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Procedures for the Transition of ECS into the IRIX 6.5 Environment

White Paper

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Abstract

This document describes the IRIX 6.2 to IRIX 6.5 upgrade procedure at each DAAC in detail. This includes the steps necessary or advisable to prepare for the transition. Other information on transition details for this upgrade is also provided.

Keywords: Release 55, OS upgrade, SGI, Challenge, Origin, IRIX, transition, procedures

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1. Introduction

1.1 Purpose

The purpose of this document is a guide to implement the transition of the ECS Operating System from the IRIX 6.2 to the IRIX 6.5 on the SGI system of hosts. This document provides machine movement plans, a generalized overview of the transition steps, advanced preparation details, OS and COTS installation procedures, a training plan using the VATC, Sybase transition steps, detailed procedures at each DAAC, and rollback processes.

1.2 Organization

Section 1 of this document provides information regarding the purpose, organization, and review and approval process dictated.

Section 2 of this document provides related documentation.

Section 3 provides an overview including HW movement plans and a generalized sequence.

Section 4 provides advanced preparation details to be accomplished well before transition begins.

Section 5 provides OS and COTS installation requirements and procedures.

Section 6 provides a plan for DAAC training in the VATC.

Section 7 provides the Sybase transition procedures including the SQS322 installation.

Section 8 provides transition procedure details for each DAAC.

Section 8.1 provides procedures for the IRIX upgrade transition at the GSFC.

Section 8.2 provides procedures for the IRIX upgrade transition at the EDC.

Section 8.3 provides procedures for the IRIX upgrade transition at the LaRC.

Section 8.4 provides procedures for the IRIX upgrade transition at the NSIDC.

Section 8.5 provides procedures for the IRIX upgrade transition in the VATC.

Section 9 provides reference procedures which may be utilized such as machine mode transfer and rollback.

1.3 Review and Approval

This White Paper is an informal document approved by Director, Systems Engineering, ECS Project. It does not require formal Government review or approval.

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2. Related Documentation

This section identifies the source document, reference documents, baseline documents, PSR documents, and Technical Directives, and the how they relate to each other.

2.1 Parent Document

The parent document is the document from which Procedures for the Transition of ECS into the IRIX 6.5 Environment white paper's scope and content are derived.

223-WP-001 Operating System Upgrade Plan for SGI Machines in ECS

2.2 Reference Documents

The following documents amplify or clarify the information presented in this document.

914-TDA-140 SGI IRIX 6.5.6 Operating System Upgrade for the ECS Project (“the IRIX 6.5 PSR document”)

99-012 Anonymous ftp Directive

2.3 Baseline Documents

The following documents are being updated to house necessary changes in the baseline to accommodate the IRIX 6.5 upgrade, and are available in “Technical Documents” at the web site:

<http://cmdm.east.hitc.com/baseline/>

910-TDA-003	COTS Baseline
910-TDA-005	Site-Host Map
911-TDA-005	IRIX Patch List
920-TDx-001	HW Diagrams for each DAAC
920-TDx-002	HW-SW Maps for each DAAC
920-TDV-002	HW-SW Map for the VATC
920-TDP-002	HW-SW Map for the PVC
920-TDx-003	System Infrastructure for NSIDC and GSFC
920-TDx-004	Floor Plans for each DAAC
920-TDx-008	Mount Points for each DAAC
920-TDV-008	Mount Points for the VATC
920-TDP-008	Mount Points for the PVC
920-TDx-009	HW-Database Maps for each DAAC
920-TDx-014	HW-Patch Maps for each DAAC
920-TDV-014	HW-Patch Maps for the VATC
920-TDP-014	HW-Patch Maps for the PVC
920-TDx-016	SGI UNIX Kernel Configuration for each DAAC

920-TDx-018	Host Memory for each DAAC
921-TDx-002	HW Network Diagrams
921-TDx-003	Host IP Assignments
921-TDx-006	Ingest Host Static Routes
922-TDx-001	acg Disk Partitioning Configurations at each DAAC
922-TDx-007	drg Disk Partitioning Configurations at each DAAC
922-TDx-008	icg Disk Partitioning Configurations at each DAAC
922-TDx-015	spg Disk Partitioning Configurations at each DAAC
922-TDE-018	wkg Disk & RAID Partitioning Configurations at EDC
922-TDx-032	aqg Disk Partitioning Configurations at each DAAC
922-TDx-035	aqg Disk / RAID Partitioning Configurations at each DAAC
922-TDx-042	Console Manager Configurations at GSFC, EDC, and NSIDC
923-TDx-00x	Primary DNS B/L Document for each DAAC and SMC

2.4 Vendor Documents

The following are documents updated for vendor items to support or work with the IRIX 6.5 Operating System. They have been through a PSR and are located in “Pre-Ship Reviews” at the web site: <http://cmdm.east.hitc.com/baseline/>

914-TDA-013-REV08	AMASS 4.12.3 Release for the ECS Project
914-TDA-045-REV01	ClearCase Version 3.2.1 (SUN & SGI) Upgrade for ECS Project
914-TDA-142	DG SCSI & FC RAID 3.3 Software Upgrade for IRIX 6.x
914-TDA-026-REV01	IMSL 64-bit 3.01 C and 4.01 Fortran Library Upgrade for SGI
914-TDA-141	Sybase Open Client (SGI) Maintenance Upgrade for ECS Project
914-TDA-137	Tool Command Language/Toolkit (Tcl/Tk) SGI IRIX 6.5 Upgrade
914-TDA-139	Interactive Data Language (IDL) Maintenance Upgrades
914-TDA-144	PURIFY 4.5 for SGI IRIX 6.5.6 for the ECS Project
914-TDA-088-REV01	Legato NetWorker UNIX (Ver. 5.5.1) Upgrade for the ECS Project
914-TDA-138	Perl IRIX 6.5 Upgrade for the ECS Project
914-TDA-134-REV01	Adaptive Server Enterprise 11.5.1 Maintenance Upgrade (Sybase)
914-TDA-046-REV01	ECS Secure Shell 2.0 and TCP/Wrappers for the ECS Project
914-TDA-143	Tripwire 1.3 Upgrade for SGI IRIX 6.5 for the ECS Project

2.5 Document Relationships

The above documents are all inter-related. The Parent document (“The Plan”) dictates the Procedures document (this document), and the Procedures document is supported by and is consistent with the Vendor documents and Technical Directives. The Vendor documents dictate the Baseline documents. This is shown in Figure 2.5-1.

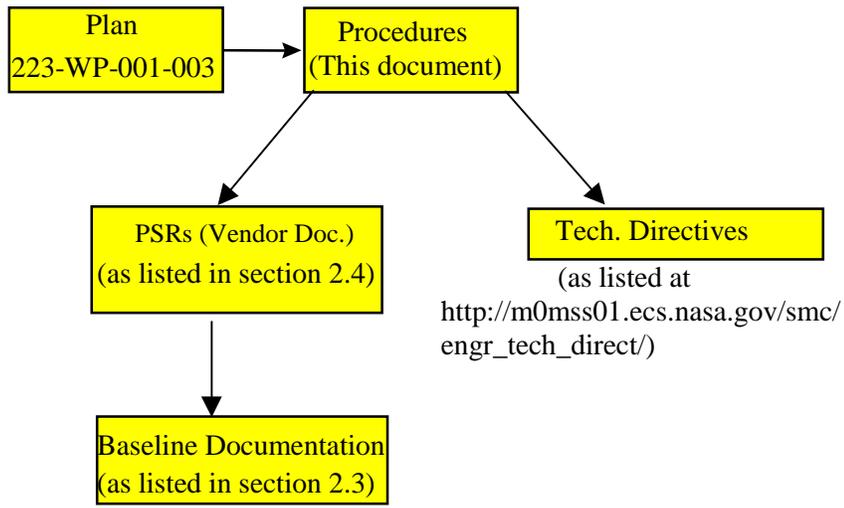


Figure 2.5-1 Document Relationships

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3. Overview of Transition Procedures

3.1 General Transition Strategy

The approaches to upgrading the SGI machines are:

- 1) Where the machine is being replaced at the same time as the Irix upgrade, the databases for all modes are first transferred to the new machine, then the custom code is transferred mode-by-mode.
 - 2) Where the machine is not being replaced at the same time as the Irix upgrade, either:
 - a) The machine is upgraded in place (directly onto the existing disks), if it is not critical to operations, or
 - b) The machine is equipped with clones of the existing boot and data disks. One set of disks is upgraded to Irix 6.5, for all modes at one time, while the other set of disks is not touched in case rollback is needed.

With these approaches, the primary downtime for DAAC operations occurs when the databases are moved (if there are replacement machines), or when the machines hosting the databases are upgraded (if there are no replacement machines). This is because a complete set of database dumps must be taken, in case rollback is needed.

Moving the databases will take several hours, and the time will be used to rename machines such that new machines take the names of the machines they are replacing. After the databases have been moved, there will be a second, briefer interruption of operations as the 55 code for each subsystem is brought up.

3.2 Machine Movement Plans

Several hardware upgrades and additions are being implemented as part of the Irix upgrade. Table 3.2-1 summarizes the hardware changes.

Table 3.2-1. Hardware Movement Plan (1 of 3)

Current Host/Platform	Future Host/Platform	ACTION	Reuse/Spare
e0acg01 - CH XL	e0acg01-Origin 2000	Replace with Origin 2000	Move to e0icg02
e0acg02 - CH XL		Remove from baseline	Move to e0icg01
e0icg01 - CH DM	e0icg01 - CH XL	Replace with XL (old e0acg02)	Move to e0aag01
e0icg02 - CH DM	e0icg02 - CH XL	Replace with XL (old e0acg01)	Move to VATC t1acg08

Table 3.2-1. Hardware Movement Plan (2 of 3)

Current Host/Platform	Future Host/Platform	ACTION	Reuse/Spare
e0aqq01 - CH S	e0aqq01-CH DM	Replace with CH DM (old e0icg01)	Move CH S to STOCK
e0aqq02 - Indigo Impact	no change	None, add additional disk	N/A
e0drg01 - CH XL	e0drg01-Origin 2000	Replace with Origin 2000	
e0drg02 - CH XL	e0drg02-Origin 2000	Replace with Origin 2000	
e0drg05 - CH XL			Move to e0wkg02
N/A	e0console1-new O2 WS	ADD	New purchase
e0spg01	no change	Upgrade in place	N/A
e0spg05	no change	Upgrade in place	N/A
e0wkg01	e0wkg02	Upgrade in place	N/A
N/A	e0wkg02 – CH XL	ADD name to baseline.	(future use) - reuse of e0drg05. Used for transition and then as B/U
g0acg01 - CH XL	g0acg01-Origin 2000	Replace with Origin 2000	Spare Challenge g0acg01 to GSFC g0icg01
g0acg05 - CH XL		Remove from baseline	Spare Challenge g0acg05 to GSFC g0icg02
g0drg01 - CH XL	g0drg01-Origin 2000 (Note this is g0drg07 temporarily for TS1 & TS2.)	Replace with Origin 2000	(future upgrade) Spare Challenge g0drg01 to I0icg01 in 2001
g0drg02 - CH XL	g0drg02-Origin 2000 (Note this is g0tmp02 temporarily for TS1 & TS2.)	Replace with Origin 2000	(future upgrade) Spare Challenge g0drg02 to I0icg02 in 2001
g0drg06	g0drg06	Upgrade in place	N/A
g0drg07 - CH XL		Remove from baseline	Move to n0icg01
g0icg01 - CH DM	g0icg01 –CH XL	Replace with XL (old g0acg01)	Move to g0aqq01
g0icg02 - CH DM	g0icg02 – CH XL	Replace with XL (old g0acg05)	Move to VATC as t1wkg02
g0aqq01 - CH S	g0aqq01-CH DM	Replace with CH DM (old g0icg01)	Move CH S to STOCK
g0aqq02 - Indigo Impact	no change	None, add additional disk	N/A
g0mog01	no change (Origin)	Upgrade in place	N/A (MODAPS)
g0spg01	no change	Upgrade in place	N/A
g0spg07	no change	Upgrade in place	N/A
g0spg10	no change (Origin)	ADD	N/A (Science processing)

Table 3.2-1. Hardware Movement Plan (3 of 3)

Current Host/Platform	Future Host/Platform	ACTION	Reuse/Spare
	g0console1-INDY	ADD	reuse EIN 1241 - g0teg01 and add console manager
	g0console2-INDY	ADD	reuse EIN 0758 - old wallace and add console manager
l0acg02 - CH XL	no change	None (disk only)	N/A
l0acg05 - CH XL	no change	None (disk only)	N/A
l0drg01	no change	Upgrade in place	N/A
l0drg03	no change	Upgrade in place	N/A
l0icg01 - CH DM	no change	Upgrade in place	To be upgraded to power challenge in 2001 from the old g0drg01 (future upgrade)
l0icg02 - CH DM	no change	Upgrade in place	To be upgrade to power challenge in 2001 from the old g0drg02 (future upgrade)
l0spg01	no change	Upgrade in place	N/A
l0spg05	no change	Upgrade in place	N/A
l0spg06	no change	Upgrade in place	N/A
l0spg10	Origin	ADD	N/A
l0aag01 -Indigo Impact	no change	None, add additional disk	N/A
l0aag02 - CH S	no change	Upgrade in place	(future upgrade) from old l0icg01 in 2001
	l0console1	ADD	New console manager
	l0console2	ADD	New console manager
n0acg01 - CH XL	no change	Upgrade in place	N/A
n0acg02 - CH XL	no change	Upgrade in place	N/A
n0drg01	no change	Upgrade in place	N/A
n0drg02	no change	Upgrade in place	N/A
n0icg01 – CH DM	n0icg01-CH XL Temporarily n0icg02	Replace with XL (old g0drg07)	FROM GSFC Move to n0aag01
n0spg03	no change	Upgrade in place	N/A
n0aag02 -Indigo Impact	no change	None	N/A
n0aag01 - CH S	n0aag01-CH DM	Replace with CH DM (n0icg01)	Move CH S to stock
	n0console1	ADD	New console manager

Where machines are replaced during the transition, the old and new machine names are switched so that, after transition, no machine names have changed. Table 3.2-2 provides the plan for machine renaming through the transition. A machine name change means that the new name is configured in NIS and DNS, and is on the local disk of the machine. The word “same” in Table 3.2-2 indicates the name is equal to the last name used in that row.

Table 3.2-2. Machine Renaming Plan (1 of 3)

Original name	Changes before first downtime	Changes after first downtime	Final changes	Notes
n0icg01	same	n0icg02	n0aqq01	
g0drg07	n0icg02	n0icg01	same	Becomes primary icg box
n0acg01	same	n0acg02	same	
n0acg02	same	n0acg01	same	Becomes primary acg box
n0drg01	same	n0drg02	same	
n0drg02	same	n0drg01	same	Becomes primary drg box
n0spg03				No replacement machines
n0aqq01			to stock	
n0aqq02				
n0console1				
g0icg01	same	g0aqq01	same	
g0icg02	tbd (switch off)	same	ship to landover	
g0acg01	Same	g0acg05	g0icg01	Becomes primary icg box
g0acg05	g0icg02	same	same	Becomes secondary icg box
origin1	g0acg05	g0acg01	same	Becomes primary acg box
g0drg01	Same	g0drg07	to stock	
g0drg02	Same	g0tmp02	to stock	
g0drg06	Same	same	same	Performance Monitor
g0drg07	ship to nsidc			
origin2	g0drg07	g0drg01	same	Becomes first primary drg box
origin3	g0tmp02	g0drg02	same	Becomes second primary drg box

Table 3.2-2. Machine Renaming Plan (2 of 3)

Original name	Changes before first downtime	Changes after first downtime	Final changes	Notes
g0spg01				No replacement machines. Can upgrade g0aqq02 now.
g0spg07				
g0spg10				
g0aqq01			to stock	
g0aqq02				
g0teg01	g0console1	same	same	
wallace	g0console2	same	same	
g0mog01				
e0icg01	same	e0icg02	e0aqq01	
e0icg02	ship to landover			
e0acg01	same	e0acg02	e0icg02	
e0acg02	tbd	e0icg01	same	Becomes primary icg box
origin1	e0acg02	e0acg01	same	Becomes primary acg box
e0drg01	same	e0drg05	to stock?	
e0drg02	same	e0drg??	to stock?	
e0drg05	same	e0wkg01	same	Becomes primary wkg box
origin2	e0drg??	e0drg01	same	Becomes first primary drg box
origin3	e0drg??	e0drg02	same	Becomes second primary drg box
e0wkg01	same	e0wkg02	same	
e0spg01				No replacement machines
e0spg05				
e0aqq01			to stock	
e0aqq02				
e0console1				
l0icg01				No replacement machines at LaRC
l0icg02				
l0acg02				
l0acg05				
l0drg01				

Table 3.2-2. Machine Renaming Plan (3 of 3)

Original name	Changes before first downtime	Changes after first downtime	Final changes	Notes
l0drg03				
l0spg01				
l0spg05				
l0spg06				
l0spg10				
l0aqq01				
l0aqq02				
l0console1				
l0console2				

3.3 General Sequence of Events at a DAAC

Note that the following procedure will be much simplified for LaRC, where no replacement machines are planned.

