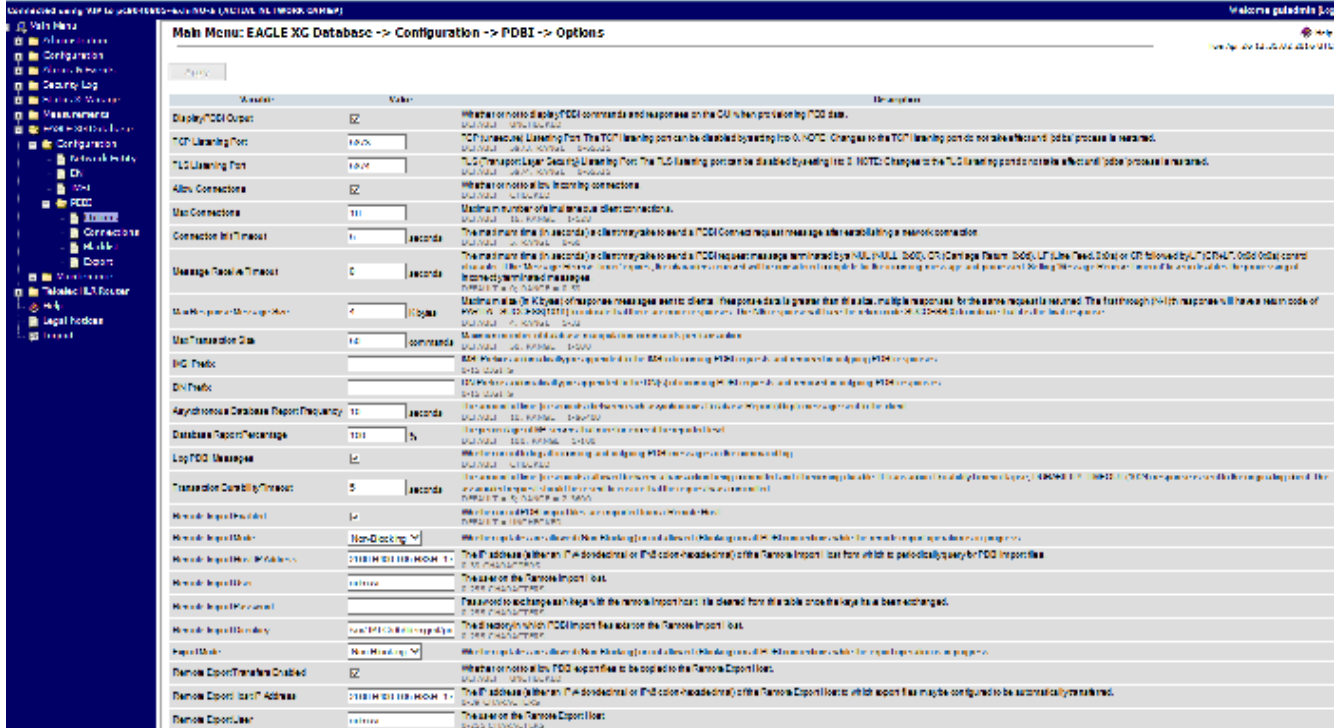
2.3.4.2   Configuration Menu > PDBI > Connections GUI

The Connections (Insert) GUI's IP Address field have been updated to support 39 characters for IPv6 addressing.
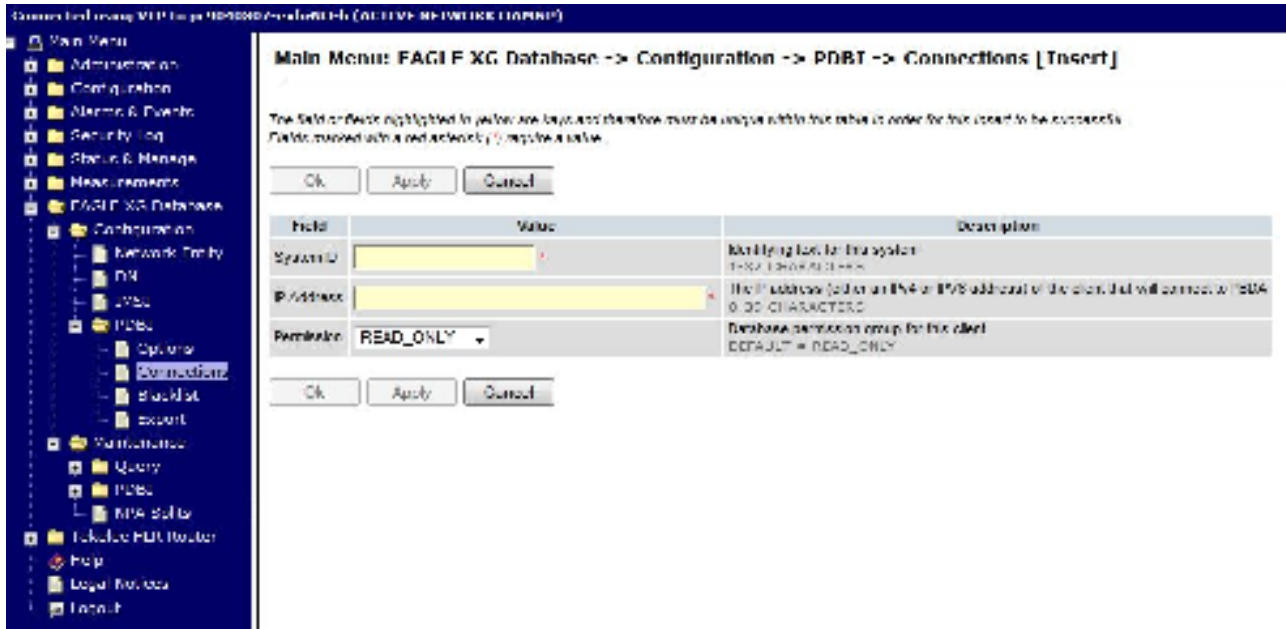
## 2.4   Alarm Messages

This section list the added, changed and deleted Alarm Messages for HLR Router 4.1.

Change Type	Change	Num	Group	Name	Warn Severity	Fatal Severity	Description
Changed	Changed - [Name]	10020	DB	Backup Failure	Minor	Minor	Database backup failed
Changed	Changed - [Name]	10108	LOG	Duplicate Scheduled Export Task	Minor	Minor	Duplicate scheduled export task queued
Added		10110	AUD	Certificate About To Expire	Minor	Minor	Certificate about to expire
Added		10111	AUD	Certificate Expired	Major	Major	Certificate expired
Added		10112	AUD	Certificate Cannot Be Used	Major	Major	Certificate cannot be used
Added		10115	LOG	Health Check Started	Info	Info	Upgrade health check operation started
Added		10116	LOG	Health Check Successful	Info	Info	Upgrade health check operation completed successfully
Added		10117	LOG	Health Check Failed	Info	Info	Upgrade health check operation failed
Added		10118	LOG	Health Check Not Run	Info	Info	Upgrade health check operation not run
Added		10120	LOG	Server Group Upgrade Started	Info	Info	Server group upgrade operation started
Added		10121	LOG	Server Group Upgrade Cancelled - validation failed	Info	Info	Server group upgrade cancelled - validation failed
Added		10122	LOG	Server Group Upgrade Successful	Info	Info	Server group upgrade operation completed successfully
Added		10123	LOG	Server Group Upgrade Failed	Info	Info	Server group upgrade operation failed
Added		10124	LOG	Server Group Upgrade Cancelled - User Request	Info	Info	Server group upgrade cancelled by user
Added		10125	LOG	Server Group Upgrade Failed	Major	Major	Server group upgrade operation failed
Added		10130	LOG	Server Upgrade Started	Info	Info	Server upgrade operation started

Change Type	Change	Num	Group	Name	Warn Severity	Fatal Severity	Description
Added		10131	LOG	Server Upgrade Cancelled - validation failed	Info	Info	Server upgrade cancelled - validation failed
Added		10132	LOG	Server Upgrade Successful	Info	Info	Server upgrade operation completed successfully
Added		10133	LOG	Server Upgrade Failed	Info	Info	Server upgrade operation failed
Added		10134	LOG	Server Upgrade Failed	Major	Major	Server upgrade operation failed
Added		10154	AUTH	User Account Disabled	Minor	Minor	User Account disabled due to multiple login failures
Added		10155	LOG	SAML Login Successful	Info	Info	SAML Login Successful
Added		10156	LOG	SAML Login Failed	Info	Info	SAML Login Failed
Changed	Changed - [Description, Name]	19209	SS7	M3RL Routing Error	Info	Info	Message was discarded due to a routing error.
~~Deleted~~		~~19212~~	~~SS7~~	~~CFG-DB Validation Error~~	~~Major~~	~~Major~~	~~A minor database validation error was detected on the MP server during an update. MP internal database is now out of sync with the configuration database. Subsequent database operations on the MP are ALLOWED.~~
~~Deleted~~		~~19213~~	~~SS7~~	~~CFG-DB Update Failure~~	~~Critical~~	~~Critical~~	~~A critical database validation error was detected on the MP server during an update. MP internal database is now out of sync with the configuration database. Subsequent database operations on the MP are DISABLED.~~
~~Deleted~~		~~19214~~	~~SS7~~	~~CFG-DB post-update Error~~	~~Major~~	~~Major~~	~~A minor database validation error was detected on the MP server after a database update. MP internal database is still in sync with the configuration database. Subsequent database operations on the MP are ALLOWED.~~
~~Deleted~~		~~19215~~	~~SS7~~	~~CFG-DB post-update Failure~~	~~Critical~~	~~Critical~~	~~A critical database validation error was detected on the MP server after a database update. MP internal database is still in sync with the configuration database. Subsequent database operations on the MP are DISABLED.~~
~~Deleted~~		~~19216~~	~~SS7~~	~~Measurement Initialization Failure~~	~~Critical~~	~~Critical~~	~~A measurement object failed to initialize.~~
Changed	Changed - [Description]	19242	SS7	SCCP Hop Counter Violation	Info	Info	SCCP discarded message because a Hop Counter violation was detected.
Changed	Changed - [Description]	19243	SS7	SCCP Routing Failure	Info	Info	SCCP was unable to route or process a message during SCCP processing for reasons (other than a global title translation failure, detected SCCP loop) possibly requiring operator intervention.
Changed	Changed - [Description]	19244	SS7	SCCP Routing Failure Network Status	Info	Info	SCCP was unable to route or process a message during SCCP processing due to transient conditions such as RSP/Destination failures, Remote or Local Subsystem failures.
Changed	Changed - [throttleSecs]	19245	SS7	SCCP GTT Failure	Info	Info	SCCP Global Title Translation has failed to determine a destination for a PDU -- invoking message return procedure.
Changed	Changed - [Description]	19246	SS7	Local SCCP Subsystem Prohibited	Major	Major	The status of Local SCCP subsystem has changed to Prohibited
Changed	Changed - [Description, Fatal Severity, Name, throttleSecs, Warn Severity]	19259	SS7	Operation discarded due to local resource limitation	Info	Info	Operation discarded due to local resource limitation
Added		19276	SS7	Sccp Egress Message Rate	Major	Major	The Sccp Egress Message Rate (Message per second) for the MP is approaching or exceeding its engineered traffic handling capacity.
Added		19281	SS7	TCAP Routing Failure	Info	Info	TCAP was unable to route message due to transient condition such as destination failure or destination unavailability

Change Type	Change	Num	Group	Name	Warn Severity	Fatal Severity	Description
Changed	Changed - [Scope]	19901	STK	CFG-DB Validation Error	Major	Major	A minor database validation error was detected on the MP server during an update. MP internal database is now out of sync with the configuration database. Subsequent database operations on the MP are ALLOWED.
Changed	Changed - [Scope]	19902	STK	CFG-DB Update Failure	Critical	Critical	A critical database validation error was detected on the MP server during an update. MP internal database is now out of sync with the configuration database. Subsequent database operations on the MP are DISABLED.
Changed	Changed - [Scope]	19903	STK	CFG-DB post-update Error	Major	Major	A minor database validation error was detected on the MP server after a database update. MP internal database is still in sync with the configuration database. Subsequent database operations on the MP are ALLOWED.
Changed	Changed - [Scope]	19904	STK	CFG-DB post-update Failure	Critical	Critical	A critical database validation error was detected on the MP server after a database update. MP internal database is still in sync with the configuration database. Subsequent database operations on the MP are DISABLED.
Changed	Changed - [Scope]	19905	STK	Measurement Initialization Failure	Critical	Critical	A measurement object failed to initialize.
~~Deleted~~		~~19910~~	~~DIAG~~	~~Message Discarded at Test Connection~~	~~Major~~	~~Major~~	~~Normal traffic is being discarded because it is routed to an egress Test Connection.~~
~~Deleted~~		~~19911~~	~~DIAG~~	~~Test message discarded~~	~~Info~~	~~Info~~	~~Test Message discarded at Non-Test egress connection.~~
Added		31131	DB	DB Ousted Throttle Behind	Minor	Major	DB ousted throttle may be affecting processes.
Changed	Changed - [Description]	31146	SW	DB Mastership Fault	Major	Major	DB replication is impaired due to no mastering process (inetrep)
Changed	Changed - [autoClearSecs, Description, throttleSecs]	31225	HA	HA Service Start Failure	Major	Critical	The required high availability resource failed to start
Changed	Changed - [autoClearSecs, throttleSecs]	31226	HA	HA Availability Status Degraded	Major	Major	The high availability status is degraded due to raised alarms
Changed	Changed - [autoClearSecs, throttleSecs]	31227	HA	HA Availability Status Failed	Critical	Critical	The high availability status is failed due to raised alarms
Changed	Changed - [deleters, Description, throttleSecs]	31232	HA	HA Late Heartbeat Warning	Minor	Minor	High availability server has not received a message on specified path within the configured interval
Changed	Changed - [Description, Name, throttleSecs]	31233	HA	HA Path Down	Major	Major	High availability path loss of connectivity
Changed	Changed - [Description]	31234	SW	Untrusted Time Upon Initialization	Critical	Critical	Upon system initialization, the system time is not trusted probably because NTP is misconfigured or the NTP servers are unreachable. There are often accompanying Platform alarms to guide correction. Generally, applications are not started if time is not believed to be correct on start-up. Recovery will often will require rebooting the server.
Changed	Changed - [Description]	31235	SW	Untrusted Time After Initialization	Critical	Critical	After system initialization, the system time has become untrusted probably because NTP has reconfigured improperly, time has been manually changed, the NTP servers are unreachable, etc. There are often accompanying Platform alarms to guide correction. Generally, applications remaining be running, but time-stamped data is likely incorrect, reports may be negatively affected, some behavior may be improper, etc.
Added		31236	HA	HA Link Down	Major	Major	High availability TCP link is down