3.3.1 GOALS

1. Complete NSIDC and GSFC transition in order to support MOSS 3.
2. Minimize downtime.
3. At all times, keep SDSRV database and archive and AMASS databases in sync for all modes for both DRG and ACG hosts.
4. Maintain original plan for machine movement within and between DAACs.
5. End transition with original hosts names and sybase server names to minimize documentation changes and confusion.
6. Break task into manageable parts that allow for common procedures.
7. Provide SSIT mode for early work on IRIX 6.5 PGEs.
8. Provide easy Rollback method.

3.3.2 PRE- TRANSITION ACTIVITES

1. Receive additional hosts, add to floor, cable to network, and burn in. Update NIS, DNS, DCE. (Completed)
2. Receive additional RAID for certain hosts and additional disks for cloning and install. Install replacement / additional disks on MSS file server.
3. Ensure Sybase is setup to use XLV on hosts which share raid. Make sure Sybase is installed on RAID (Completed).
4. Perform following COTS upgrades needed prior to IRIX upgrade:
 - a. Legato 5.5.1 on all boxes (needed as safety net for recovery during transition). Legato Networker Server installation on Solaris needs to occur prior to upgrade of SGI Clients.
5. The following COTS may be installed prior to IRIX 6.5 upgrade or may be installed on each host when the IRIX 6.5 OS is installed (Some of these will not be PSRed until Aug 24.):
 - a) SGI DG RAID Firmware Upgrade
 - b) Tripwire 1.3
 - c) Secure Shell 1.3.7 and 2.0.13 and TCP Wrappers 7.6
 - d) Clearcase 3.2.1 on Sun and SGI 6.5 (not 6.2)
 - e) AMASS 4.12.3
 - f) Set up an IRIX 6.5 directory on the automount server containing:
 - i) Sybase Open Client 12.0, Purify 4.5, and Acrobat 4.05
 - ii) IRIX 6.5 versions of Netscape Communicator 4.7, Tcl/Tk 8.0_PL_4, and Perl 5.005-03
 - g) Install the IRIX 6.5 SGI FlexLM license servers at EDC, LaRC and GSFC to provide a redundant SGI FLEXlm license servers configuration (3 required) at these DAACs.
6. Setup the Console Manager to be the Distribution Host (Landover to provide the Distribution and directions for use with the IRIX 6.5 PSR documentation.).
7. After the IRIX 6.5 PSR install IRIX 6.5 using the distribution on the replacement machines at EDC, NSIDC and GSFC. Install other COTS products required on these hosts (Anlpassword, Tivoli) and remove the DCE Cell Manager.
8. Modify the text of the email sent to External Users of FtpPulls to include directions on how to access their pulled data between now and completion of the OPS Mode transition. (Allows us to change host names for ACG hosts at any time.)

9. Edit the etc file that contains mount points to include both the old and new hosts. At this time comment out the new mount. (Mount points will be commented in and out during transition activities as needed.)
10. Prepare machines such that the names conform to the “Changes before first downtime” column of table 3.2-2.
11. Add machines in the configuration registry database so that all machines where code will execute have a branch in the database.
12. Landover should deliver the IRIX 6.5 toolkit and Science Processing packages from 5B.03 to DAACs ASAP. (To support early work on SSIT.)
13. Start to create processing plans that only use only the SPG hosts that will not be upgraded to IRIX 6.5 prior to transition.
14. After processing has completed on a specific SPG host no longer planned to be utilized in the transition, take that SPG host offline and upgrade it to IRIX 6.5 and COTS products (IMSL, IDL, and Clearcase).
15. On SPG hosts where IRIX 6.5 is installed, install IRIX 6.5 toolkit and Science Processing package and configure them for operation.
16. In the SSIT test mode re-configure PDPS to use only the new IRIX 6.5 upgraded SPG host. – Begin SSIT work and test PGEs using all IRIX 6.2 code except SPG.
17. Upgrade AQG host(s) to IRIX 6.5 – Install License Server on AQG02.

3.3.3 TRANSITION ACTIVITIES:

(Total DAAC transition time from here is 15 days)

Start of first DAAC downtime:

(Estimated downtime after quiese – Approximately 14- 18 hours – longest time is database dump and loads.)

Goal of this downtime is to move the databases, rename machines, and clone disks and setup appropriate mount points for transition.

1. Stop all 3 modes, – (1 hour). No need to quiese except for 8MM distributions.

2. Dump all databases (SGI and SUN). Sun database dumps only needed, if rollback required. – 4 to 6 hours.
3. For each SGI Challenge host that is being replaced with another Challenge host, do the following: - (Additional 2 hours – can do all machines while SDSRV database is being dumped except acg01.)
 - a. Clone the root and data1 disk using 4 and/or 9 Gig disks.
 - b. Pullout the original root and data1 disk and set aside. (These disks are to be used for rollback and can be recycled to another DAAC or back to Landover after transition is completed.)
 - c. Put the cloned disks in the machine and boot machine to verify clone was completed correctly.
 - d. Unconfigure the host from DCE.
 - e. Use another set of disks (appropriate sizes) and re-clone the root and data1 disk (to be used in new IRIX 6.5 host).
 - f. On original host change the host name and IP address (be sure to take care of mount points on all client hosts.) For example change n0drg01 to n0drg02.
 - g. Put cloned disks in new host and boot the host to verify the clone is successful.
 - h. Configure the old host with new name into DCE. This includes using ECS Assist to re-make CDS entries and Keyfiles before starting Custom Code.
 - i. For all hosts, use the second set of cloned disks in the new host and via the Distribution host upgrade the new host to IRIX 6.5. Since we are using cloned disks the new hosts will have the old hosts names (for example icg01 or acg01 or wkg01).
 - j. Install the COTS products on the upgraded hosts including sybase and/or sqs and remove the DCE Cell Manager.
4. For challenge hosts that are being replaced with Origins (EDC and GSFC only) do the following: (same 2 hours)
 - a. Clone the root and data1 disk using 4 and/or 9 Gig disks.
 - b. Pullout the original root and data1 disk and set aside. (These disks are to be used for rollback.)

- c. Put the cloned disks in the machine and boot machine to verify clone was completed correctly.
 - d. Unconfigure the host from DCE.
 - e. On Challenge host change the host name and IP address (be sure to take care of mount points on all client hosts.) For example change e0drg01 to e0drg05.
 - f. Configure the old host with new name into DCE. This includes using ECS Assist to re-make CDS entries and Keyfiles before starting Custom Code.
5. Uncomment the appropriate mount points on all hosts and their clients. Mount points for all IRIX 6.5 hosts will be commented out until they are upgraded.
 6. Configure sybase on new hosts; use XLVs appropriately named for IRIX 6.5 (30 minutes).
 7. Load SDSRV and STMGT database on the new acg01 host and Registry and Ingest database for all 3 modes on the new icg01 host. – 4 – 6 hours
 8. Setup anonymous ftp on new acg host.
 9. Update the Registry database with new hosts names where appropriate. (Ingest polling directories) – 30 minutes
 10. Using the cdsbrowser, clean up any cds entries for hosts whose names have changed.
 11. Warm start all servers for all modes and perform brief checkout to verify mount points and database availability. – Checkout at a minimum includes (2 hours)
 - a. Running a pge
 - b. Doing Polling and Auto Ingest
 - c. Doing FtpPush acquire with and without browse. (For EDC also L7 acquires)
 - d. Doing and FtpPull acquires
 - e. Using the Registry GUI (to verify Registry database)
 - f. Bring up and use the DDIST, SDSRV, INGEST, and STMGT GUIs and monitor activities.

End of first DAAC downtime. Site is now back operational and using new IRIX 6.5 hosts for databases only.

Beginning of Test Mode (TS2 or TS1) Transition of Custom Code: (Following can be done while DAAC is operational)

1. SPG Host upgrade and checkout (2 –3 days):
 - a. Configure PDPS to use previously upgraded SPG host (No code install required. – Requires simple reconfiguration in registry and SSIT).
 - b. Verify appropriate mount points.
 - c. Perform a brief checkout running appropriate PGEs.
2. ICG01 host upgrade and checkout (2 days):
 - a. Install IRIX 6.5 code on icg01 host (reconfigure with new host name in registry database for polling directories and change sybase open client.) This includes making new CDS entries and removing old CDS entries.
 - b. Ensure mount points are correct to use icg01 host and clients.
 - c. Setup appropriate polling directories on new host if required (NFS mounts).
 - d. Checkout Registry Server Code.
 - e. Checkout appropriate ingest via polling and via Auto at EDC.
3. At EDC Only – Upgrade WKG01 – (1 day):
 - a. Install Custom code on new wkg01.
 - b. Verify appropriate mount points.
 - c. Checkout by performing L7 fixed and floating scene acquires.
4. At DAAC where browse is not in AMASS (GSFC, NSIDC) (1 day):
 - a. Install custom code on new ACG01 host.
 - b. Setup polling directories and pull area.
 - c. Verify mount points for host and clients.

- d. Checkout by performing polling and ingest and acquires with browse data.
 - e. Checkout performing FtpPulls.
5. At DAAC where browse is in AMASS (EDC) (Same 1 day):
- a. Install custom code on new ACG01 host.
 - b. Setup new polling directories and pull area.
 - c. Verify mount points for host and clients.
 - d. Checkout performing FtpPulls.
 - e. Perform acquires that include browse data.
 - f. Ingest data with no associated browse.

Beginning of second DAAC Downtime. (Total Downtime approximately 9 – 12 hours)

Goal of this downtime is to move AMASS for all Modes and to transition OPS MODE. Transient data areas (staging disk, Ingest polling directories, user pull area, and read-only cache) also move during this downtime.

1. Quiese OPS mode and stop test modes.
2. Dump AMASS databases from old hosts and load on new hosts (DRG01, DRG02, and ACG01 (where needed.) (30 minutes).
3. Install Custom Code for Test mode only on DRG host(s) (30 minutes).
4. Checkout by performing Ingest that includes browse (at EDC) (15 minutes).
5. Checkout by performing appropriate ftp push and pull acquires (15 minutes)
This concludes the checkout of the Test Mode install. Immediately proceed with OPS install.

OPS MODE Install and Checkout:

1. Upgrade remaining SPG hosts to IRIX 6.5 (1 hour).
2. Install Custom Code for OPS mode on all new IRIX hosts (1 hour).

3. Verify all appropriate mount points (1 hour).
4. Update Registry with original host names (30 Minutes).
5. Setup anonymous ftp on acg01 (30 minutes).
6. Cold Start STMGT (except Pull Monitor) and INGEST (except Polling), DDIST, SDSRV Servers and Warm start rest of servers in mode and perform checkout (2 hours).
7. Return to Operations.

End of Second DAAC Downtime.

Continue Transition: (3 days total)

1. Reconfigure PDPS in test modes to use 2 IRIX 6.5 Science Processor hosts.
2. Checkout use on new Science Processor hosts.
3. Upgrade Remaining Test Mode and checkout (2 days).
4. Upgrade the Backup Hosts and replace the icg hosts with the Challenges released from acg, per the “final changes” column in table 3.2-2.
5. Cleanup fstab files for unneeded mount points.

3.3.4 Risks

1. Very aggressive schedule
2. No two environments the same
3. Minimal time for training DAAC personnel
4. Moving to OPS mode without testing in all three modes and with minimal checkout
5. Mount Points and registry changes can only be verified at the DAACs.

Risk Mitigators

1. Activities are being done to keep procedures generic where possible.

2. In the VATC, intention is to simulate at least one transition of each “type”.
3. Landover (EDF) to send personnel to DAACs to support DAAC transition.
4. By changing host names early there is time to work out any mount point problems and because we simply use two host names for each host, the new mount points are easily identified. (Example: for every drg01 mount point put in a drgxx mount point.)

4. Advanced Preparation Procedures

4.1 Scope

This section contains a number of procedures which can be done well in advance of formal transition operations. Formal transition operations is defined here as operations done in the first down time as well as activities just prior to the first down time. The advanced preparation procedures include PGE transition activities, XLV installs, mount point preparations, configuration file (including registry file) preparations, and certain COTS upgrades (see Table 3.1-1 -- Products to be upgraded before IRIX 6.5 -- of the OS Upgrade Plan – 223-WP-001-003). A verification check list is provided in this section as a guide to Operations to verify readiness for formal transition.

4.2 PGE Preparations

In advance of the IRIX 6.5 upgrade, each DAAC must choose its preferred approach for continuing science data processing production operations:

Planning

- 1) Because IRIX 6.5 supports backward binary compatibility, PGEs already built on the IRIX 6.2 host that are operational at the DAAC may run in the IRIX 6.5 environment without re-building. For the DAAC to run already-IRIX 6.2-built PGEs in the IRIX 6.5 environment, all executable elements must be consistent. That is, the PGE is built and statically linked with the libraries it requires on the IRIX 6.2 host: SDST Toolkit and MAPI for MODIS, the SDP Toolkit and HDF-EOS libraries. 64-bit IMSL-dependent PGEs statically linked to IMSL on the IRIX 6.2 host are supported under IRIX 6.5.
- 2) A DAAC may prefer to re-build all production PGEs under IRIX 6.5; exercise a nominal SSI&T period; then introduce the re-built PGEs into production. Production would necessarily stop from the time the DAAC upgrades the operational environment to IRIX 6.5 until readiness to promote the rebuilt (under IRIX 6.5) and SSI&T'd PGEs. In this case, each DAAC must plan an SSI&T period prior to the IRIX upgrade. IMSL-dependent PGEs using the 32-bit ABI must be rebuilt with the new 64-bit ABI.

Limitations

Exceptions/limitations affecting the DAAC's transition approach for their IRIX 6.2-operational PGEs are:

- An n32-bit PGE with IMSL dependencies, built on the IRIX 6.2 host will NOT run in the IRIX 6.5 environment (e.g., MISR PGE07, ASTER DST)

(A 64-bit PGE with IMSL dependencies (statically linked) built on the IRIX 6.2 host, such as MODIS PGE01, will run in the IRIX 6.5 environment.)

- The 64-bit version of a PGE (e.g., ASTER ACVS PGE) which has a Sybase dependency and is built on the IRIX 6.2 host will NOT run in the IRIX 6.5 environment with Sybase Open Client Version 12. Sybase Open Client Version 12 supports 32-bit mode only. (Sybase vendor Case Number 10654720).