Change Type	Change	Num	Group	Name	Warn Severity	Fatal Severity	Description
Changed	Changed - [Description, Name]	31260	SW	SNMP Agent Fault	Minor	Major	The SNMP agent (cmsnmpa) is impaired by a s/w fault
Added		31285	HA	HA Node Join Recovery Entry	Info	Info	High availability node join recovery entered
Added		31286	HA	HA Node Join Recovery Plan	Info	Info	High availability node join recovery plan
Added		31287	HA	HA Node Join Recovery Complete	Info	Info	High availability node join recovery complete
Added		31301	HA	HA Topology Events	Info	Info	HA Topology Events
Added		32337	PLAT	Flash Program Failure	Major	Major	Flash Program Failure
Added		32338	PLAT	Serial Mezzanine Unseated	Major	Major	Serial Mezzanine Unseated
Added		32345	PLAT	Server Upgrade snapshot(s) invalid	Major	Major	Server Upgrade snapshot(s) invalid
Added		32346	PLAT	Server Hardware Problem	Major	Major	Server Hardware Problem
Added		32347	PLAT	Oracle hwmgmtcliStatus Problem	Major	Major	Oracle hwmgmtcliStatus Problem
Added		32348	PLAT	FIPS subsystem problem	Major	Major	FIPS subsystem problem
Added		32349	PLAT	File Tampering	Major	Major	File Tampering
Added		32350	PLAT	Security Process Terminated	Major	Major	Security Process Terminated
Added		32536	PLAT	Server Upgrade snapshot(s) warning	Minor	Minor	Server Upgrade snapshot(s) warning
Added		32537	PLAT	FIPS subsystem warning	Minor	Minor	FIPS subsystem warning
Added		32540	PLAT	CPU Power Limit Mismatch	Minor	Minor	CPU Power Limit Mismatch
Added		32701	PLAT	HIDS Initialized	Info	Info	HIDS Initialized
Added		32702	PLAT	HIDS Baseline Deleted	Info	Info	HIDS Baseline Deleted
Added		32703	PLAT	HIDS Enabled	Info	Info	HIDS Enabled
Added		32704	PLAT	HIDS Disabled	Info	Info	HIDS Disabled
Added		32705	PLAT	HIDS Monitoring Suspended	Info	Info	HIDS Monitoring Suspended
Added		32706	PLAT	HIDS Monitoring Resumed	Info	Info	HIDS Monitoring Resumed
Added		32707	PLAT	HIDS Baseline Updated	Info	Info	HIDS Baseline Updated

2.5   Measurements

This section list the new or changed Measurements for HLR Router 4.1.

Change Type	Change	Num	Name	Group	Type	Interval	Description
Changed	Changed - [Name]	9152	SS7RxMsgRatePeak	Server Resource Usage	Max	5min	The peak Ingress Message Rate (in messages per second) measured during the collection interval. The Ingress Message Rate is the number of non-SNM (SI > 0) messages that M3UA attempts to queue in the M3RL Stack Event Queue.
Changed	Changed - [Name]	9153	SS7RxMsgRateAvg	Server Resource Usage	Average	5min	The average Ingress Message Rate (messages per second) during the collection interval. The Ingress Message Rate is the number of non-SNM (SI > 0) messages that M3UA attempts to queue in the M3RL Stack Event Queue.
Added		9319	Ss7TxSuccCA	Server TCAP Performance	Simple	30min	Number of MAP response messages successfully transferred from SS7 TCAP layer to comagent layer
Added		9320	Ss7TxFailedCA	Server TCAP Exception	Simple	30min	Number of MAP response messages failed to transfer from SS7 TCAP layer to comagent layer.

Change Type	Change	Num	Name	Group	Type	Interval	Description
Added		9321	Ss7TxMpUnkDiscard	Server TCAP Exception	Simple	30min	Unknown SS7 MP id.Failed to transfer MAP response message. MP id from origination transaction id can not be mapped to any SS7 MP in topology
Added		9322	Ss7DeserializationFail	Server TCAP Exception	Simple	30min	Number of MAP response message of which deserialization failed.
Added		9323	TxMsgRateAvg	Server SCCP Performance	Average	30min	The average Egress Message Rate (messages per second) during the collection interval.
Added		9324	TxMsgRatePeak	Server SCCP Performance	Max	30min	The peak Egress Message Rate (in messages per second) measured during the collection interval.
Changed	Changed - [Description]	9407	EvTrSockInitFail	Transport Exception	Simple	30min	The number of times the socket initialization failed.
Added		31089	Idb.LwTransact		Simple	5min	Successful Lightweight Transaction Commit Count
Added		31105	Idb.Shmat		Simple	5min	Count of shmat() system calls
Added		31106	NetMerge.Aud_ErrCnt		Simple	5min	Inetmerge Audit Error Count
Added		31107	NetMerge.Aud_SkipCnt		Simple	5min	Inetmerge Audit Skip Count due to Overload
Added		31108	NetMerge.Log_BypassCnt		Simple	5min	Inetmerge Log Collection Bypass Count due to Overload
Added		32000	appworks.guiReqAvg	OAM.PERF	Average	5min	Average AppWorks GUI request time
Added		32001	appworks.guiReqMax	OAM.PERF	Max	5min	Max AppWorks GUI request time
Added		32002	appworks.guiReqCount	OAM.PERF	Simple	5min	Number of times a particular AppWorks GUI request was made
Added		32003	apwSoapServer.awSoapInAvg	OAM.PERF	Average	5min	Average soap request server processing time (ms)
Added		32004	apwSoapServer.awSoapInMax	OAM.PERF	Max	5min	Max soap request server processing time (ms)
Added		32005	apwSoapServer.awSoapInCount	OAM.PERF	Simple	5min	Number of times a soap request was processed
Added		32006	apwSoapServer.cmSoapOutAvg	OAM.PERF	Average	5min	Average soap request client wait time (ms)
Added		32007	apwSoapServer.cmSoapOutMax	OAM.PERF	Max	5min	Max soap request client wait time (ms)
Added		32008	apwSoapServer.cmSoapOutCount	OAM.PERF	Simple	5min	Number of times a soap request was made
Added		32009	apwSoapServer.tpdSoapOutAvg	OAM.PERF	Average	5min	Average soap request client wait time (ms)
Added		32010	apwSoapServer.tpdSoapOutMax	OAM.PERF	Max	5min	Max soap request client wait time (ms)
Added		32011	apwSoapServer.tpdSoapOutCount	OAM.PERF	Simple	5min	Number of times a soap request was made
Added		32020	apwSoapServer.cacheHit	OAM.PERF	Simple	5min	Number of times the request cache was hit
Added		32021	apwSoapServer.cacheMiss	OAM.PERF	Simple	5min	Number of times the request cache was missed
Added		32022	apwSoapServer.cacheClear	OAM.PERF	Simple	5min	Number of times the request cache was cleared
Added		32023	apwSoapServer.auditSkip	OAM.PERF	Simple	5min	Number of times an audit cycle was skipped
Added		32030	apwSoapServer.soapClient	OAM.PERF	Simple	5min	Number of times a new soap client was created
Added		32031	apwSoapServer.procStart	OAM.PERF	Simple	5min	Number of times the process was started
Added		32032	apwSoapServer.procSig	OAM.PERF	Simple	5min	Number of times the process was signalled
Added		32033	apwSoapServer.soapReqEnQ	OAM.PERF	Simple	5min	Number of soap requests enqueued
Added		32034	apwSoapServer.soapReqAvg	OAM.PERF	Average	5min	Average soap request processing time (ms)
Added		32035	apwSoapServer.soapReqCount	OAM.PERF	Simple	5min	Number of soap requests processed
Added		32036	apwSoapServer.soapReqMax	OAM.PERF	Max	5min	Maximum time to process a soap request (ms)
Added		32037	apwSoapServer.auditAvg	OAM.PERF	Average	5min	Average audit processing time (ms)
Added		32038	apwSoapServer.auditCount	OAM.PERF	Simple	5min	Number of audits processed

Change Type	Change	Num	Name	Group	Type	Interval	Description
Added		32039	apwSoapServer.auditMax	OAM.PERF	Max	5min	Maximum time to process an audit (ms)
Added		32040	appworks.totalGuiReqAvg	OAM.PERF	Average	5min	Average GUI request processing time (ms)
Added		32041	appworks.totalGuiReqMax	OAM.PERF	Max	5min	Max GUI request processing time (ms)
Added		32042	appworks.totalGuiReqCount	OAM.PERF	Simple	5min	Number of GUI requests processed
Added		32043	appworks.mmiReqAvg	OAM.PERF	Average	5min	Average AppWorks MMI request time
Added		32044	appworks.mmiReqMax	OAM.PERF	Max	5min	Max AppWorks MMI request time
Added		32045	appworks.mmiReqCount	OAM.PERF	Simple	5min	Number of times a particular AppWorks MMI request was made
Added		32046	appworks.totalMmiReqAvg	OAM.PERF	Average	5min	Average MMI request processing time (ms)
Added		32047	appworks.totalMmiReqMax	OAM.PERF	Max	5min	Max MMI request processing time (ms)
Added		32048	appworks.totalMmiReqCount	OAM.PERF	Simple	5min	Number of MMI requests processed

2.6   SNMP Messages

The section list the added, deleted and changed SNMP Messages of HLR Router 4.1.

Change Type	Change	Notification Name	Description	OID
Added		awpss7SccpEgressMsgRateNotify	The Sccp Egress Message Rate (Message per second) for the MP is approaching or exceeding its engineered traffic handling capacity.	1.3.6.1.4.1.323.5.3.25.1.2.19276
Added		awpss7TcapRoutingFailureNotify	TCAP was unable to route message due to transient condition such as destination failure or destination unavailability	1.3.6.1.4.1.323.5.3.25.1.2.19281
Added		certificateAboutToExpire	Certificate about to expire	1.3.6.1.4.1.323.5.3.25.1.2.10110
Added		certificateCannotBeUsed	Certificate cannot be used	1.3.6.1.4.1.323.5.3.25.1.2.10112
Added		certificateExpired	Certificate expired	1.3.6.1.4.1.323.5.3.25.1.2.10111
Added		eagleXgHlrRouterBDFQFullNotifyNotify	The BDF work queue depth size has reached full capacity.	1.3.6.1.4.1.323.5.3.25.1.2.19420
Added		eagleXgHlrRouterBDFThrotlNotifyNotify	The BDF subsystem is throttling traffic at sender.	1.3.6.1.4.1.323.5.3.25.1.2.19421
Added		eagleXgHlrRouterBroadcastDataFrameworkInvalidStackEventNotify	The BDF subsystem received a StackEvent that was somehow invalid, corrupt, or could not be delivered to the application.	1.3.6.1.4.1.323.5.3.25.1.2.19422
Added		eagleXgHlrRouterClientConnWaitNotify	Communication Agent configured connection waiting for remote client to establish connection	1.3.6.1.4.1.323.5.3.25.1.2.19804
Added		eagleXgHlrRouterComAgentMaxConnsInConnGrpNotify	Max connections per connection group limit is reached.	1.3.6.1.4.1.323.5.3.25.1.2.19863
Added		eagleXgHlrRouterConnAlignFailedNotify	Communication Agent Failed to Align Connection.	1.3.6.1.4.1.323.5.3.25.1.2.19805
Added		eagleXgHlrRouterConnCongestedNotify	Communication Agent Connection Congested	1.3.6.1.4.1.323.5.3.25.1.2.19826
Added		eagleXgHlrRouterConnLocalBlockedNotify	Communication Agent Connection Locally Blocked	1.3.6.1.4.1.323.5.3.25.1.2.19801
Added		eagleXgHlrRouterConnRemoteBlockedNotify	Communication Agent Connection Remotely Blocked	1.3.6.1.4.1.323.5.3.25.1.2.19802
Added		eagleXgHlrRouterConnectionDownNotify	Communication Agent Connection Down	1.3.6.1.4.1.323.5.3.25.1.2.19800
Added		eagleXgHlrRouterDataEvPoolResUtilNotify	The percent utilization of the Communication Agent DataEvent mempool is approaching defined threshold capacity.	1.3.6.1.4.1.323.5.3.25.1.2.19818
Changed	Changed - [Description]	eagleXgHlrRouterDbMastershipFaultNotify	DB replication is impaired due to no mastering process (inetrep)	1.3.6.1.4.1.323.5.3.25.1.2.31146
Deleted		eagleXgHlrRouterDbSnmpAgentNotify	The DB SNMP agent (snmpIdbAgent) is impaired by a s/w fault	1.3.6.1.4.1.323.5.3.25.1.2.31260
Deleted		eagleXgHlrRouterDiagnosticMessageDiscardNotify	Test Message discarded at Non-Test egress connection.	1.3.6.1.4.1.323.5.3.25.1.2.19911