Run-time Environment

Before running PGEs in PDPS, each DAAC should ensure that the following run-time environment variables are set properly:

\$PGSHOME

\$LM_LICENSE_FILE – IMSL library license

\$PATH (in current .Profile) includes a path:

\$PGSHOME/bin/sgi64_daac_f77 or \$PGSHOME/bin/sgi32_daac_f77

(Reference: NCR - ECSed27924)

ECS Testing Performed for Risk Mitigation

To mitigate the technical and schedule risk of the IRIX 6.5 upgrade for DAAC SSI&T, ECS has performed a number of tests:

ECS has run already-built (under IRIX 6.2) versions of the following PGEs in the IRIX 6.5 environment. Command line runs and representative sample runs within PDPS have been successful:

DPREP (n32-bit)

MODIS PGE01 (64-bit with IMSL dependency)

MODIS PGE02 (n32-bit)

ASTER ACVS (n32-bit)
ASTER BTS (n32-bit)
ASTER ETS (n32-bit)
ASTER ACT (n32-bit)

ECS has rebuilt and completed command line runs successfully in the IRIX 6.5 environment in 64-bit mode for those MODIS and ASTER PGEs which call IMSL routines (MODIS PGE01, ASTER DST). ECS has also rebuilt in 64-bit mode and successfully completed command line runs for additional ASTER PGEs that do not have the IMSL dependency (BTS, ETS and ACT). ECS has rebuilt in the IRIX 6.5 environment other n32-bit MODIS PGEs which do not have the IMSL dependency, such as MODIS PGE02 and MODIS PGE03. These have been successfully executed from the command line.

AIRS PGEs (v. 1.6) have all been built and successfully run from the command line on both the IRIX 6.2 host and on the IRIX 6.5 host. AIRS PGEs have no IMSL dependencies. All AIRS PGEs built on the IRIX 6.2 host have run within PDPS in the IRIX 6.2 environment.

It is our understanding that MISR is eliminating dependencies on IMSL and planning to run PGEs that have been built in n32-bit mode under IRIX 6.5.

4.3 XLV Installs

The SGI RAID devices should all be using logical volumes to allow automatic migration of the “luns” in the event of a storage processor failure. To ensure all RAID devices are being used in this manner, map each device to the xlv. The following instructions will assist in this process:

1. Switch to root user
2. From the system prompt, execute the command
hinv | grep Raid
3. Identify the controller, the unit, and the lun numbers for each device (remember that lun 0 is the default and will not be displayed. For example: RAID lun: unit 2, lun 3 on SCSI controller 42 would be equate to the device file **dk42d213**)
4. For each device, use fx to determine the number of slices on the disks. There will be a device for each slice on the drive. For example: if there are 2 slices on the drive s0 and s1, the devices would be **dk42d213s0** and **dk42d213s1**.
5. To show a list of all devices that are configured as xlv, execute the command:
xlv_mgr -c 'show -long all' |more

6. Match each xlv to the device. There should be an item that matches each device on the RAID that is in use by the system. If there is not an xlv name in the volume manager list, determine first if the slice is in use by the system. Convert each slice in use to an xlv or a rxlv before the upgrade or hardware transition of the system.
7. If it is being used by Sybase and the xlv is not present, use the instructions provided in **Section 9** to convert the slices to rxlv.

Note: This is very important since IRIX 6.2 uses the device name path /dev/rdisk/xlv and IRIX 6.5.x uses /dev/rxlv for the same device.
boot to IRIX v6.5.6)

4.4 Mount Point Preparations

The DAAC should do an independent check on mount points with the baseline mount point map provided in the mount point baseline document 920-TDx-008 for the IRIX 6.5 transition. This check should be done by an independent party from the personnel who made the mount point changes for the transition. Mount points will be commented in and out during transition activities as needed. The check should make sure that all mount points needed during the transition (for old to new, new to old, and new to new machines) are present and commented out.

4.5 Configuration File Preparations

Registry patch files will be provided by ECS Landover to make all the registry parameter changes needed. There will be one patch for each machine upgrade, unless no changes are needed (there are no changes for the DRGs). The patches will take care of machine renaming within registry parameters, as well as changes needed for IRIX 6.5.

4.6 License Server Preparations

FLEXlm license servers utilized by several COTS vendors to manage licenses for their products. In ECS, SGI FLEXlm Servers manage SGI Compilers and ProDev Workshop licenses. These are the only COTS products that could have potential license availability issues directly related to the IRIX 6.5 Operating System Upgrade/PSR. The ECS FLEXlm redundant license server configurations as identified in the FLEXlm Maintenance Upgrade for the ECS Project Version 6.1 (914-TDA-065) PSR document, will enable one or even two of the SGI FLEXlm License Servers to be brought down for IRIX 6.5 upgrade without impact to accessibility of SGI Compilers and ProDev.

There have been changes in the SGI License Server baseline since the FLEXlm Maintenance Upgrade for the ECS Project Version 6.1 document was issued. Consult the Infrastructure

Baseline documents (910-TDx-003 series) or the HW/SW maps (920-TDx-002 series) for the IRIX 6.5 Transition baseline for SGI FLEXlm License Server.

As indicated in the FLEXlm Maintenance Upgrade for the ECS Project Version 6.1 (914-TDA-065) PSR document, a copy of the current SGI FLEXlm **license.dat** file should be made before preceding with the IRIX 6.5 OS upgrade. Rekeying of the license data may be needed unless this step is performed. The license allocations per DAAC will be the same as for IRIX 6.2, so there should be no changes necessary to this file. This file for SGIs should be located in the /var/flexlm directory.

If the ECS baseline for the SGI FLEXlm license servers is a redundant 3-server configuration, fail-over of the license server function to one of the other identified license servers will occur should one or even two of the license servers go down or need to be brought down for upgrade. It has been assumed that all DAACs have currently implemented a redundant FLEXlm License Server configuration. If all SGI FLEXlm license servers are currently configured in the baselined 3 redundant server configuration prior to the Transition and there are no changes in the actual hardware of the SGI FLEXlm license servers, there should be minimal to no impact with access to the licenses managed by the SGI FLEXlm License servers, provided at least one of the redundant FLEXlm Servers remains up at any one time. The ECS FLEXlm redundant file server configuration is explained briefly below as a reference. A section on processes to be considered if there are changes to the SGI FLEXlm license server hosts and/or hardware changes to the FLEXlm license server, both of which impact the keys for the redundant FLEXlm License Servers, follows as a reference.

ECS FLEXlm Redundant License Server Configuration

A redundant server configuration requires a key that specifies ALL THREE redundant license servers to each FLEXlm License Server. It is this special key that “enables” the license servers to failover if one or more of the license servers fail or are brought down. If three SGI FLEXlm License servers have not been installed and configured utilizing a redundant server license key, SGI compilers and ProDev license availability will be impacted during the period the specific single license server is “down”.

SGI FLEXlm License Server Reconfiguration Notes

The following notes are generic (not DAAC-specific) that should be considered if one of the following will occur at your DAAC.

- One or more actual license servers change, i.e., g0drg07 (one of the IRIX 6.2 redundant license servers) is being removed and a new third license server needs to be specified. G0spg01 has been baselined as the Post-Transition third SGI FLEXlm server.
- The baselined SGI FLEXlm License Server remains the same, but the actual hardware platform changes, i.e., becomes an Origin instead of a Challenge XL. The hardware

change would require a new set of FLEXlm keys for all three license servers as the keys are based on IDs generated by the specific hw of host, such as sysinfo command.

SGI License Server Impacts

If there will be a change to the baselined FLEXlm License Server or the actual hardware of the FLElm license server, the following should be considered in reconfiguring the SGI redundant license servers. The actual steps taken may depend on the specific Transition sequence utilized at the specific DAAC.

1. Make copy of the current license.dat file. These should be the same for all servers in a redundant license server configuration. This file will assist with avoiding rekeying the license allocation data. The actual license allocation should remain the same at each DAAC for IRIX 6.5 as it was for IRIX 6.2.
2. Identify the SGI FLEXlm license servers that will be the SGI FLEXlm License Servers and obtain the redundant server keys for this IRIX 6.5 group of SGI FLEXlm License Servers. Contact Robin Castle (301 925-0726/rcastle@eos.hitc.com) or Jan Fisher (301 925-0718/jfisher@eos.hitc.com) to obtain license keys.
3. Install FLEXlm on these servers as part of the IRIX 6.5 OS upgrade.
 - a. Install redundant server key.
 - b. Copy saved license.dat file to /var/flexlm directory
4. If old SGI FLEXlm license servers are no longer needed and are not immediately being repartitioned for use as another host type, uninstall FLEXlm as specified in SGI FLEXlm Uninstall Technical Directive.
5. Start FLEXlm as specified in FLEXlm Maintenance Upgrade for the ECS Project Version 6.1.
6. If a temporary SGI FLEXlm license server (single or redundant (3)) is needed because of the sequence of the DAAC transition or other reason, contact Robin Castle (301 925-0726/rcastle@eos.hitc.com) or Jan Fisher (301 925-0718/jfisher@eos.hitc.com) to obtain temporary license keys for use until the Transition SGI FLEXlm license servers are configured/available.

4.7 Checklist for Transition Start

Table 4.7-1 states the entry criteria for the first downtime of the IRIX upgrade.

Table 4.7-1 Checklist (1 of 2)

1	Have machine names been prepared in accordance with the “Changes before first downtime” column in Table 3.2-2?
2	Has Legato 5.5-1 been installed and tested?
3	Have all PGE preparations including SSI&T activities been completed?
4	Has the user pull area e-mail notification message been amended to specify the machine names hosting the new and old pull areas? Have users had sufficient notice?
5	Is Sybase set up to use XLV on all hosts that share RAID?
6	Is the IRIX 6.5 directory on the automount server complete and correct?
7	Have mount points been set up (commented out) in preparation for the replacement machines?
8	Has there been an independent check on mount points with the baseline?
9	Are replacement machines entered correctly in the site map?
10	Are replacement machines up to baseline for all relevant baseline documents: 911-TDA-005 IRIX Patch List 920-TDx-001 HW Diagrams for each DAAC 920-TDx-002 HW-SW Maps for each DAAC 920-TDx-003 System Infrastructure 920-TDx-004 Floor Plans for each DAAC 920-TDx-008 Mount Points for each DAAC 920-TDx-009 HW-Database Maps for each DAAC 920-TDx-014 HW-Patch Maps for each DAAC 920-TDx-016 SGI UNIX Kernel Configuration for each DAAC 920-TDx-018 Host Memory for each DAAC 921-TDx-002 HW Network Diagrams 921-TDx-003 Host IP Assignments 921-TDx-006 Ingest Host Static Routes 922-TDx-0yy Disk Partitioning Configurations at each DAAC 923-TDx-00y Primary DNS B/L Document at each DAAC

Table 4.7-1 Checklist (2 of 2)

11	Does the transition crew have complete and correct instructions for all steps of the downtime, including rollback?
12	

5. Install OS and COTS

Chapter 5 contains tables showing the process checklist for the installation and upgrade of the IRIX 6.5 OS and COTS. Each step also indicates any License impact. Some prerequisites are identified in the tables below. Additional prerequisites related to an individual COTS product are identified in the PSR for the specific COTS product.

As identified in the Transition Sequence Overview, certain Pre-transition activities are required for the IRIX 6.5 Transition to be successfully completed. Installation of OS and COTS are part of the Pre-Transition activities. Additional Pre-Transition activities are required in addition to the OS and COTS installations. Follow the sequence of activities in Transition Sequence Overview, in addition to the activities listed in the tables below.

These tables are as follows:

- Table 5-1. COTS Upgrade Installation Sequence Reference
- Table 5-2. ACG Upgrade OS and COTS Process
- Table 5-3. ACG New Install OS and COTS Process
- Table 5-4. SPG Upgrade OS and COTS Process
- Table 5-5. SPG New Install OS and COTS Process
- Table 5-6. DRG Upgrade OS and COTS Process
- Table 5-7. DRG New Install OS and COTS Process
- Table 5-8. ICG Upgrade OS and COTS Process
- Table 5-9. WKG Upgrade OS and COTS Process
- Table 5-10. AQG New Install OS and COTS Process

A complete list of the IRIX 6.5 COTS as Pre-Transition and Transition activities is provided in the following COTS Installation Sequence Reference Table 5-1. New installations should follow the sequence provided in appropriate NEW installation tables identified previously for the specific host type. COTS that are automounted can be installed (on the automount server) prior to the 6.5 upgrade. These COTS are Purify, Netscape Comm, Acrobat, Perl, OpenClient and TCL/tk.

Note: When creating the new automounter architecture for IRIX6.5 for /tools/bin, /tools/lib, /tools/tcl, etc, etc., do NOT just link to the irix6.2 directory. Instead, create the Irix 6.5 directory, copy the Irix6.2 directory to it, then upgrade Purify, Netscape Comm, Acrobat, Perl, tcl/tk, and OpenClient.

For instance:

```
# ypmatch bin auto.tools
-rw,intr,vers=$VERS g0mss10.gsfc.nasa.gov:/automnt/tools/bin/$ARCH
```

```
# cd /net/g0mss10/automnt/tools/bin
# ls -l
drwxr-x-r-x  6 root  sys   1536 Jul 11 08:01 hpux10/
drwxr-x-r-x  8 root  sys   1536 Jul 11 08:00 irix6.2/
drwxr-x-r-x  1 root  other    7 Jul 11 13:25 irix6.5 -> irix6.2/
drwxr-x-r-x 12 root  sys   2048 Jul 25 13:57 sun5.5
drwxr-x-r-x  6 root  sys   1024 Feb 23 2000 sun5.6
```

The above softlink from irix6.5 to irix6.2 will inevitably cause problems, for example when ECS Assist (EcCoCdsMgr, etc) runs, and when SGI servers try to find Sybase OpenClient 12.0. Irix6.2 and Irix6.5 architecture directories must be unique and under no circumstances are to be linked via softlink.

Table 5-1. COTS Upgrade Installation Sequence Reference (1 of 2)

Pre-Transition COTS Installations	License Impact	Install Sequence Prerequisite/Comment
Acrobat Reader 4.05	None	Install as soon as PSR released. COTS is automounted and installation supports Pre-Transition installation.
AMASS 4.12.3	New license keys required. Provided with PSR. Contact License Administration at 301 925-0726 or 0718 for license keys, if problem.	Install as soon as PSR released. Compatible with IRIX 6.2 as well as 6.5.
ClearCase 3.2.1 for Solaris only	Same license keys as previous version. Contact License Administration at 301 925-0726 or 0718 for license keys, if problem.	Install Solaris Server and Clients prior to IRIX 6.5 OS upgrade. ClearCase IRIX Clients are Post IRIX 6.5 OS installation.
DG RAID/Firmware Upgrade	None	Install as soon as PSR released. Compatible with IRIX 6.2 as well as 6.5.
Legato Networker 5.5.1	Upgrade license impact only for Sun Server. Contact License Administration at 301 925-0726 or 0718 for these keys. New SGI HW additions/removals will require Legato Networker registration changes per PSR.	Install as soon as PSR released. Install Solaris Server prior to upgrading any clients. Upgrade Solaris, HP and IRIX 6.2 clients prior to IRIX 6.5 upgrade. Compatible with IRIX 6.2 as well as 6.5.
Netscape Communicator for IRIX 6.5	None	Install as soon as PSR released. COTS is automounted and installation supports Pre-Transition installation.
Perl for IRIX 6.5	None	Install as soon as PSR released. COTS is automounted and installation supports Pre-Transition installation.
Purify 4.5 for IRIX 6.5	None – license key will remain the same as previous version. Contact License Administration at 301 925-0726 or 0718 if assistance is needed.	Install as soon as PSR released. COTS is automounted and installation supports Pre-Transition installation.
Sybase OpenClient 12	None	Install as soon as PSR released. COTS is automounted and installation supports Pre-Transition installation, provided no attempt is made to run OpenClient 12.0.0 before IRIX 6.5 is installed. Some verification steps require IRIX 6.5 to be installed and will need to be performed after the first SGI host is upgraded to IRIX 6.5.