Change Type	Change	Notification Name	Description	OID
Added		eagleXgHlrRouterEventComAgentRejConnUnknownIpNotify	Communication Agent Connection Rejected	1.3.6.1.4.1.323.5.3.25.1.2.19858
Added		eagleXgHlrRouterEventComAgtCConfigParamChangeNotify	Communication Agent DB Responder detected a change in configurable control option parameter	1.3.6.1.4.1.323.5.3.25.1.2.19817
Added		eagleXgHlrRouterEventComAgtSvcOpStateChangedNotify	Communication Agent Service Operational State Changed	1.3.6.1.4.1.323.5.3.25.1.2.19831
Added		eagleXgHlrRouterEventComAgtSvcRegChangedNotify	Communication Agent Service Registration State Change	1.3.6.1.4.1.323.5.3.25.1.2.19830
Added		eagleXgHlrRouterEventComAgtTransFailedNotify	Communication Agent Reliable Transaction Failed	1.3.6.1.4.1.323.5.3.25.1.2.19832
Added		eagleXgHlrRouterEventConnectionRejectNotify	Communication Agent Connection Rejected. Connection to peer node is not initiated due to network incompatibility	1.3.6.1.4.1.323.5.3.25.1.2.19868
Added		eagleXgHlrRouterEventConnectionStateChangeNotify	Communication Agent Connection state Changed	1.3.6.1.4.1.323.5.3.25.1.2.19816
Added		eagleXgHlrRouterEventEgressMessageDiscardedNotify	Communication Agent Egress Message Discarded	1.3.6.1.4.1.323.5.3.25.1.2.19810
Added		eagleXgHlrRouterEventFailToSetHostServerHWProfileNotify	ComAgent Failed to Set Host Server Hardware Profile	1.3.6.1.4.1.323.5.3.25.1.2.19865
Added		eagleXgHlrRouterEventHaEgressMessageDiscardedNotify	Communication Agent Resource Egress Message Discarded	1.3.6.1.4.1.323.5.3.25.1.2.19853
Added		eagleXgHlrRouterEventHaRPTTAuditResultNotify	Communication Agent Resource-Provider Tracking Table Audit Results	1.3.6.1.4.1.323.5.3.25.1.2.19854
Added		eagleXgHlrRouterEventHeartbeatMissedNotify	Communication Agent Peer has not responded to heartbeat.	1.3.6.1.4.1.323.5.3.25.1.2.19814
Added		eagleXgHlrRouterEventIngressMessageDiscardedNotify	Communication Agent Ingress Message Discarded	1.3.6.1.4.1.323.5.3.25.1.2.19811
Added		eagleXgHlrRouterEventPSEgressMessageDiscardedNotify	Communication Agent Peer Group Egress Message Discarded	1.3.6.1.4.1.323.5.3.25.1.2.19867
Added		eagleXgHlrRouterEventPeerGroupStatusChangeNotify	Communication Agent Peer Group Status Changed	1.3.6.1.4.1.323.5.3.25.1.2.19866
Added		eagleXgHlrRouterEventResourceProviderDeRegisteredNotify	Communication Agent Resource-Provider Deregistered	1.3.6.1.4.1.323.5.3.25.1.2.19845
Added		eagleXgHlrRouterEventResourceProviderRegisteredNotify	Communication Agent Resource-Provider Registered	1.3.6.1.4.1.323.5.3.25.1.2.19842
Added		eagleXgHlrRouterEventResourceRoutingStateNotify	Communication Agent Resource Routing State Changed	1.3.6.1.4.1.323.5.3.25.1.2.19852
Added		eagleXgHlrRouterEventResourceStateChangeNotify	Communication Agent Resource-Provider Resource State Changed	1.3.6.1.4.1.323.5.3.25.1.2.19843
Added		eagleXgHlrRouterEventResourceUserDeRegisteredNotify	Communication Agent Resource-User Deregistered	1.3.6.1.4.1.323.5.3.25.1.2.19851
Added		eagleXgHlrRouterEventResourceUserRegisteredNotify	Communication Agent Resource-USer Registered	1.3.6.1.4.1.323.5.3.25.1.2.19850
Added		eagleXgHlrRouterEventRoutingFailedNotify	Communication Agent Service Egress Message Discarded	1.3.6.1.4.1.323.5.3.25.1.2.19833
Added		eagleXgHlrRouterEventStaleHBPacketNotify	Communication Agent Resource-Provider Stale Status Received	1.3.6.1.4.1.323.5.3.25.1.2.19844
Added		eagleXgHlrRouterEventSuccessSetHostServerHWProfileNotify	ComAgent Successfully Set Host Server Hardware Profile	1.3.6.1.4.1.323.5.3.25.1.2.19864
Added		eagleXgHlrRouterEventSvcProvOpStateChangedNotify	Communication Agent Service Provider Operational State Changed	1.3.6.1.4.1.323.5.3.25.1.2.19857
Added		eagleXgHlrRouterEventSvcProvRegStateChangedNotify	Communication Agent Service Provider Registration State Changed	1.3.6.1.4.1.323.5.3.25.1.2.19856
Changed	Changed - [Status]	eagleXgHlrRouterHaHbTransmitFailureNotify	The high availability monitor failed to send heartbeat	1.3.6.1.4.1.323.5.3.25.1.2.31223
Changed	Changed - [Description]	eagleXgHlrRouterHaLateHeartbeatWarningNotify	High availability server has not received a message on specified path within the configured interval	1.3.6.1.4.1.323.5.3.25.1.2.31232
Added		eagleXgHlrRouterHaLinkDownNotify	High availability TCP link is down	1.3.6.1.4.1.323.5.3.25.1.2.31236
Changed	Changed - [Status]	eagleXgHlrRouterHaNotConfiguredNotify	High availability is disabled due to system configuration	1.3.6.1.4.1.323.5.3.25.1.2.31222
Added		eagleXgHlrRouterHaPathDownNotify	High availability path loss of connectivity	1.3.6.1.4.1.323.5.3.25.1.2.31233
Added		eagleXgHlrRouterHaSbrCompleteNotify	High availability node join recovery complete	1.3.6.1.4.1.323.5.3.25.1.2.31287
Added		eagleXgHlrRouterHaSbrEntryNotify	High availability node join recovery entered	1.3.6.1.4.1.323.5.3.25.1.2.31285

Change Type	Change	Notification Name	Description	OID
Added		eagleXgHlrRouterHaSbrPlanNotify	High availability node join recovery plan	1.3.6.1.4.1.323.5.3.25.1.2.31286
~~Deleted~~		~~eagleXgHlrRouterHaSecPathDownNotify~~	~~High availability secondary path loss of connectivity~~	~~1.3.6.1.4.1.323.5.3.25.1.2.31233~~
Changed	Changed - [Description]	eagleXgHlrRouterHaSvcStartFailureNotify	The required high availability resource failed to start	1.3.6.1.4.1.323.5.3.25.1.2.31225
Added		eagleXgHlrRouterHaTopologyNotify	HA Topology Events	1.3.6.1.4.1.323.5.3.25.1.2.31301
Added		eagleXgHlrRouterIngressRateNotify	The Communication Agent Ingress Stack Event Rate is approaching its defined threshold capacity.	1.3.6.1.4.1.323.5.3.25.1.2.19862
Added		eagleXgHlrRouterLogHealthCheckFailed	Upgrade health check operation Failed	1.3.6.1.4.1.323.5.3.25.1.2.10117
Added		eagleXgHlrRouterLogHealthCheckNotRun	Upgrade health check operation not run	1.3.6.1.4.1.323.5.3.25.1.2.10118
Added		eagleXgHlrRouterLogHealthCheckStart	Upgrade health check operation started	1.3.6.1.4.1.323.5.3.25.1.2.10115
Added		eagleXgHlrRouterLogHealthCheckSuccess	Upgrade health check operation completed successfully	1.3.6.1.4.1.323.5.3.25.1.2.10116
Added		eagleXgHlrRouterLogServerUpgradeCancelled	Server upgrade cancelled - validation failed	1.3.6.1.4.1.323.5.3.25.1.2.10131
Added		eagleXgHlrRouterLogServerUpgradeFailAlm	Server upgrade operation failed	1.3.6.1.4.1.323.5.3.25.1.2.10134
Added		eagleXgHlrRouterLogServerUpgradeFailed	Server upgrade operation failed	1.3.6.1.4.1.323.5.3.25.1.2.10133
Added		eagleXgHlrRouterLogServerUpgradeStart	Server upgrade operation started	1.3.6.1.4.1.323.5.3.25.1.2.10130
Added		eagleXgHlrRouterLogServerUpgradeSuccess	Server upgrade operation completed successfully	1.3.6.1.4.1.323.5.3.25.1.2.10132
Added		eagleXgHlrRouterLogSgUpgradeCancelled	Server group upgrade cancelled - validation failed	1.3.6.1.4.1.323.5.3.25.1.2.10121
Added		eagleXgHlrRouterLogSgUpgradeCancelledUser	Server group upgrade cancelled by user	1.3.6.1.4.1.323.5.3.25.1.2.10124
Added		eagleXgHlrRouterLogSgUpgradeFailAlm	Server group upgrade operation failed	1.3.6.1.4.1.323.5.3.25.1.2.10125
Added		eagleXgHlrRouterLogSgUpgradeFailed	Server group upgrade operation failed	1.3.6.1.4.1.323.5.3.25.1.2.10123
Added		eagleXgHlrRouterLogSgUpgradeStart	Server group upgrade operation started	1.3.6.1.4.1.323.5.3.25.1.2.10120
Added		eagleXgHlrRouterLogSgUpgradeSuccess	Server group upgrade operation completed successfully	1.3.6.1.4.1.323.5.3.25.1.2.10122
Added		eagleXgHlrRouterMultipleActivesNotify	Communication Agent Resource Has Multiple Actives	1.3.6.1.4.1.323.5.3.25.1.2.19855
Added		eagleXgHlrRouterMxFIFOUtilNotify	The percent utilization of the Communication Agent Mx FIFO Queue is approaching defined threshold capacity.	1.3.6.1.4.1.323.5.3.25.1.2.19808
~~Deleted~~		~~eagleXgHlrRouterNormalMessageDiscardedNotify~~	~~Normal traffic is being discarded because it is routed to an egress Test Connection.~~	~~1.3.6.1.4.1.323.5.3.25.1.2.19910~~
Added		eagleXgHlrRouterNtpOffsetCheckErrorNotify	NTP Offset Check Failure	1.3.6.1.4.1.323.5.3.25.1.2.32342
Added		eagleXgHlrRouterNtpOffsetCheckFailureNotify	NTP Offset Check Failure	1.3.6.1.4.1.323.5.3.25.1.2.32117
Added		eagleXgHlrRouterOustedThrottleWarnNotify	DB ousted throttle may be affecting processes.	1.3.6.1.4.1.323.5.3.25.1.2.31131
Added		eagleXgHlrRouterPoolResUtilNotify	The percent utilization of the Communication Agent CommMessage mempool is approaching defined threshold capacity.	1.3.6.1.4.1.323.5.3.25.1.2.19806
Added		eagleXgHlrRouterQueueUtilNotify	The percent utilization of the Communication Agent Task stack queue is approaching defined threshold capacity.	1.3.6.1.4.1.323.5.3.25.1.2.19803
Added		eagleXgHlrRouterQueueUtilSMSNotify	The percent utilization of the SMS Task stack queue is approaching defined threshold capacity.	1.3.6.1.4.1.323.5.3.25.1.2.19827
Added		eagleXgHlrRouterRSCongestedNotify	Communication Agent Routed Service Congested	1.3.6.1.4.1.323.5.3.25.1.2.19822
Added		eagleXgHlrRouterRSDegradedNotify	Communication Agent Routed Service Degraded	1.3.6.1.4.1.323.5.3.25.1.2.19821
Added		eagleXgHlrRouterRSUnavailNotify	Communication Agent Routed Service Unavailable	1.3.6.1.4.1.323.5.3.25.1.2.19820
Added		eagleXgHlrRouterRSUsingLowPriConnGrpNotify	Communication Agent routed service is routing traffic using a connection group that has a lower-priority than another connection group.	1.3.6.1.4.1.323.5.3.25.1.2.19823