Table 5-1. COTS Upgrade Installation Sequence Reference (2 of 2)

Pre-Transition COTS Installations	License Impact	Install Sequence Prerequisite/Comment
Secure Shell/TCP Wrappers	None	Install as soon as PSR released. Compatible with IRIX 6.2 as well as 6.5.
TCL/tk for IRIX 6.5	None	Install as soon as PSR released. COTS is automounted on Sun & will not be "visible" to an IRIX host until IRIX 6.5.6 is actually installed.
Transition OS Installation	License Impact	Install Sequence Prerequisite/Comment
Irix 6.5	<p>None for the OS.</p> <p>If host is a baselined license server, and one or more of the 3 redundant servers changes, FLEXIm license keys that identify the 3 SGI FLEXIm redundant servers (in effect for IRIX 6.5) should be obtained from Software License Administration at 301 925-0726 or 0718. It is recommended that the keys be requested prior to beginning the OS upgrade.</p> <p>If new baselined FLEXIm license server refer to FLEXIm Maintenance Upgrade for the ECS Project PSR for additional details in configuration/administration of SGI FLEXIm servers.</p>	Installation of IRIX 6.5 must be completed before any of the following COTS products are installed.
Post OS Transition COTS Installation	License Impact	Install Sequence Prerequisite/Comment
IDL 5.3 for IRIX 6.5	New license keys required for upgrade. Contact License Administration at 301 925-0726 or 0718.	Post IRIX 6.5 OS Install
IMSL	License keys required. Contact License Administration at 301 925-0726 or 0718.	Post IRIX 6.5 OS Install
Tripwire for IRIX 6.5	None	Post IRIX 6.5 OS Install

Table 5-2. ACG Upgrade OS and COTS Process (1 of 3)

ACG Upgrade OS and COTS:	License Impact	Install Sequence Prerequisite
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline and the specific COTS Product PSR is the final OS/COTS configuration reference.</p>		
<p>Pre-Transition Installation Steps:</p>		
<ul style="list-style-type: none"> - Upgrade SCSI and Fiber Channel RAID and flash the RAID firmware as identified in <u>DG SCSI and Fiber Channel RAID 3.3 Software Upgrade for IRIX 6.x for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Pre OS Install
<ul style="list-style-type: none"> - Sun Legato Networker Server should be installed prior to upgrading the SGI Legato Networker client. Install Legato Networker Client for IRIX 6.5 as specified in <u>Legato Networker UNIX (5.5.1) Upgrade for the ECS Project PSR</u>. 	Upgrade license impact only for Sun Server. Contact License Administration at 301 925-0726 or 0718 for these keys. New SGI HW additions/removals will require Legato Networker registration changes per PSR.	<ul style="list-style-type: none"> • Pre OS Install
<ul style="list-style-type: none"> - Install TCL/Tk as specified in <u>Tool Command Language/Toolkit (TCL/Tk) IRIX 6.5 Upgrade for the ECS Project PSR</u> 	None	<ul style="list-style-type: none"> • Pre OS Install
<ul style="list-style-type: none"> - If host is the primary acg server, install ClearCase 3.2.1 on Sun Server/Clients as specified in the <u>ClearCase Version 3.2.1 for Sun/SGI Upgrade for ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Pre OS Install on Suns
<ul style="list-style-type: none"> - Install Secure Shell Commercial (levels 1 & 2) and TCP/Wrappers 7.6 as specified in <u>Secure Shell 2.0 for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Pre OS Install
<ul style="list-style-type: none"> - If primary acg server, Install AMASS 4.12.3 as specified in <u>AMASS 4.12.3 for the ECS Project PSR</u>. 	New license keys required. Provided with PSR. Contact License Administration at 301 925-0726 or 0718 for license keys, if problem occurs	<ul style="list-style-type: none"> • Obtain license key • Pre OS Install

Table 5-2. ACG Upgrade OS and COTS Process (2 of 3)

ACG Upgrade OS and COTS:	License Impact	Install Sequence Prerequisite
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline and the specific COTS Product PSR is the final OS/COTS configuration reference.</p>		
<p>Transition OS Install</p>		
<p>Install IRIX 6.5/DCE Client as specified in <u>SGI IRIX 6.5.6 Operating System Upgrade for the ECS Project PSR</u> document:</p> <ul style="list-style-type: none"> - If HIPPI and BDS are baselined for host, confirm HIPPI /BDS installation (Y) when creating software profile or select as an optional software package. - If one or more SGI compilers are baselined for the host, confirm MIPSPro Compiler (Y) installation when creating software profile or select as an optional software package. - If host has been baselined as one of the 3 SGI FLEXlm License Servers, confirm FLEXlm Server installation when creating software profile or select as an optional software package. If new baselined FLEXlm license server refer to <u>FLEXlm Maintenance Upgrade for the ECS Project PSR</u> for additional details in configuration/administering. 	<p>None for the OS If host is a baselined license server, and one or more of the 3 redundant servers changes, FLEXlm license keys that identify the 3 SGI FLEXlm redundant servers (in effect for IRIX 6.5) should be obtained from Software License Administration at 301 925-0726 or 0718. It is recommended that the keys be requested prior to beginning the OS upgrade.</p>	<ul style="list-style-type: none"> • Prior to all new IRIX 6.5 only COTS installs • If new SGI FLEXlm Server, obtain new license key
<p>Transition Post-OS COTS Installs:</p>		
<ul style="list-style-type: none"> - If host is the primary acg server, install ClearCase 3.2.1 on SGI clients as specified in the <u>ClearCase Version 3.2.1 for Sun/SGI Upgrade for ECS Project PSR</u>. 	<p>None</p>	<ul style="list-style-type: none"> • Post Sun Server Install • Post-OS install •
<ul style="list-style-type: none"> - Install Sybase Open Client 12.0.0 as specified in <u>Sybase Open Client Maintenance Upgrade for SGI for the ECS Project PSR</u>. 	<p>None</p>	<ul style="list-style-type: none"> • Post OS install • Pre-Custom Code Install
<ul style="list-style-type: none"> - Install PERL for IRIX 6.5 as specified in <u>Perl IRIX 6.5 Upgrade for the ECS Project PSR</u> if this COTS has not been previously installed 	<p>None</p>	<ul style="list-style-type: none"> • Post OS install
<ul style="list-style-type: none"> - Install Tripwire for IRIX 6.5 as specified in <u>Tripwire 1.3 Upgrade for SGI IRIX 6.5 and the ECS Project PSR</u>. 	<p>None</p>	<ul style="list-style-type: none"> • Post OS install

Table 5-2. ACG Upgrade OS and COTS Process (3 of 3)

ACG Upgrade OS and COTS:	License Impact	Install Sequence Prerequisite
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline and the specific COTS Product PSR is the final OS/COTS configuration reference.</p>		
<p>Transition Post OS/COTS Installation Activities</p>		
<ul style="list-style-type: none"> - If host was baselined as FLEXIm Server, but is no longer baselined as a FLEXIm Server, uninstall FLEXIm as a server as specified in <u>Technical Directive 00-009</u> for Uninstallation of FLEXIm. - If DCE Cell Manager has not be uninstalled as specified by the SGI IRIX 6.5.6 Operating System Upgrade for the ECS Project PSR, uninstall as specified by <u>Technical Directive 00-006</u>. 	None	<ul style="list-style-type: none"> • OS or Post OS uninstall

Table 5-3. ACG New Install OS and COTS Process (1 of 3)

ACG New Install OS and COTS:	License Impact	Install Sequence Prerequisite
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.</p>		
<p>Pre-Transition Installation Steps (for Origin installation)</p>		
<ul style="list-style-type: none"> - Install IRIX 6.5, DCE Client, HIPPI & BDS and RAID software as specified in the <u>SGI IRIX 6.5.6 Operating System Upgrade for the ECS Project PSR</u> document:. - If SCSI or Fiber Channel RAID is baselined for host, confirm RAID 3.3 installation when creating software profile or select as an optional software package. If RAID firmware upgrade (flashing of the RAID) was not completed as a Pre-OS Upgrade, complete this process as specified in <u>DG SCSI and Fiber Channel RAID 3.3 Software Upgrade for IRIX 6.x for the ECS Project PSR</u>. - If HIPPI and BDS are baselined for host, confirm HIPPI /BDS installation when creating software profile or select as an optional software package. - If one or more SGI compilers are baselined for the host, confirm MIPSPro Compiler installation when creating software profile or select as an optional software package. Select the specific compilers baselined. - If machine has been baselined as one of the 3 SGI FLEXIm License Servers, confirm FLEXIm Server installation when creating software profile or select as an optional software package. If new baselined FLEXIm license server refer to <u>FLEXIm Maintenance Upgrade for the ECS Project PSR</u> for additional details in configuration/administering. 	<p>None for the OS If host is a baselined license server, and one or more of the 3 redundant servers changes or the HW implementation of the existing FLEXIm server changes, FLEXIm license keys that identify the 3 SGI FLEXIm redundant servers (in effect for IRIX 6.5) should be obtained from Software License Administration at 301 925-0726 or 0718. It is recommended that the keys be requested prior to beginning the OS upgrade.</p>	<ul style="list-style-type: none"> • Prior to COTS Install • If new SGI FLEXIm Server or new HW implementation, obtain new license keys.
<ul style="list-style-type: none"> - If acg host is primary acg server, install AMASS 4.12.3 as specified in <u>AMASS 4.12.3 for the ECS Project PSR</u>. 	<p>New license keys required. Provided with PSR. Contact License Administration at 301 925-0726 or 0718 for Sun license keys, if problem occurs.</p>	<ul style="list-style-type: none"> • Obtain license key • Pre OS Install
<ul style="list-style-type: none"> - Install Anlpassword as specified in the <u>Mission Operations Procedures (611-CD-004)</u> 	<p>None</p>	<ul style="list-style-type: none"> • Post OS Install

Table 5-3. ACG New Install OS and COTS Process (2 of 3)

ACG New Install OS and COTS:	License Impact	Install Sequence Prerequisite
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.</p>		
<ul style="list-style-type: none"> - If the primary acg server, install ClearCase 3.2.1 as specified in the <u>ClearCase Version 3.2.1 Sun/SGI Upgrade for ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Post OS Install • Post Sun Server Install
<ul style="list-style-type: none"> - Sun Legato Networker Server should be installed prior to upgrading the SGI Legato Networker client. Install Legato Networker Client for IRIX 6.5 as specified in <u>Legato Networker UNIX (5.5.1) Upgrade for the ECS Project PSR</u>. 	Upgrade license impact only for Sun Server. Contact License Administration at 301 925-0726 or 0718 for these keys. New SGI HW additions/removals will require Legato Networker registration changes per PSR.	<ul style="list-style-type: none"> • Post OS Install • Post Sun Legato Server Install
<ul style="list-style-type: none"> - Install Sybase Open Client 12.0.0 as specified in <u>Sybase Open Client Maintenance Upgrade for SGI for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Post OS Install • Pre-Custom Code Install
<ul style="list-style-type: none"> - Install PERL as specified in <u>Perl IRIX 6.5 Upgrade for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Post OS Install
<ul style="list-style-type: none"> - Install Sybase ASE/SQL Server Monitor Client/Server as specified in Sybase ASE 11.5.1 PSR for new installations. 	None (assuming license usage of existing host)	<ul style="list-style-type: none"> • Post OS Install
<ul style="list-style-type: none"> - After Sybase is successfully installed according to PSR for new Sybase ASE 11.5.1 installation, install SQS 3.2.2 as identified in <u>Procedures for the Transition of ECS into the IRIX 6.5 Environment</u>, latest version. 	None	<ul style="list-style-type: none"> • Post OS Install • Post Sybase ASE Install
<ul style="list-style-type: none"> - Install Secure Shell Commercial (levels 1 & 2) and TCP/Wrappers 7.6 for IRIX 6.5 as specified in <u>Secure Shell 2.0 (Secure Shell and TCP/Wrappers) for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Post OS Install
<ul style="list-style-type: none"> - Install TCL/Tk as specified in <u>Tool Command Language/Toolkit (TCL/Tk) IRIX 6.5 Upgrade for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Post OS Install

Table 5-3. ACG New Install OS and COTS Process (3 of 3)

ACG New Install OS and COTS:	License Impact	Install Sequence Prerequisite
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.</p>		
<ul style="list-style-type: none"> - Install Tivoli Client as specified in <u>Tivoli Management Environment Version 3.6 Upgrade for the ECS Project</u> PSR. 	None	<ul style="list-style-type: none"> • Post OS Install
<ul style="list-style-type: none"> - Install Tripwire for IRIX 6.5 as specified in <u>Tripwire 1.3 Upgrade for SGI IRIX 6.5 and the ECS Project</u> PSR. 	None	<ul style="list-style-type: none"> • Post OS Install

Table 5-4. SPG Upgrade OS and COTS Process (1 of 4)

SPG Upgrade OS and COTS:	License Impact	Install Sequence & Prerequisites
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.</p>		
<p>Pre-Transition Installation Steps:</p>		
<ul style="list-style-type: none"> - Upgrade SCSI and Fiber Channel RAID and flash the RAID firmware as identified in <u>DG SCSI and Fiber Channel RAID 3.3 Software Upgrade for IRIX 6.x for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Pre OS Install
<ul style="list-style-type: none"> - Install ClearCase 3.2.1 as specified in the <u>ClearCase Version 3.2.1 Sun/SGI Upgrade for ECS Project PSR on the Sun Server/Sun Clients</u>. 	None	<ul style="list-style-type: none"> • Pre OS Install • Pre SGI Client Install
<ul style="list-style-type: none"> - Sun Legato Networker Server should be installed prior to upgrading the SGI Legato Networker client. Install Legato Networker Client for IRIX 6.5 as specified in <u>Legato Networker UNIX (5.5.1) Upgrade for the ECS Project PSR</u>. 	Upgrade license impact only for Sun Server. Contact License Administration at 301 925-0726 or 0718 for these keys. New SGI HW additions/removals will require Legato Networker registration changes per PSR.	<ul style="list-style-type: none"> • Pre OS Install • Post Sun Server Install
<ul style="list-style-type: none"> - Install Secure Shell Commercial (levels 1 & 2) and TCP/Wrappers 7.6 for IRIX 6.5 as specified in <u>Secure Shell 2.0 (Secure Shell and TCP/Wrappers) for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Pre OS Install
<ul style="list-style-type: none"> - Install TCL/Tk as specified in <u>Tool Command Language/Toolkit (TCL/Tk) IRIX 6.5 Upgrade for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Pre-install or with OS Install
<p>Transition OS Install:</p>		

Table 5-4. SPG Upgrade OS and COTS Process (2 of 4)

SPG Upgrade OS and COTS:	License Impact	Install Sequence & Prerequisites
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.</p>		
<p>Install IRIX 6.5 as specified in the <u>SGI IRIX 6.5.6 Operating System Upgrade for the ECS Project PSR</u> document:</p> <ul style="list-style-type: none"> - If SCSI or Fiber Channel RAID is baselined for host, confirm RAID 3.3 installation when creating software profile or select as an optional software package. If RAID firmware upgrade (flashing of the RAID) was not completed as a Pre-OS Upgrade, complete this process as specified in <u>DG SCSI and Fiber Channel RAID 3.3 Software Upgrade for IRIX 6.x for the ECS Project PSR</u>. - If HIPPI and BDS are baselined for host, confirm HIPPI /BDS installation when creating software profile or select as an optional software package. - If one or more SGI compilers are baselined for the host, confirm MIPSPRO Compiler installation when creating software profile or select as an optional software package. Select the specific compilers baselined. - If machine has been baselined as one of the 3 SGI FLEXIm License Servers, confirm FLEXIm Server installation when creating software profile or select as an optional software package. If new baselined FLEXIm license server refer to <u>FLEXIm Maintenance Upgrade for the ECS Project PSR</u> for additional details in configuration/administering. - If host has previously been configured as a FLEXIm Server, and is being removed from the baseline as an SGI FLEXIm server, remove FLEXIm software following the instruction provided in the Technical Directive to Remove SGI FLEXIm Server software. This step is needed even if FLEXIm Server was not selected in the software profile selection. 	<p>None for the OS</p> <p>If host is a baselined FLEXIm license server, and one or more of the 3 SGI redundant FLEXIm License servers changes, FLEXIm license keys that identify the 3 SGI FLEXIm redundant servers (in effect for IRIX 6.5) should be obtained from Software License Administration at 301 925-0726 or 0718. It is recommended that the keys be requested prior to beginning the OS upgrade.</p>	<ul style="list-style-type: none"> • Prior to new COTS Install • If new SGI FLEXIm Server or new HW implementation, obtain new license keys.