Change Type	Change	Notification Name	Description	OID
Added		eagleXgHlrRouterResourceCongestedNotify	Communication Agent Resource Degraded	1.3.6.1.4.1.323.5.3.25.1.2.19846
Added		eagleXgHlrRouterResourceErrorNotify	Communication Agent Resource Error	1.3.6.1.4.1.323.5.3.25.1.2.19848
Added		eagleXgHlrRouterResourceUnavailNotify	Communication Agent Resource Unavailable	1.3.6.1.4.1.323.5.3.25.1.2.19847
Added		eagleXgHlrRouterScriptFailureNotify	ComAgent Configuration Daemon Script Failure	1.3.6.1.4.1.323.5.3.25.1.2.19861
Added		eagleXgHlrRouterSnmpAgentNotify	The SNMP agent (cmsnmpa) is impaired by a s/w fault	1.3.6.1.4.1.323.5.3.25.1.2.31260
Added		eagleXgHlrRouterTableMonitorFailureNotify	ComAgent Configuration Daemon Table Monitoring Failure	1.3.6.1.4.1.323.5.3.25.1.2.19860
Added		eagleXgHlrRouterTpdCpuPowerLimitMismatchNotify	The BIOS setting for CPU Power Limit is different than expected	1.3.6.1.4.1.323.5.3.25.1.2.32540
Added		eagleXgHlrRouterTpdDiskCtrlrProblemNotify	RAID controller needs intervention.	1.3.6.1.4.1.323.5.3.25.1.2.32344
Added		eagleXgHlrRouterTpdDiskProblemNotify	RAID disk member(s) need intervention.	1.3.6.1.4.1.323.5.3.25.1.2.32343
Added		eagleXgHlrRouterTpdDiskResyncNotify	RAID member disk is resyncing.	1.3.6.1.4.1.323.5.3.25.1.2.32535
Changed	Changed - [Description]	eagleXgHlrRouterTpdFanErrorNotify	Server Fan Failure. This test uses the leaky bucket algorithm.	1.3.6.1.4.1.323.5.3.25.1.2.32300
Added		eagleXgHlrRouterTpdFipsSubsystemProblemNotify	The FIPS subsystem needs intervention	1.3.6.1.4.1.323.5.3.25.1.2.32348
Added		eagleXgHlrRouterTpdFipsSubsystemWarningNotify	The FIPS subsystem needs intervention	1.3.6.1.4.1.323.5.3.25.1.2.32537
Added		eagleXgHlrRouterTpdFlashProgramFailureNotify	Flash device failed to update	1.3.6.1.4.1.323.5.3.25.1.2.32337
Added		eagleXgHlrRouterTpdHWMGMTCLIProblemNotify	The hwmgmtcliStatus daemon needs intervention	1.3.6.1.4.1.323.5.3.25.1.2.32347
Added		eagleXgHlrRouterTpdHidsBaselineCreatedNotify	The TPD HIDS baseline was created	1.3.6.1.4.1.323.5.3.25.1.2.32701
Added		eagleXgHlrRouterTpdHidsBaselineDeletedNotify	The TPD HIDS baseline was deleted	1.3.6.1.4.1.323.5.3.25.1.2.32702
Added		eagleXgHlrRouterTpdHidsBaselineUpdatedNotify	TPD HIDS baseline has been updated	1.3.6.1.4.1.323.5.3.25.1.2.32707
Added		eagleXgHlrRouterTpdHidsDisabledNotify	TPD HIDS has been disabled	1.3.6.1.4.1.323.5.3.25.1.2.32704
Added		eagleXgHlrRouterTpdHidsEnabledNotify	TPD HIDS has been enabled	1.3.6.1.4.1.323.5.3.25.1.2.32703
Added		eagleXgHlrRouterTpdHidsFileTamperingNotify	HIDS has detected file tampering	1.3.6.1.4.1.323.5.3.25.1.2.32349
Added		eagleXgHlrRouterTpdHidsResumedNotify	TPD HIDS monitoring has been resumed	1.3.6.1.4.1.323.5.3.25.1.2.32706
Added		eagleXgHlrRouterTpdHidsSuspendedNotify	TPD HIDS monitoring has been suspended	1.3.6.1.4.1.323.5.3.25.1.2.32705
Changed	Changed - [Description]	eagleXgHlrRouterTpdMaxPidLimitNotify	Max number running of proccesss limit reached	1.3.6.1.4.1.323.5.3.25.1.2.32339
Changed	Changed - [Description]	eagleXgHlrRouterTpdMaxPidWarningNotify	Max number running of proccesss limit warning	1.3.6.1.4.1.323.5.3.25.1.2.32533
Added		eagleXgHlrRouterTpdNTPDaemonNeverSynchronizedNotify	Server NTP Daemon Never Synchronized	1.3.6.1.4.1.323.5.3.25.1.2.32341
Added		eagleXgHlrRouterTpdNTPDaemonNotSynchronizedErrorNotify	Server NTP Daemon Lost Synchronization For Extended Time	1.3.6.1.4.1.323.5.3.25.1.2.32340
Added		eagleXgHlrRouterTpdNTPDaemonNotSynchronizedFailureNotify	Server NTP Daemon Lost Synchronization For Extended Time	1.3.6.1.4.1.323.5.3.25.1.2.32115
Added		eagleXgHlrRouterTpdNTPSourceIsBadNotify	NTP Source Server Is Not Able To Provide Correct Time	1.3.6.1.4.1.323.5.3.25.1.2.32534
Added		eagleXgHlrRouterTpdNTPTimeGoneBackwardsNotify	Server's Time Has Gone Backwards	1.3.6.1.4.1.323.5.3.25.1.2.32116
Added		eagleXgHlrRouterTpdOEMHardwareProblemNotify	OEM hardware management service reports an error	1.3.6.1.4.1.323.5.3.25.1.2.32346

Change Type	Change	Notification Name	Description	OID
Changed	Changed - [Description]	eagleXgHlrRouterTpdRamShortageErrorNotify	Server RAM Shortage Error. This test uses the leaky bucket algorithm.	1.3.6.1.4.1.323.5.3.25.1.2.32306
Changed	Changed - [Description]	eagleXgHlrRouterTpdRamShortageWarningNotify	Server RAM Shortage Warning. This test uses the leaky bucket algorithm.	1.3.6.1.4.1.323.5.3.25.1.2.32503
Added		eagleXgHlrRouterTpdSecurityProcessDownNotify	HIDS detected security process is down	1.3.6.1.4.1.323.5.3.25.1.2.32350
Added		eagleXgHlrRouterTpdSerialMezzUnseatedNotify	Serial Mezzanine card is not seated properly	1.3.6.1.4.1.323.5.3.25.1.2.32338
Changed	Changed - [Description]	eagleXgHlrRouterTpdSwapSpaceShortageErrorNotify	Server Swap Space Shortage Error. This test uses the leaky bucket algorithm.	1.3.6.1.4.1.323.5.3.25.1.2.32307
Changed	Changed - [Description]	eagleXgHlrRouterTpdSwapSpaceShortageWarningNotify	Server Swap Space Shortage Warning. This test uses the leaky bucket algorithm.	1.3.6.1.4.1.323.5.3.25.1.2.32505
Added		eagleXgHlrRouterTpdUpgradeSnapshotInvalidNotify	LVM snapshot is invalid	1.3.6.1.4.1.323.5.3.25.1.2.32345
Added		eagleXgHlrRouterTpdUpgradeSnapshotWarningNotify	LVM snapshot space usage warning	1.3.6.1.4.1.323.5.3.25.1.2.32536
Added		eagleXgHlrRouterTransFailRateNotify	The number of failed transactions during the sampling period has exceeded configured thresholds.	1.3.6.1.4.1.323.5.3.25.1.2.19825
Added		eagleXgHlrRouterTransUtilNotify	The ComAgent Reliable Transfer Function is approaching or exceeding its engineered reliable transaction handling capacity.	1.3.6.1.4.1.323.5.3.25.1.2.19824
Added		eagleXgHlrRouterUserDataFIFOUtilNotify	The percent utilization of the Communication Agent User Data FIFO Queue is approaching defined threshold capacity.	1.3.6.1.4.1.323.5.3.25.1.2.19807

2.7   Key Performance Indicators (KPIs)

There are no new, changed or deleted KPIs for the HLRR 4.1 release.

3.0   HARDWARE CHANGES

3.1   Hardware Upgrade

HLRR 4.1 software running on DL-380 (GEN9) hardware are required to implement the following new optional features:
Feature# 22175497 - Support of HP Gen9 RMS Hardware
Feature# 22244415 - Support for IPv6
Feature# 22244442 - Support for 1 Billion Routing Entities
Installation of the DL-380(GEN9) Hardware will require an appropriate migration process. The HLRR server interconnection will be as defined in ref [3] Network Interconnect for HP Hardware: Tekelec HLR Router 4.1 Technical Reference.