Table 5-4. SPG Upgrade OS and COTS Process (3 of 4)

SPG Upgrade OS and COTS:	License Impact	Install Sequence & Prerequisites
The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.		
Post OS COTS Install:		
- Install ClearCase 3.2.1 as specified in the <u>ClearCase Version 3.2.1 Sun/SGI Upgrade for ECS Project PSR on SGI Clients</u> .	None	<ul style="list-style-type: none"> • Post OS Install • Post Sun Server Install
- Install IDL 5.3 as specified in <u>Interactive Data Language (IDL) Maintenance Upgrades for the ECS Project (SGI IRIX 6.5 Version 5.3 & Version 5.3.1 (PC)) PSR</u> .	New license keys required for upgrade. Contact License Administration at 301 925-0726 or 0718.	<ul style="list-style-type: none"> • Obtain new license keys • Post OS Install
- Install IMSL C and FORTRAN Numeric Libraries for IRIX 6.5 as specified in the <u>IMSL 64-bit 3.01 C and 4.01 Fortran Library Upgrade for Silicon Graphics Inc Platforms PSR</u> documentation.	License keys required. Contact License Administration at 301 925-0726 or 0718.	<ul style="list-style-type: none"> • Obtain new license keys • Post OS Install
- Install PERL with extensions for IRIX 6.5 as specified in <u>Perl IRIX 6.5 Upgrade for the ECS Project PSR</u> .	None	<ul style="list-style-type: none"> • Post OS Install
- Install Purify for IRIX 6.5 as specified in <u>Purify 4.5 for SGI IRIX 6.5 for the ECS Project PSR</u> .	None – license key will remain the same as previous version. Contact License Administration at 301 925-0726 or 0718 if assistance is needed.	<ul style="list-style-type: none"> • Post OS Install
- Install Sybase Open Client 12.0.0 as specified in <u>Sybase Open Client Maintenance Upgrade for SGI for the ECS Project PSR</u> .	None	<ul style="list-style-type: none"> • Post OS Install • Pre-Custom Code Install
- Install Tripwire for IRIX 6.5 as specified in <u>Tripwire 1.3 Upgrade for SGI IRIX 6.5 and the ECS Project PSR</u> .	None	<ul style="list-style-type: none"> • Post OS Install

Table 5-4. SPG Upgrade OS and COTS Process (4 of 4)

SPG Upgrade OS and COTS:	License Impact	Install Sequence & Prerequisites
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.</p>		
<p>Transition Post OS/COTS Installation Activities</p>		
<ul style="list-style-type: none"> - If host was baselined as FLEXIm Server, but is no longer baselined as a FLEXIm Server, uninstall FLEXIm as a server as specified in <u>Technical Directive 00-009</u> for Uninstallation of FLEXIm. - If DCE Cell Manager has not been uninstalled as specified by the <u>SGI IRIX 6.5.6 Operating System Upgrade for the ECS Project</u> PSR, uninstall as specified by <u>Technical Directive 00-006</u>. 	None	<ul style="list-style-type: none"> • OS or Post OS uninstall

Table 5-5. SPG New Install OS and COTS Process (1 of 3)

SPG New Install OS and COTS:	License Impact	Install Sequence Prerequisite
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.</p>		
<p>Pre-Transition Installation Steps (for Origin installation)</p>		
<ul style="list-style-type: none"> - Install IRIX 6.5, HIPPI & BDS and RAID software as specified in the <u>SGI IRIX 6.5.6 Operating System Upgrade for the ECS Project PSR</u> document: - If SCSI or Fiber Channel RAID is baselined for host, confirm RAID 3.3 installation when creating software profile or select as an optional software package. If RAID firmware upgrade (flashing of the RAID) was not completed as a Pre-OS Upgrade, complete this process as specified in <u>DG SCSI and Fiber Channel RAID 3.3 Software Upgrade for IRIX 6.x for the ECS Project PSR</u>. - If HIPPI and BDS are baselined for host, confirm HIPPI /BDS installation when creating software profile or select as an optional software package. - If one or more SGI compilers are baselined for the host, confirm MIPSPro Compiler installation when creating software profile or select as an optional software package. Select the specific compilers baselined. - If machine has been baselined as one of the 3 SGI FLEXIm License Servers, confirm FLEXIm Server installation when creating software profile or select as an optional software package. If new baselined FLEXIm license server refer to <u>FLEXIm Maintenance Upgrade for the ECS Project PSR</u> for additional details in configuration/administering. 	<p>None for the OS If host is a baselined FLEXIm license server, and one or more of the 3 SGI redundant FLEXIm License servers changes, FLEXIm license keys that identify the 3 SGI FLEXIm redundant servers (in effect for IRIX 6.5) should be obtained from Software License Administration at 301 925-0726 or 0718. It is recommended that the keys be requested prior to beginning the OS upgrade.</p>	<ul style="list-style-type: none"> • If new SGI FLEXIm Server or new HW implementation, obtain new license keys.
<ul style="list-style-type: none"> - Install Anpassword 2.3 as specified in the <u>Mission Operations Procedures (611-CD-004)</u> 	<p>None</p>	<ul style="list-style-type: none"> • Post OS Install
<ul style="list-style-type: none"> - Install AutoSys Remote Agent 3.4.2 as specified in <u>AutoSys, AutoSys/Xpert and Single-Server Non-High-Availability Mode Reconfiguration for the ECS Project PSR</u>. 	<p>None</p>	<ul style="list-style-type: none"> • Post OS Install

Table 5-5. SPG New Install OS and COTS Process (2 of 3)

SPG New Install OS and COTS:	License Impact	Install Sequence Prerequisite
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.</p>		
<ul style="list-style-type: none"> - Install ClearCase 3.2.1 for IRIX 6.5 as specified in the <u>ClearCase Version 3.2.1 Sun/SGI Upgrade for ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Post OS Install • Post Sun Server Install
<ul style="list-style-type: none"> - Install IDL 5.3 as specified in <u>Interactive Data Language (IDL) Maintenance Upgrades for the ECS Project (SGI IRIX 6.5 Version 5.3 & Version 5.3.1 (PC)) PSR</u>. 	New license keys required for upgrade. Contact Software License Administration at 301 925-0726 or 0718.	<ul style="list-style-type: none"> • Obtain license key. • Post OS Install
<ul style="list-style-type: none"> - Install IMSL C and FORTRAN Numeric Libraries for IRIX 6.5 as specified in the <u>IMSL 64-bit 3.01 C and 4.01 Fortran Library Upgrade for Silicon Graphics Inc Platforms PSR</u> documentation. 	New License keys required for upgrade. Contact Software License Administration at 301 925-0726 or 0718.	<ul style="list-style-type: none"> • Obtain license key. • Post OS Install
<ul style="list-style-type: none"> - Sun Legato Networker Server should be installed prior to upgrading the SGI Legato Networker client. Install Legato Networker Client for IRIX 6.5 as specified in <u>Legato Networker UNIX (5.5.1) Upgrade for the ECS Project PSR</u>. 	Upgrade license impact only for Sun Server. Contact License Administration at 301 925-0726 or 0718 for these keys. New SGI HW additions/removals will require Legato Networker registration changes per PSR.	<ul style="list-style-type: none"> • Post OS Install • Post Sun Legato Server Install
<ul style="list-style-type: none"> - Install PERL as specified in <u>Perl IRIX 6.5 Upgrade for the ECS Project PSR</u> if this COTS has not been previously installed. 	None	<ul style="list-style-type: none"> • Post OS Install
<ul style="list-style-type: none"> - Install Purify for IRIX 6.5 as specified in <u>Purify 4.5 for SGI IRIX 6.5 for the ECS Project PSR</u>. 	None – license key will remain the same as previous version.	<ul style="list-style-type: none"> • Post OS Install
<ul style="list-style-type: none"> - Install Sybase Open Client 12.0.0 as specified in <u>Sybase Open Client Maintenance Upgrade for SGI for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Post OS Install • Pre-Custom Code Install

Table 5-5. SPG New Install OS and COTS Process (3 of 3)

SPG New Install OS and COTS:	License Impact	Install Sequence Prerequisite
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.</p>		
<ul style="list-style-type: none"> - Install Secure Shell Commercial (levels 1 & 2) and TCP/Wrappers 7.6 for IRIX 6.5 as specified in <u>Secure Shell 2.0 (Secure Shell and TCP/Wrappers) for the ECS Project PSR.</u> 	None	<ul style="list-style-type: none"> • Post OS Install
<ul style="list-style-type: none"> - Install Tivoli Client as specified in <u>Tivoli Management Environment Version 3.6 Upgrade for the ECS Project PSR.</u> 	None	<ul style="list-style-type: none"> • Post OS Install
<ul style="list-style-type: none"> - Install Tripwire for IRIX 6.5 as specified in <u>Tripwire 1.3 Upgrade for SGI IRIX 6.5 and the ECS Project PSR.</u> 	None	<ul style="list-style-type: none"> • Post OS Install
<ul style="list-style-type: none"> - Install TCL/Tk as specified in <u>Tool Command Language/Toolkit (TCL/Tk) IRIX 6.5 Upgrade for the ECS Project PSR.</u> 	None	<ul style="list-style-type: none"> • Post OS Install

Table 5-6. DRG Upgrade OS and COTS Process (1 of 3)

DRG Upgrade OS and COTS:	License Impact	Install Sequence Prerequisite
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.</p>		
<p>Pre-Transition Installation Steps:</p>		
<ul style="list-style-type: none"> - Upgrade SCSI and Fiber Channel RAID and flash the RAID firmware as identified in <u>DG SCSI and Fiber Channel RAID 3.3 Software Upgrade for IRIX 6.x for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Pre OS Install
<ul style="list-style-type: none"> - Sun Networker Server should be installed prior to upgrading the SGI Legato Networker client. Install Legato Networker Client for IRIX 6.5 as specified in <u>Legato Networker UNIX (5.5.1) Upgrade for the ECS Project PSR</u>. 	Upgrade license impact only for Sun Server. Contact License Administration at 301 925-0726 or 0718 for Sun license keys. New SGI HW additions/removals will require Legato Networker registration changes per PSR.	<ul style="list-style-type: none"> • Pre OS Install • Post Sun Legato Server Install
<ul style="list-style-type: none"> - Install TCL/Tk as specified in <u>Tool Command Language/Toolkit (TCL/Tk) IRIX 6.5 Upgrade for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Pre OS Install
<ul style="list-style-type: none"> - Install Secure Shell Commercial (levels 1 & 2) and TCP/Wrappers 7.6 for IRIX 6.5 as specified in <u>Secure Shell 2.0 (Secure Shell and TCP/Wrappers) for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Pre OS Install
<ul style="list-style-type: none"> - Install AMASS 4.12.3 as specified in <u>AMASS 4.12.3 for the ECS Project PSR</u>. 	New license keys required. Provided in PSR.. Contact License Administration at 301 925-0726 or 0718 for SGI license keys, if problem occurs.	<ul style="list-style-type: none"> • Obtain license key. • Pre OS Install

Table 5-6. DRG Upgrade OS and COTS Process (2 of 3)

DRG Upgrade OS and COTS:	License Impact	Install Sequence Prerequisite
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.</p>		
<p>Transition OS Install</p>		
<ul style="list-style-type: none"> - Install IRIX 6.5, DCE Client, HIPPI & BDS as specified in the SGI IRIX 6.5.6 Operating System Upgrade for the ECS Project PSR document. - If SCSI or Fiber Channel RAID is baselined for host, confirm RAID 3.3 installation when creating software profile or select as an optional software package. If RAID firmware upgrade (flashing of the RAID) was not completed as a Pre-OS Upgrade, complete this process as specified in <u>DG SCSI and Fiber Channel RAID 3.3 Software Upgrade for IRIX 6.x for the ECS Project PSR</u>. - If HIPPI and BDS are baselined for host, confirm HIPPI /BDS installation when creating software profile or select as an optional software package. - If one or more SGI compilers are baselined for the host, confirm MIPSPro Compiler installation when creating software profile or select as an optional software package. Select the specific compilers baselined. - If machine has been baselined as one of the 3 SGI FLEXIm License Servers, confirm FLEXIm Server installation when creating software profile or select as an optional software package. If new baselined FLEXIm license server refer to <u>FLEXIm Maintenance Upgrade for the ECS Project PSR</u> for additional details in configuration/administering. - If host has previously been configured as a FLEXIm Server, and is being removed from the baseline as an SGI FLEXIm server, remove FLEXIm software following the instruction provided in the Technical Directive to Remove SGI FLEXIm Server software. This step is needed even if FLEXIm Server was not selected in the software profile selection. 	<p>None for OS</p> <p>If host is a baselined FLEXIm license server, and one or more of the 3 SGI redundant FLEXIm License servers changes, FLEXIm license keys that identify the 3 SGI FLEXIm redundant servers (in effect for IRIX 6.5) should be obtained from Software License Administration at 301 925-0726 or 0718. It is recommended that the keys be requested prior to beginning the OS upgrade.</p>	<ul style="list-style-type: none"> • Prior to new IRIX 6.5 COTS Installs • If new SGI FLEXIm Server or new HW implementation, obtain new license keys.