4.0   SOFTWARE CHANGES

4.1   Platform 7.0.3

Platform release 7.0.3 inherits all the functionality of platform release 6.5.

Table 1: New Platform Component Versions

Component	Release
TPD	7.0.3
AppWorks	6.0.1
Comcol	6.4
PM&C	6.0.3
TVOE	3.0.3

4.2   Firmware Changes

No firmware changes are required for the T1200 hardware to support HLRR 4. When required the user should refer to the T-1200 Firmware Release Notes to determine the specific firmware versions needed.
For HP Hardware, a firmware upgrade is required as part of the HLRR 4.1 software upgrade process. Refer to the HP Solutions Firmware Upgrade Release Notes to determine the specific firmware versions needed.
The required firmware and documentation for upgrading the firmware on HP hardware systems and related components are distributed as the HP Solutions Firmware Upgrade Pack (HP FUP). When a firmware upgrade is needed, the current GA release of the HP Solutions Firmware Upgrade Pack should be used.
Each version of the HP Solutions Firmware Upgrade Pack contains multiple items including media and documentation.
The three pieces of required firmware media provided in the HP Solutions Firmware Upgrade Pack releases are:

- HP Service Pack for ProLiant (SPP) firmware ISO image

- HP Service Pack for ProLiant (SPP) firmware USB image

- HP MISC Firmware ISO image

5.0 UPGRADE OVERVIEW

This section provides an overview of the Upgrade activities for HLRR 4.1.

5.1 Upgrade Path

HLR Router 4.0 → 4.1

5.2 Order of Upgrade

1. For HP Hardware Customer - Firmware Upgrade from HP FUP 2.2.5 → HP FUP 2.x.x

2. For T-1200 Hardware Customers – No Firmware updates are required.

3. TVOE Upgrade from 2.5 → 3.0.3

4. PM&C Upgrade from Release 5.5 → 6.0.3

5. HLRR Application Upgrade from 4.0 → 4.1 (includes TPD 7.0.3, AppWorks 6.0.1 and Comcol 6.4)

5.3 Migration of HLRR Data

The existing HLRR Configuration, Provisoning and Supporting Data will be preserved during the HLRR 4.1 upgrade process.

6.0 CHANGES BY FEATURE

This section describes the new optional features introduced in the 4.1 product.

6.1 Feature# 22175497 – Support of HP Gen9 RMS Hardware

The main driver for supporting HP DL-380 (GEN9) servers is obsolescence. To maintain support for our applications on HP servers, the Oracle Tekelec platform will support the DL-380 (GEN9) RMS server. The GEN9 server is expected to offer greater performance than the Gen6 server and this performance can be used to the benefit of the Oracle HLRR application.

6.2 Feature# 22244442 - Support for 1 Billion Routing Entities

This feature expands the capacity of the HLR Router database from 800 million to one billion IMSIs or DNs entries in any combination. This new database capacity requires an SDS provisioning system running SDS 7.1. It is available only on the DL380(Gen 9) RMS servers.

6.3 Feature# 22244415 - Support for IPv6

As the global public IPv4 address pool is getting exhausted, our customers are requiring IPv6 support to grow their deployments. Therefore, there is a strong need for IPv6 support on HLRR interfaces and network services including but not limited to Management Interfaces and services (Appworks Interfaces, etc.) and Remote server Interfaces. Activation of IPv6 support requires the execution of an extensive activation procedure, which will permit the interfaces to operate in dual stack IPv4/IPv6 mode. This feature is available on the DL380(Gen 9) RMS servers only. The list of supported and not supported IPv6 interfaces are provided below.

6.3.1 Interfaces that will support IPv4 and IPv6

Interface	Definition
PDB Provisioning	The main PDB provisioning interface (may be from the SDS).
PDB Provisioning (secure)	Secure PDB provisioning link from the Customer Provisioning System (CPS).
Remote Import Server	Interface to import bulk provisioning data
Remote Export Server	Interface for exporting bulk provisioning data
PDE	Performance Data Export Interface
MySQL client queries	Interface supporting mysql coming in to the Query Server
APDE	Platform supported Automatic Performance Data Export for logs, measurements, KPIs etc.
LDAP	Platform supported Lightweight Directory Access Protocol Server
DNS	Platform supported Domain Name Server
SNMP	Platform supported Simple Network Management Protocol managers for sending traps to addresses that are registered to receive them

6.3.2 Interfaces that will NOT support IPv6

Interface	Definition
SIGTRAN links	Links between HLRR MPs and Eagle STPs

7.0 REFERENCE LIST

Internal Oracle Feature Requirement Specifications:
- HP GEN9 Support Feature Requirement Specification, CGBU_EG_2016

- EAGLE XG HLR Router OAM&P and Database FRS, CGBU_EG_1422

- HLRR IPv6 Support Feature Requirement Specification, CGBU_017655

- EAGLE XG HLR Router: Application and Signaling FRS, CGBU_EG_1409

8.0 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 2 for Non-technical issue

You will be connected to a live agent who can assist you with MOS registration and provide Support Identifiers. Simply mention you are a Tekelec Customer new to MOS. MOS is available 24 hours a day, 7 days a week, 365 days a year.

Emergency Response

In the event of a critical service situation, emergency response is offered by the Customer Access Support (CAS) main number at **1-800-223-1711** (toll-free in the US), or by calling the Oracle Support hotline for your local country from the list at *http://www.oracle.com/us/support/contact/index.html*. The emergency response provides immediate coverage, automatic escalation, and other features to ensure that the critical situation is resolved as rapidly as possible.

A critical situation is defined as a problem with the installed equipment that severely affects service, traffic, or maintenance capabilities, and requires immediate corrective action. Critical situations affect service and/or system operation resulting in one or several of these situations:

- A total system failure that results in loss of all transaction processing capability
- Significant reduction in system capacity or traffic handling capability
- Loss of the system's ability to perform automatic system reconfiguration
- Inability to restart a processor or the system
- Corruption of system databases that requires service affecting corrective actions
- Loss of access for maintenance or recovery operations
- Loss of the system ability to provide any required critical or major trouble notification

Any other problem severely affecting service, capacity/traffic, billing, and maintenance capabilities may be defined as critical by prior discussion and agreement with Oracle.

Locating Product Documentation on the Oracle Help Center Site

Oracle customer documentation is available on the web at the Oracle Help Center (OHC) site, http://docs.oracle.com. You do not have to register to access these documents. Viewing these files requires Adobe Acrobat Reader, which can be downloaded at http://www.adobe.com.

1. Access the OHC site at http://docs.oracle.com.
2. Click Industries.
3. Under the Oracle Communications subheading, click the Oracle Communications documentation link.
4. The Communications Documentation page appears. Most products covered by these documentation sets will appear under the headings "Network Session Delivery and Control Infrastructure" or "Platforms."
5. Click the Product and then the Release Number. A list of the entire documentation set for the selected product and release appears.
6. To download a file to your location, right-click the PDF link, select Save target as (or similar command based on your browser), and save to a local folder.