Table 5-6. DRG Upgrade OS and COTS Process (3 of 3)

DRG Upgrade OS and COTS:	License Impact	Install Sequence Prerequisite
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.</p>		
<p>Transition Post OS COTS Installs:</p>		
<ul style="list-style-type: none"> - Install Sybase Open Client 12.0.0 as specified in <u>Sybase Open Client Maintenance Upgrade for SGI for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Post OS Install • Pre-Custom Code Install
<ul style="list-style-type: none"> - Install PERL as specified in <u>Perl IRIX 6.5 Upgrade for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Post OS Install
<ul style="list-style-type: none"> - Install Purify for IRIX 6.5 as specified in <u>Purify 4.5 for SGI IRIX 6.5 for the ECS Project PSR</u>. 	None – license key will remain the same as previous version.	<ul style="list-style-type: none"> • Post OS Install
<ul style="list-style-type: none"> - Install Tripwire for IRIX 6.5 as specified in <u>Tripwire 1.3 Upgrade for SGI IRIX 6.5 and the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Post OS Install
<p>Transition Post OS/COTS Installation Activities</p>		
<ul style="list-style-type: none"> - If host was baselined as FLEXIm Server, but is no longer baselined as a FLEXIm Server, uninstall FLEXIm as a server as specified in <u>Technical Directive 00-009</u> for Uninstallation of FLEXIm. - If DCE Cell Manager has not be uninstalled as specified by the SGI IRIX 6.5.6 Operating System Upgrade for the ECS Project PSR, uninstall as specified by <u>Technical Directive 00-006</u>. 	None	<ul style="list-style-type: none"> • OS or Post OS uninstall

Table 5-7. DRG New Install OS and COTS Process (1 of 2)

DRG New Install OS and COTS:	License Impact	Install Sequence Prerequisite
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.</p>		
<p>Pre-Transition Installation Steps (for Origin installation)</p>		<ul style="list-style-type: none"> •
<ul style="list-style-type: none"> - Install IRIX 6.5, DCE Client, HIPPI & BDS and RAID software as specified in the <u>SGI IRIX 6.5.6 Operating System Upgrade for the ECS Project PSR</u> document: - If SCSI or Fiber Channel RAID is baselined for host, confirm RAID 3.3 installation when creating software profile or select as an optional software package. If RAID firmware upgrade (flashing of the RAID) was not completed as a Pre-OS Upgrade, complete this process as specified in <u>DG SCSI and Fiber Channel RAID 3.3 Software Upgrade for IRIX 6.x for the ECS Project PSR</u>. - If HIPPI and BDS are baselined for host, confirm HIPPI /BDS installation when creating software profile or select as an optional software package. - If one or more SGI compilers are baselined for the host, confirm MIPSPro Compiler installation when creating software profile or select as an optional software package. Select the specific compilers baselined. - If machine has been baselined as one of the 3 SGI FLEXIm License Servers, confirm FLEXIm Server installation when creating software profile or select as an optional software package. If new baselined FLEXIm license server refer to <u>FLEXIm Maintenance Upgrade for the ECS Project PSR</u> for additional details in configuration/administering. - If host has previously been configured as a FLEXIm Server, and is being removed from the baseline as an SGI FLEXIm server, remove FLEXIm software following the instruction provided in the Technical Directive to Remove SGI FLEXIm Server software. This step is needed even if FLEXIm Server was not selected in the software profile selection. 	<p>None for the OS</p> <p>If host is a baselined license server, and one or more of the 3 redundant servers changes or is added as a new host, FLEXIm license keys that identify the 3 SGI FLEXIm redundant servers (in effect for IRIX 6.5) should be obtained from Software License Administration at 301 925-0726 or 0718. It is recommended that the keys be requested prior to beginning the OS upgrade.</p>	<ul style="list-style-type: none"> • Pre COTS/OS Install • If new SGI FLEXIm Server or new HW implementation, obtain new license keys.
<ul style="list-style-type: none"> - Install AMASS 4.12.3 as specified in <u>AMASS 4.12.3 for the ECS Project PSR</u>. 	<p>New license keys required. Provided with PSR. Contact License Administration at 301 925-0726 or 0718 for SGI license keys, if problem occurs.</p>	<ul style="list-style-type: none"> • Obtain license key. • Pre OS Install

Table 5-7. DRG New Install OS and COTS Process (2 of 2)

DRG New Install OS and COTS:	License Impact	Install Sequence Prerequisite
The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.		
- Install Anpassword 2.3 as specified in the <u>Mission Operations Procedures (611-CD-004)</u>	None	<ul style="list-style-type: none"> • Post OS Install
- Sun Legato Networker Server should be installed prior to upgrading the SGI Legato Networker client. Install Legato Networker Client for IRIX 6.5 as specified in <u>Legato Networker UNIX (5.5.1) Upgrade for the ECS Project PSR.</u>	Upgrade license impact only for Sun Server. Contact License Administration at 301 925-0726 or 0718 for these keys. New SGI HW additions/removals will require Legato Networker registration changes per PSR.	<ul style="list-style-type: none"> • Post OS Install • Post Sun Legato Server Install
- Install Sybase Open Client 12.0.0 as specified in <u>Sybase Open Client Maintenance Upgrade for SGI for the ECS Project PSR.</u>	None	<ul style="list-style-type: none"> • Post OS Install • Pre-Custom Code Install
- Install PERL as specified in <u>Perl IRIX 6.5 Upgrade for the ECS Project PSR</u> if this COTS has not been previously installed.	None	<ul style="list-style-type: none"> • Post OS Install
- Install Purify for IRIX 6.5 as specified in <u>Purify 4.5 for SGI IRIX 6.5 for the ECS Project PSR.</u>	None – license key will remain the same as previous version.	<ul style="list-style-type: none"> • Post OS Install
- Install Secure Shell Commercial (levels 1 & 2) and TCP/Wrappers 7.6 for IRIX 6.5 as specified in <u>Secure Shell 2.0 (Secure Shell and TCP/Wrappers) for the ECS Project PSR.</u>	None	<ul style="list-style-type: none"> • Post OS Install
- Install TCL/Tk as specified in <u>Tool Command Language/Toolkit (TCL/Tk) IRIX 6.5 Upgrade for the ECS Project PSR.</u>	None	<ul style="list-style-type: none"> • Post OS Install
- Install Tivoli Client as specified in <u>Tivoli Management Environment Version 3.6 Upgrade for the ECS Project PSR.</u>	None	<ul style="list-style-type: none"> • Post OS Install
- Install Tripwire for IRIX 6.5 as specified in <u>Tripwire 1.3 Upgrade for SGI IRIX 6.5 and the ECS Project PSR.</u>	None	<ul style="list-style-type: none"> • Post OS Install

Table 5-8. ICG Upgrade OS and COTS Process (1 of 3)

ICG Upgrade OS and COTS:	License Impact	Install Sequence Prerequisite
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.</p>		
<p>Pre-Transition Installation Steps:</p>		
<ul style="list-style-type: none"> - If SCSI or Fiber Channel RAID is baselined for host, confirm RAID 3.3 installation when creating software profile or select as an optional software package. If RAID firmware upgrade (flashing of the RAID) was not completed as a Pre-OS Upgrade, complete this process as specified in <u>DG SCSI and Fiber Channel RAID 3.3 Software Upgrade for IRIX 6.x for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Pre OS Install
<ul style="list-style-type: none"> - Sun Legato Networker Server should be installed prior to upgrading the SGI Legato Networker client. Install Legato Networker Client for IRIX 6.5 as specified in <u>Legato Networker UNIX (5.5.1) Upgrade for the ECS Project PSR</u>. 	Upgrade license impact only for Sun Server. Contact License Administration at 301 925-0726 or 0718 for these keys. New SGI HW additions/removals will require Legato Networker registration changes per PSR.	<ul style="list-style-type: none"> • Pre OS Install • Post Sun Legato Server Install
<ul style="list-style-type: none"> - Install Secure Shell Commercial (levels 1 & 2) and TCP/Wrappers 7.6 for IRIX 6.5 as specified in <u>Secure Shell 2.0 (Secure Shell and TCP/Wrappers) for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Pre OS Install
<ul style="list-style-type: none"> - Install TCL/Tk as specified in <u>Tool Command Language/Toolkit (TCL/Tk) IRIX 6.5 Upgrade for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Pre or Post Install

Table 5-8. ICG Upgrade OS and COTS Process (2 of 3)

ICG Upgrade OS and COTS:	License Impact	Install Sequence Prerequisite
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.</p>		
<p>OS Install</p>		
<ul style="list-style-type: none"> - Install IRIX 6.5./DCE Client as specified in the SGI IRIX 6.5.6 Operating System Upgrade for the ECS Project PSR document: - If SCSI or Fiber Channel RAID is baselined for host, confirm RAID 3.3 installation when creating software profile or select as an optional software package. If RAID firmware upgrade (flashing of the RAID) was not completed as a Pre-OS Upgrade, complete this process as specified in DG SCSI and Fiber Channel RAID 3.3 Software Upgrade for IRIX 6.x for the ECS Project PSR. - If HIPPI and BDS are baselined for host, confirm HIPPI /BDS installation when creating software profile or select as an optional software package. - If one or more SGI compilers are baselined for the host, confirm MIPSPro Compiler installation when creating software profile or select as an optional software package. Select the specific compilers baselined. - If machine has been baselined as one of the 3 SGI FLEXIm License Servers, confirm FLEXIm Server installation when creating software profile or select as an optional software package. If new baselined FLEXIm license server refer to FLEXIm Maintenance Upgrade for the ECS Project PSR for additional details in configuration/administering. - If host has previously been configured as a FLEXIm Server, and is being removed from the baseline as an SGI FLEXIm server, remove FLEXIm software following the instruction provided in the Technical Directive to Remove SGI FLEXIm Server software. This step is needed even if FLEXIm Server was not selected in the software profile selection. 	<p>None</p>	<ul style="list-style-type: none"> • Pre new COTS Install

Table 5-8. ICG Upgrade OS and COTS Process (3 of 3)

ICG Upgrade OS and COTS:	License Impact	Install Sequence Prerequisite
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.</p>		
<p>Post OS COTS Install:</p>		
<ul style="list-style-type: none"> - Install PERL with extensions for IRIX 6.5 as specified in <u>Perl IRIX 6.5 Upgrade for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Post OS Install
<ul style="list-style-type: none"> - Install Sybase Open Client 12.0.0 as specified in <u>Sybase Open Client Maintenance Upgrade for SGI for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Post OS Install • Pre-Custom Code Install
<ul style="list-style-type: none"> - Install Tripwire for IRIX 6.5 as specified in <u>Tripwire 1.3 Upgrade for SGI IRIX 6.5 and the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Post OS Install
<p>Transition Post OS/COTS Installation Activities</p>		
<ul style="list-style-type: none"> - If host was baselined as FLEXIm Server, but is no longer baselined as a FLEXIm Server, uninstall FLEXIm as a server as specified in Technical Directive for Uninstallation of FLEXIm. - If DCE Cell Manager has not be uninstalled as specified by the SGI IRIX 6.5.6 Operating System Upgrade for the ECS Project PSR, uninstall as specified by <u>Technical Directive 00-006</u>. 	None	<ul style="list-style-type: none"> • OS or Post OS uninstall

Table 5-9. WKG Upgrade OS and COTS Process (1 of 3)

WKG Upgrade OS and COTS:	License Impact	Install Sequence Prerequisite
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.</p>		
<p>Pre-Transition Installation Steps:</p>		
<ul style="list-style-type: none"> - Upgrade SCSI and Fiber Channel RAID and flash the RAID firmware as identified in <u>DG SCSI and Fiber Channel RAID 3.3 Software Upgrade for IRIX 6.x for the ECS Project PSR</u>. 	Done	<ul style="list-style-type: none"> • Pre OS Install
<ul style="list-style-type: none"> - Sun Legato Networker Server should be installed prior to upgrading the SGI Legato Networker client. Install Legato Networker Client for IRIX 6.5 as specified in <u>Legato Networker UNIX (5.5.1) Upgrade for the ECS Project PSR</u>. 	Upgrade license impact only for Sun Server. Contact License Administration at 301 925-0726 or 0718 for the server keys. New SGI HW additions/removals will require Legato Networker registration changes per PSR.	<ul style="list-style-type: none"> • Pre OS Install • Post Sun Legato Server Install
<ul style="list-style-type: none"> - Install Secure Shell Commercial (levels 1 & 2) and TCP/Wrappers 7.6 for IRIX 6.5 as specified in <u>Secure Shell 2.0 (Secure Shell and TCP/Wrappers) for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Pre OS Install
<ul style="list-style-type: none"> - Install TCL/Tk as specified in <u>Tool Command Language/Toolkit (TCL/Tk) IRIX 6.5 Upgrade for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Pre OS Install

Table 5-9. WKG Upgrade OS and COTS Process (2 of 3)

WKG Upgrade OS and COTS:	License Impact	Install Sequence Prerequisite
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.</p>		
<p>Transition OS Install</p>		
<ul style="list-style-type: none"> - Install IRIX 6.5/DCE Client as specified in the <u>SGI IRIX 6.5.6 Operating System Upgrade for the ECS Project PSR</u> document. - If SCSI or Fiber Channel RAID is baselined for host, confirm RAID 3.3 installation when creating software profile or select as an optional software package. If RAID firmware upgrade (flashing of the RAID) was not completed as a Pre-OS Upgrade, complete this process as specified in <u>DG SCSI and Fiber Channel RAID 3.3 Software Upgrade for IRIX 6.x for the ECS Project PSR</u>. - If HIPPI and BDS are baselined for host, confirm HIPPI /BDS installation when creating software profile or select as an optional software package. - If one or more SGI compilers are baselined for the host, confirm MIPSPro Compiler installation when creating software profile or select as an optional software package. Select the specific compilers baselined. - If machine has been baselined as one of the 3 SGI FLEXIm License Servers, confirm FLEXIm Server installation when creating software profile or select as an optional software package. If new baselined FLEXIm license server refer to <u>FLEXIm Maintenance Upgrade for the ECS Project PSR</u> for additional details in configuration/administering. - If host is currently installed as a FLEXIm Server, but is NOT baselined in the 55 release to be a FLEXIm server, remove the FLEXIm software as specified in the <u>Technical Directive 00-009</u>, Removal of FLEXIm License Server Software on IRIX 6.5. 	<p>None for OS.</p> <p>If host is a baselined license server, and one or more of the 3 redundant servers changes, FLEXIm license keys that identify the 3 SGI FLEXIm redundant servers (in effect for IRIX 6.5) should be obtained from Software License Administration at 301 925-0726 or 0718. It is recommended that the keys be requested prior to beginning the OS upgrade.</p>	<ul style="list-style-type: none"> • Pre new COTS Install • If new SGI FLEXIm Server or new HW implementation, obtain new license keys

Table 5-9. WKG Upgrade OS and COTS Process (3 of 3)

WKG Upgrade OS and COTS:	License Impact	Install Sequence Prerequisite
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.</p>		
<p>Post OS COTS Install:</p>		
<ul style="list-style-type: none"> - Install PERL with extensions for IRIX 6.5 as specified in <u>Perl IRIX 6.5 Upgrade for the ECS Project PSR</u> if this COTS has not been previously installed. 	None	<ul style="list-style-type: none"> • Post OS Install
<ul style="list-style-type: none"> - Install Sybase Open Client 12.0.0 as specified in <u>Sybase Open Client Maintenance Upgrade for SGI for the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Post OS Install • Pre-Custom Code Install
<ul style="list-style-type: none"> - Install Tripwire for IRIX 6.5 as specified in <u>Tripwire 1.3 Upgrade for SGI IRIX 6.5 and the ECS Project PSR</u>. 	None	<ul style="list-style-type: none"> • Post OS Install
<p>Transition Post OS/COTS Installation Activities</p>		
<ul style="list-style-type: none"> - If host was baselined as FLEXIm Server, but is no longer baselined as a FLEXIm Server, uninstall FLEXIm as a server as specified in Technical Directive for Uninstallation of FLEXIm. - If DCE Cell Manager has not be uninstalled as specified by the <u>SGI IRIX 6.5.6 Operating System Upgrade for the ECS Project PSR</u>, uninstall as specified by <u>Technical Directive 00-006</u>. 	None	<ul style="list-style-type: none"> • OS or Post OS uninstall

Table 5-10. AQG New Install OS and COTS Process (1 of 2)

AQG New Install OS and COTS:	License Impact	Install Sequence Prerequisite
<p>The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.</p>		
<p>Pre-Transition Installation Steps: Clean Disks from HW Migration</p>		
<ul style="list-style-type: none"> - Install IRIX 6.5/DCE Client as specified in <u>SGI IRIX 6.5.6 Operating System Upgrade for the ECS Project PSR</u> document: - If SCSI or Fiber Channel RAID is baselined for host, confirm RAID 3.3 installation when creating software profile or select as an optional software package. If RAID firmware upgrade (flashing of the RAID) was not completed as a Pre-OS Upgrade, complete this process as specified in <u>DG SCSI and Fiber Channel RAID 3.3 Software Upgrade for IRIX 6.x for the ECS Project PSR</u>. - If HIPPI and BDS are baselined for host, confirm HIPPI /BDS installation when creating software profile or select as an optional software package. - If one or more SGI compilers are baselined for the host, confirm MIPSPro Compiler installation when creating software profile or select as an optional software package. Select the specific compilers baselined. - If machine has been baselined as one of the 3 SGI FLEXIm License Servers, confirm FLEXIm Server installation when creating software profile or select as an optional software package. If new baselined FLEXIm license server refer to <u>FLEXIm Maintenance Upgrade for the ECS Project PSR</u> for additional details in configuration/administering. 	<p>None for the OS If host is a baselined license server, and one or more of the 3 redundant servers changes, FLEXIm license keys that identify the 3 SGI FLEXIm redundant servers (in effect for IRIX 6.5) should be obtained from Software License Administration at 301 925-0726 or 0718. It is recommended that the keys be requested prior to beginning the OS upgrade.</p>	<ul style="list-style-type: none"> • Pre new COTS Install • If new SGI FLEXIm Server or new HW implementation, obtain new license keys.
<ul style="list-style-type: none"> - Install Anpassword as specified in the <u>Mission Operations Procedures (611-CD-004)</u> 	<p>None</p>	<ul style="list-style-type: none"> • Post OS Install
<ul style="list-style-type: none"> - Sun Legato Networker Server should be installed prior to upgrading the SGI Legato Networker client. Install Legato Networker Client for IRIX 6.5 as specified in <u>Legato Networker UNIX (5.5.1) Upgrade for the ECS Project PSR</u>. 	<p>Upgrade license impact only for Sun Server. Contact License Administration at 301 925-0726 or 0718 for these keys. New SGI HW additions/removals will require Legato Networker registration changes per PSR.</p>	<ul style="list-style-type: none"> • Post OS Install • Post Sun Legato Server Install

Table 5-10. AQG New Install OS and COTS Process (2 of 2)

AQG New Install OS and COTS:	License Impact	Install Sequence Prerequisite
The following is provided as a checklist reference. The DAAC HW/SW map baseline is the final OS/COTS configuration reference.		
- Install PERL as specified in <u>Perl IRIX 6.5 Upgrade for the ECS Project PSR</u> if this COTS has not been previously installed.	None	<ul style="list-style-type: none"> • Post OS Install
- Install Sybase Open Client 12.0.0 as specified in <u>Sybase Open Client Maintenance Upgrade for SGI for the ECS Project PSR</u> .	None	<ul style="list-style-type: none"> • Post OS Install • Pre-Custom Code Install
- Install Secure Shell Commercial (levels 1 & 2) and TCP/Wrappers 7.6 for IRIX 6.5 as specified in <u>Secure Shell 2.0 (Secure Shell and TCP/Wrappers) for the ECS Project PSR</u> .	None	<ul style="list-style-type: none"> • Post OS Install
- Install TCL/Tk as specified in <u>Tool Command Language/Toolkit (TCL/Tk) IRIX 6.5 Upgrade for the ECS Project PSR</u> if this COTS has not been previously installed.	None	<ul style="list-style-type: none"> • Post OS Install
- Install Tivoli Client as specified in <u>Tivoli Management Environment Version 3.6 Upgrade for the ECS Project PSR</u> .	None	<ul style="list-style-type: none"> • Post OS Install
- Install Tripwire for IRIX 6.5 as specified in <u>Tripwire 1.3 Upgrade for SGI IRIX 6.5 and the ECS Project PSR</u> .	None	<ul style="list-style-type: none"> • Post OS Install
- If QA Workstation, Install Acrobat Reader as specified in <u>Acrobat Reader Version 4.05 Upgrade for the ECS Project PSR</u> .	None	<ul style="list-style-type: none"> • Post OS Install
- If QA Workstation, Install Netscape Communicator for IRIX 6.5 installations as specified in <u>Netscape Communicator Upgrade Version 4.7 PSR</u> .	None	<ul style="list-style-type: none"> • Post OS Install

6. Training Plan

The Training Plan consists of the following.

Monday Preparation with meeting with DAAC to discuss the general flow and checkout the current IRIX 6.2 configuration.

Tuesday - Practice of items in the "First Down Time" All but one set of clones will be done before.

- a. Stop all modes -- No need to quiese except for 8MM distributions.
- b. Dump all databases (SGI and SUN). Sun database dumps only needed, if rollback required. -- 4 to 6 hours
- c. Unconfigure the host(s) from DCE.
- d. For t1icg01/t1icg03
 1. Clone the root and data1 disk for t1icg01 (to be used in new IRIX 6.5 host.)
 2. Change the hosts names.
 3. Put cloned disks in new host and boot the host to verify the clone is successful.
 4. Reconfigure DCE
 5. Create profile on t1console1 and Install IRIX 6.5 on new t1icg01.
 6. Install the COTS products on the upgraded host including sybase and/or sqs and remove the DCE Cell Manager.
- e. For t1acgxx and t1drgxx
 1. Pullout the original root and data1 disk and set aside. (These disks are to be used for rollback.)
 2. Put the cloned disks in the machine and boot machine to verify clone was completed correctly.
 3. Unconfigure the host from DCE.

4. On Challenge host change the host name and IP address (be sure to take care of mount points on all client hosts).
 5. Configure the old host with new name into DCE. This includes using ECS Assist to re-make CDS entries and Keyfiles before starting Custom Code.
 6. Install the COTS products on the Origin hosts including sybase and sqs and remove the DCE Cell Manager
- f. Setup the mount points for all new servers (including new nfs mount points).
 - g. Configure sybase on new hosts use xlvs appropriately named for IRIX 6.5.
 - h. Load SDSRV and STMGT database on new acg01 and setup logins, etc.
 - i. Update the Registry database with new hosts names where appropriate.
 - j. Using the cdsbrowser, clean up any cds entries for hosts whose names have changed.
 - k. Warm start the IRIX 6.2 and Sun servers for all modes and perform brief checkout to verify mount points and database availability. – Checkout at a minimum includes (2 hours):
 1. Running a pge
 2. Doing Polling and Auto Ingest
 3. Doing FtpPush acquire with and without browse. (For EDC also L7 acquires).
 4. Doing and FtpPull acquires
 5. Using the Registry GUI (to verify Registry database)
 6. Bring up and use the DDIST, SDSRV, INGEST, and STMGT GUIs and monitor.

Wednesday – Upgrade SPG01 and ICG01 and checkout

- a. Upgrade SPG01 in place.
 1. Install IRIX 6.5 Toolkit and Science Processor code.
 2. Configure PDPS to use only spg01.

3. Run an Aster Regression Test.
 4. Upgrade t1icg01.
- b. Upgrade new t1icg01 to IRIX 6.5.
1. Install IRIX 6.5 on t1icg01.
 2. Install Custom Code.
 3. Verify all mount points.
 4. Update configuration in Registry.
 5. Checkout Registry and Polling and Ingest via Auto Polling.

Thursday – Upgrade ACG01 and DRG01

1. Install IRIX 6.5 on ACG01.
2. Move AMASS on DRG01.
3. Verify all mount points.
4. Update Registry.
5. Checkout Polling from acg01.
6. Do lots of Inserts, Ingest, and acquires including Push and Pull with and without browse data.

Friday – Rollback to Monday's configuration.

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7. Sybase transition

7.1 Scope

This section contains details of the Sybase preparation steps to be done before formal transition begins.

7.2 Installation of SQS322

The following are instructions to install the SQS322 server in the machine where the SDSRV sybase server is installed during the IRIX 6.5 Transition.

Prerequisites

These instructions were written under the assumption that:

- Sybase SQL Server 11.5.1 is installed on the host platform.
- Sybase was installed using a UNIX account 'sybase', a member of the 'sys' group. This account is used for the installation procedure.
- The ECS modes using the databases being upgraded have been shutdown (Refer to site procedures).
- The installation tar file has been retrieved from SMC and placed in a directory <distribution dir>.

Install SQS Version 3.2.2

1. Using the sybase user account on the host on which SQS version 3.2.2 is being installed, execute the **sybinit** program to update the Sybase interfaces file to add an entry for the new SQS server. You will be required to provide an SQS server name (<**sqs server**>) and a port number for your SQS server. The SQS server name has the form:

<host name>_sqs322_srvr

where <host name> is the host name of the computer on which SQS 3.2.2 is being installed.

- A list of host names and the corresponding new SQS server names for the DAACs is provided in Table 7.2-1.

Table 7.2-1 List of primary host, server and database names

Site	Hosts	Sybase Server	SQS Server	Databases
EDC	e0acg01	e0acg01_svr	e0acg01_sqs322_svr	EcDsScienceDataServer1 EcDsScienceDataServer1_TS1 EcDsScienceDataServer1_TS2
GSFC	g0acg01	g0acg01_svr	g0acg01_sqs322_svr	EcDsScienceDataServer1 EcDsScienceDataServer1_TS1 EcDsScienceDataServer1_TS2
LaRC	l0acg02	l0acg02_svr	l0acg02_sqs322_svr	EcDsScienceDataServer1 EcDsScienceDataServer1_TS1 EcDsScienceDataServer1_TS2
NSIDC	n0acg01	n0acg01_svr	n0acg01_sqs322_svr	EcDsScienceDataServer1 EcDsScienceDataServer1_TS1 EcDsScienceDataServer1_TS2

- For the port number, use 3014 (This may be changed at the discretion of the administrator if it conflicts with another server).
- Use a value of 5 for the Retry Count and Retry Delay.

2. In addition to the Sybase interfaces file, the sybase open client interfaces file must also be updated. This must be done using the **dsedit** program, from the sybase user account on the Sun host, which runs the Science Data Server. Use the same values that were used for updating the Sybase interfaces file in Step 1 above.

3. Untar the installation file into the installation directory:

```
# cd /usr/ecs/OPS/COTS ↵
```

```
# tar xvf <distribution dir>/sgi322.tar ↵
```

```
# mv sqs_3.2.2 sqs_322 ↵
```

4. Using a suitable text editor, e.g. vi, check that the SQSUSER and SQSPASSWORD settings are correct. The SQSUSER should be a system administrator role and SQSPASSWORD should reference a file containing the corresponding password.

```
# cd sqs_322/bin ↵
```

```
# vi sqs_322 ↵
```

5. Copy the server startup script into /etc/init.d and link into the runlevel directories. This must be done by a root user:

```
# su root ↵
```

```
# cd /etc/init.d
```

```
# cp /usr/ecs/OPS/COTS/sqs_322/bin/sqs_322 . ↵
# ln -s /etc/init.d/sqs_322 /etc/rc0.d/S<num>sqs_322
# ln -s /etc/init.d/sqs_322 /etc/rc2.d/S<num>sqs_322
```

where <num> is a start up sequence number that must be determined by root so that the script is executed after the Sybase server start up script.

6. Start the server and exit from root.

```
# ./sqs_322 start ↵
# exit ↵
```

7. The new SQS installation must be verified before the databases are upgraded. This can be done using the **isql** command line program;

```
# isql -Usa -S<sqs server> ↵
```

Enter the password for the sa user at the prompt;

Password:

Verify the SQS version number;

```
# select @@SQSversion ↵
# go ↵
```

This should return a version/platform string indicating that SQS version 3.2.2 is being used.

For example,

```
SQS Server/3.2.2/SGI/IRIX 5.3/Release Build SQS_3_2_2_00 (2)/Tue Feb 16 12:19:57 EST
1999
```

This string will vary slightly depending upon the target platform and operating system.

Installing Multiple Instances of SQS 3.2.2

Follow instruction in Engineering Technical Directive No.99-009 under fix section.

Testing:

Once the servers are up, do a `ps -ef | grep sqsserver` and verify that there are four instances of sqsserver.

Start up EcDsScienceDataServer, run the following test.

- Insert/delete ESDT, which contains spatial.
- Insert/Search/Acquire granules, which contains spatial.

Implementation:

The following hosts:

DAAC	Host Name
EDC	e0acg01
GSFC	g0acg01
LaRC	l0acg02
NSIDC	n0acg01

Point of Contact: *Sally F. Jew*
 Phone: 301/925-1138 email: sjew@eos.east.hitc.com

Adrienne Dupree
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7.3 Sybase Transition

Sybase login accounts must be migrated from the old server to the new server prior to migration of any data, since the restoration of data will require that the same accounts exist as on the old server.

To migrate data for the mode being transitioned, the Sybase database will be dumped to disk on the old primary, and then ftp'd to the new primary, using a HIPPI connection if possible. On the new primary the data will be restored into the new Sybase server. The old primary will be retained until it is clear that a fall back is no longer needed. Database scripts will be used to validate that the databases are loaded correctly.

The overview approach for transferring databases from an IRIX 6.2 machine to a 6.5 machine is as follows:

1. All devices from Sybase Device Baseline are allocated and added to Sybase.
2. Database allocations match, in size and order (not device), database allocations on the IRIX 6.2 machines.
3. Quiesce ECS
4. Dump database transaction logs
5. Run dbcc on the IRIX 6.2 databases.

6. Dump databases.
7. Make database dump "visible" to Sybase on the IRIX 6.5 boxes.
8. Create Sybase logins in same order as created on the IRIX 6.2 Sybase Server.
9. Load databases to Sybase on IRIX 6.5.
10. Verify ECS application user ids in IRIX 6.5 databases. Correct any discrepancies.
11. Run dbcc on IRIX 6.5 databases
12. Dump IRIX 6.5 databases.

The detailed procedure for transferring databases is outlined below.

A. Initialization

1. Configure IRIX 6.5 RAID and install Sybase. FTP Sybase server.cfg file located in the \$SYBASE directory from the IRIX 6.2 to the IRIX 6.5 machine.
2. Create database devices
 - a. disk init name = "testmode_di_dev1", physname = "<supplied by DBA>",
vdevno = <supplied by DBA>, size = 5120000
go
 - b. disk init name = "log_dev1", physname = "<supplied by DBA>",
vdevno = <supplied by DBA>, size = 2969600
go
 - c. disk init name = "log_dev2", physname = "<supplied by DBA>",
vdevno = <supplied by DBA>, size = 4096000
go
 - d. disk init name = "testmode_log_dev1", physname = "<supplied by DBA>",
vdevno = <supplied by DBA>, size = 4096000
go
 - e. disk init name = "di_dev1a", physname = "<supplied by DBA>",
vdevno = <supplied by DBA>, size = 4096000
go
 - f. disk init name = "di_dev1b", physname = "<supplied by DBA>",
vdevno = <supplied by DBA>, size = 4096000
go
 - g. disk init name = "di_dev2a", physname = "<supplied by DBA>",

```
vdevno = <supplied by DBA>, size = 4096000  
go
```

- h. (EDC Only)
disk init name = "di_dev2b", physname = "<supplied by DBA>",
vdevno = <supplied by DBA>, size = 4096000
go

B. Verify Transition Method

1. Run dbccs on the IRIX 6.2 acg01 databases.
2. Drop user defined segments on IRIX 6.2 databases (EDC Only):
 - a. sp_dropsegment EcDsGranSeg1, EcDsScienceDataServer1
go
 - b. sp_dropsegment SDSOPSDAT01, EcDsScienceDataServer1
go
 - c. sp_dropsegment SDSTS1DAT01, EcDsScienceDataServer_TS1
go
 - d. sp_dropsegment SDSTS2DAT01, EcDsScienceDataServer_TS2
go
 - e. sp_dropsegment SDSOPSIDX01, EcDsScienceDataServer1
go
3. Dump the IRIX 6.2 acg01 databases (EDC and GSFC only)
4. Create database on IRIX 6.5 to match database allocation on IRIX 6.2 exactly:
 - a. EDC only:
 - 1) create database EcDsScienceDataServer1 on di_dev2a=2000, di_dev2b=2000 log
on log_dev1=700 for load
go
alter database EcDsScienceDataServer1 on di_dev2a=217 for load
go
alter database EcDsScienceDataServer1 on di_dev2a=1200 for load
go
 - 2) create database EcDsScienceDataServer1_TS1 on testmode_di_dev1=1600, log
on testmode_log_dev1=400 for load
go

```
alter database EcDsScienceDataServer1_TS1 on testmode_di_dev1=400 for load
go
```

```
3) create database EcDsScienceDataServer1_TS2 on testmode_di_dev1=2000, log
on testmode_log_dev1=400 for load
go
alter database EcDsScienceDataServer1_TS2 on testmode_di_dev1=400 for load
go
```

```
4) create database stmgtdb1 on di_dev1a=600 log on log_dev2=300 for load
go
alter database stmgtdb1 on di_dev1a=300 for load
go
```

```
5) create database stmgtdb1_TS1 on testmode_di_dev1=200 log on
testmode_log_dev1=100 for load
go
alter database stmgtdb1_TS1 on testmode_di_dev1=100 for load
go
```

```
6) create database stmgtdb1_TS2 on testmode_di_dev1=200 log on
testmode_log_dev1=100 for load
go
alter database stmgtdb1_TS2 on testmode_di_dev1=100 for load
go
```

b. GSFC only:

```
1) create database EcDsScienceDataServer1 on di_dev2a=300 log on log_dev1=100
for load
go
alter database EcDsScienceDataServer1 on di_dev2a=1700 log on log_dev1=300
for load
go
alter database EcDsScienceDataServer1 on di_dev2a=2000 log on log_dev1=600
for load
go
alter database EcDsScienceDataServer1 on di_dev2a =100 for load
go
```

```
2) create database EcDsScienceDataServer1_TS1 on testmode_di_dev1=1000, log
on testmode_log_dev1=400 for load
go
alter database EcDsScienceDataServer1_TS1 on testmode_di_dev1=600 for load
go
```

```
alter database EcDsScienceDataServer1_TS1 on testmode_di_dev1=400 for load
go
```

- 3) create database EcDsScienceDataServer1_TS2 on testmode_di_dev1=300, log on testmode_log_dev1=100 for load

```
go
```

```
alter database EcDsScienceDataServer1_TS2 on testmode_di_dev1=100 for load
go
```

- 4) create database stmgtdb1 on di_dev1a=600 log on log_dev2=300 for load

```
go
```

```
alter database stmgtdb1 on di_dev1a=300 for load
```

```
go
```

- 5) create database stmgtdb1_TS1 on testmode_di_dev1=200 log on testmode_log_dev1=100 for load

```
go
```

```
alter database stmgtdb1_TS1 on testmode_di_dev1=100 for load
```

```
go
```

- 6) create database stmgtdb1_TS2 on testmode_di_dev1=200 log on testmode_log_dev1=100 for load

```
go
```

```
alter database stmgtdb1_TS2 on testmode_di_dev1=100 for load
```

```
go
```

5. Load acg01 dumps to IRIX 6.5

6. Verify database allocation

- a. IF the message "*Caution: You have set up this database to include space on disk %n for both data and the transaction log. This can make recovery impossible if that disk fails.*" or if the command `sp_helpdb {db_name}` shows 'data only' and 'log only' usage on the same device after the load of a database

- 1) Verify that the database allocations on IRIX 6.5 match exactly the database allocations on acg01.

- 2) IF the allocations match

- a) Verification is unsuccessful
- b) use BCP to transition the database

- 3) ELSE

- a) Drop the database
- b) Go to step 5

- b. ELSE

- 1) Verification is successful
- 2) Use dump/load to transition the database

C. Transition Databases (Dump/Load)

1. Start ECS Quiesce?
2. Dump database transaction logs
3. Run dbcc/dump on each database
4. Make dump available to IRIX 6.5 box
5. Load IRIX 6.2 dump to the IRIX 6.5 databases
6. Verify that data and log are kept on separate devices
7. Verify ECS application connectivity to IRIX 6.5 databases
8. Add logins and users to IRIX 6.5 databases. Reference *Section 7.4 – (Instructions for Transitioning Logins and Users)*
9. Shutdown ECS Servers
10. Dump the transaction logs on the IRIX 6.2 databases
11. Load the transaction logs to the IRIX 6.5 databases
12. Run dbcc on IRIX 6.5 database and verify that no errors are present
13. Dump the IRIX 6.5 databases
14. Restart the ECS Servers

D. Transition Database (BCP)

1. Start ECS Quiesce
2. Shutdown ECS Servers
3. BCP IRIX 6.2 data out
4. Make bcp files available to IRIX 6.5 box
5. BCP in master.syslogins as follows:
 - a. Add logins and users to IRIX 6.5 databases. Reference *Section 7.4 – (Instructions for Transitioning Logins and Users)*.
--This process will ensure that users are in synch with the master database.
6. BCP data in to the IRIX 6.5 databases (may need to drop index before the bcp, and restore indexes after the BCP)
7. Verify ECS application connectivity to IRIX 6.5 databases
8. Run dbcc on IRIX 6.5 database and verify that no errors are present
9. Dump the IRIX 6.5 databases
10. Restart the ECS Servers

7.4 Instructions for Transitioning Logins and Users

The following are instructions for transitioning Logins and Users for the Science Data Server and the Storage Management Databases in the IRIX 6.2 to IRIX 6.5 transition.

1. Dump the master database and all subsystem databases of all adaptive servers affected by the transition.
2. For each adaptive server affected by the transition, copy out the data from the syslogins and sysloginroles tables in the master database of the old (IRIX 6.2) adaptive server:

- a. `$$SYBASE/bin/bcp master..syslogins out $old_servername.syslogins.dat -c -Usa -P$sa_password -S$old_servername`
 - b. `$$SYBASE/bin/bcp master..sysloginroles out $old_servername.sysloginroles.dat -c -Usa -P$sa_password -S$old_servername`
3. Edit the file `$old_servername.syslogins.dat`, deleting the row having “sa” in the name column. This should be the first row (suid = 1).
4. For each affected subsystem database on the old (IRIX 6.2) server, copy out the data from the `sysusers` table:
`$$SYBASE/bin/bcp $dbname..sysusers out $dbname.sysusers.dat -c -Usa -P$sa_password -S$old_servername`
5. Perform the following deletes in the master database of all new (IRIX 6.5) adaptive servers affected by the transition:
 - a. `isql -U sa -P $sa_password -S $new_servername`
 - b. `> delete sysloginroles`
 - c. `> go`
 - d. `> delete syslogins where name != “sa”`
 - e. `> go`
 - f. `> exit`
6. Copy the data from the `syslogins` and `sysloginroles` tables into the master database of the new (IRIX 6.5) adaptive server(s):
 - a. `$$SYBASE/bin/bcp master..syslogins in $old_servername.syslogins.dat -c -Usa -P$sa_password -S$new_servername`
 - b. `$$SYBASE/bin/bcp master..sysloginroles in $old_servername.sysloginroles.dat -c -Usa -P$sa_password -S$new_servername`
7. Perform the following delete in each affected subsystem database of each new (IRIX 6.5) database affected by the transition:
 - a. `isql -U sa -P $sa_password -S $new_servername`
 - b. `> use $dbname`
 - c. `> go`
 - d. `> delete sysusers`
 - e. `> go`
 - f. `> exit`
8. Copy data for the `syslogins` and `sysloginroles` tables into the master database of each new (IRIX 6.5) server affected by the transition:
 - a. `$$SYBASE/bin/bcp master..syslogins in $old_servername.syslogins.dat -c -Usa -P$sa_password -S$new_servername`

- b. `$$SYBASE/bin/bcp master..sysloginroles in $old_servername.sysloginroles.dat -c -Usa -P$sa_password -S$new_servername`
9. For each affected subsystem database on the new (IRIX 6.5) server, copy in the data for the sysusers table:
`$$SYBASE/bin/bcp $dbname..sysusers in $dbname.sysusers.dat -c -Usa -P$sa_password -S$new_servername`
10. If you made a mistake, restore from the backups created in Step 1 and go back to Step 2.

7.5 Procedures for Renaming Sybase

The following are procedures for renaming Sybase Servers on sun5.5, IRIX 6.2 or IRIX 6.5 machines:

1. Log into the host machine where the Sybase Servers will be renamed.
2. Set DISPLAY environment variable to current terminal ID.
3. Set SYBASE environment variable to local SYBASE directory.
4. Set LD_LIBRARY_PATH environment variable to \$\$SYBASE/lib.
5. Change directory to \$\$SYBASE/bin. Execute dsedit to modify the local Sybase interfaces file. Add the new Sybase Server to the interfaces file. The master and query entries should point to the host machine in step 1.
6. Change directory to \$\$SYBASE/install. Copy old server RUN file name to new server RUN file name. (i.e. RUN_t1acg04_srvr to RUN_t1acg01_srvr). Edit the new server RUN file and change all occurrences of old server name to new server name. **Note: This should be done for both the SQL server and Backup server.**
7. Change directory to \$\$SYBASE. Copy <old server>.cfg file to <new server>.cfg file. **Note: If you don't create an .cfg file for the new Sybase server, then upon rebooting the new Sybase Server. Sybase will create a .cfg file, but it will have default values for the configuration parameters.**
8. Change directory to \$\$SYBASE/bin. Set the SYBASE environment variable to /tools/sybOCv12.0.0. Execute dsedit to modify the Open Client interfaces file. If the new Sybase Server doesn't already exist in the interfaces file, add the new server. The master and

query entries for the new Sybase server should point to the host machine in step 1. This should be done for the SQL server, SQS server and Backup server entries. **Note: If IRIX 6.2 or sun5.5 machines set the SYBASE environment variable to /tools/sybOCv11.1.1.**

9. Change directory to /etc/init.d. The sybase and sqs_322 startup/stop scripts will need to be changed. The scripts currently use the 'uname' command to determine the current UNIX system name. The scripts need to be changed to hardcode the SQL server, Backup server and SQS server names.
10. Shut down the old Sybase servers and the new Sybase servers. **Note: This should include the SQL server, Backup server and SQS server.**
11. Reboot the new Sybase servers using the sybase start up script in the /etc/init.d directory. This script will start the new SQL server, Backup server and SQS server.
12. Log into new SQL server as user "sa" and perform the following:

```
use master
go
sp_dropserver <old SQL server> Note: (if it exists)
go
sp_dropserver SYB_BACKUP Note: (if it exists)
go
sp_addserver <new SQL server>, local, <new SQL server>
go
sp_addserver SYB_BACKUP, null, <new Backup server>
go
```

13. Disable sybase startup script on host machine the new Sybase Servers were previously housed on. So that if the host machine is ever rebooted the Sybase Servers will not be restarted on that machine.

7.6 Procedures for Device Path Transitions

The procedures for transitioning the device path from IRIX 6.2 (uses sybase path /dev/rdsk/xlv) to IRIX 6.5.6 (uses /dev/rxlv) are as follows:

Preliminary Steps:

These steps ensure that in the event of a system emergency, problems can be fixed. These steps are considered good practices that can help the Adaptive Server Enterprise DBA maximize server uptime.

1. Use the bcp utility to copy out the following tables from the master database:

- sysusages
- syslogins
- sysloginroles
- sysdatabases
- sysdevices
- syscharsets
- sysconfigures
- sysservers
- sysremotelogins
- sysresourcelimits
- systimeranges

```
bcp master.<table name> out <table name>.dat.62.<date> -Usa -Sservername -c
```

2. Maintain a hardcopy of master database tables by running the following queries and saving and printing the output.

```
select * from sysusages order by vstart
select * from sysusages order by dbid,lstart
select * from syslogins
select * from sysloginroles
select * from sysdatabases
select * from sysdevices
select * from syscharsets
select * from sysconfigures
select * from sysservers
select * from sysremotelogins
select * from sysresourcelimits
select * from systimeranges
```

3. Make Back-up copies of the following:

All User databases
Master database

Steps to transition from IRIX 6.2 to IRIX 6.5

These steps require coordination between DAAC dbas and DAAC SE.

1. logon the sql server as sa and shutdown the sybase server

shutdown with nowait

2. ** SE performs steps necessary to transition from 6.2 to 6.5. ******

Ensure that the RunFile for the Sybase SQL Server and the Backup server are set to the correct path. If not set to the correct path. Set Sybase device permissions in the /etc/ioperms file on the IRIX 6.5 machine.

3. SE restarts the sybase server.

Some databases may fail to come online during this step and be marked suspect.

4. Turn on allow updates to system tables.

```
logon as sa
use master
go
sp_configure "allow updates", 1
go
```

(Allow update to system tables can also be set in the server.cfg file that is located in the \$SYBASE/install directory. Allow update to system tables will be enabled the next time the sybase server is booted.)

5. Run the following commands:

Get the location of the devices for IRIX 6.5 from SE and update the phyname field in the sysdevices table to reflect the new device locations. (Run sp_helpdb to ensure that the sybase system has come online. If the sybase system has not come online fully, ensure that the paths for these devices are correct, and reboot the server before proceeding with the user databases).

```
select name,phname from sysdevices
go
begin tran
go
update sysdevices set phname="dev/rxlv/$DEVICE_NAME"
where name = "$DEVICE_NAME"
```

After all phname fields in the sysdevices table for the sybase devices have been modified to reflect their new location, go onto the next step.

6. Modify database status if necessary for any databases that did not come online when the sybase was restarted by running the following commands.

Check the appropriate status code for databases by reviewing The sysdatabases table printout that was made prior to running this procedure.

If databases are offline they should first be brought online by changing the status bit to 0 for the offline databases and then rebooting the sybase server. The status bit for the databases can then be set to its appropriate value and the sybase server should be rebooted.

```
select name,status from sysdatabases
go
update sysdatabases set status=<correct status>
where name = <database name>
go
```

7. Verify all changes that have been made to sysdevices table and sysdatabases table

```
select name,status from sysdatabases
go
select name,phname from sysdevices
go
```

8. When you are sure that you have modified the sysdevices and sysdatabases correctly run the following command

```
commit tran
go
```

If these tables are not modified correctly change them to the correct values before committing the transaction or rollback

the transaction.

```
rollback tran  
go
```

9. Turn off allow updates to system tables.

```
use master  
go  
sp_configure "allow updates",0  
go
```

10. shutdown the sybase server

```
shutdown with nowait  
go
```

11. SE restarts the sybase server.

All databases should come back online. Set the dboptions for all user databases to their previous settings.

12. Run dbcc checks on all databases (dbcc checkdb, dbcc checkalloc, dbcc checkcatalog) or dbcc checkstorage if installed.

8.1 GSFC Detailed Upgrade Procedures

*GSFC upgrade of SGI PC XL to Origin (ACM/DRP)
SGI C DM to PC XL (ICL)
SGI PC XL to SGI PC XL (SPR)*

Note: The following procedure is a DRAFT and will be updated as the Transition maturity advances and iterations are made with the GSFC DAAC.

Pre-Transition Activities

- 1) Set-up console manager and distribution server. Use either the pre-loaded disks or the procedures in the IRIX 6.5 PSR document (as amended by CCR 00-0793A) to configure the distribution server. (Switch g0icg02 off, connect g0acg05 to g0icg02. – complete.)
- 2) Receive additional hosts; add to floor, cable to the network, and burn in if your site is receiving new machines. Use the floor plan and network documents to configure:
 - g0acg05
 - g0tmp02
 - g0drg07
- 3) Receive additional RAID for g0mss10 and additional disks for use as clones during transition. (Note these are two 4 Gb disks for Ingest custom code.)
- 4) On new Origin machines, proceed with IRIX 6.5 PSR document. Install additional COTS as specified in Chapter 5 of this document as well as the Hardware/Software Document (920-TDG-002) for new hosts.

- 5) Install additional COTS products on all hosts needed prior to IRIX upgrade as appropriate to the specific hosts. Refer to Pre-Installation COTS in Chapter 5 of this document as well as the Hardware/Software document (920-TDG-002) for each machine.
- 6) Modify the text of the email sent to External Users of FtpPulls to include directions on how to access their pulled data between now and completion of the OPS Mode transition. (This allows us to change the host names for g0acgxx hosts at any time.)
- 7) On all drg, acg, and icg NFS clients, make a (backup) copy of the /etc/fstab or /etc/vfstab files.
- 8) On all SUN NFS clients for acg enter the following in the mount table (see 920-TDG-008):

Your current server for this mount point is gvacgaa.

```
### g0acg01:/usr/ecs/TS2/CUSTOM/acm/a/data /usr/ecs/TS2/CUSTOM/acm/a/data
```

On all SUN NFS clients for drg enter the following in the mount table:

```
### g0drg07:/usr/ecs/TS2/CUSTOM/drp/a/data /usr/ecs/TS2/CUSTOM/drp/a/data
```

```
### g0tmp02:/usr/ecs/TS2/CUSTOM/drp/b/data /usr/ecs/TS2/CUSTOM/drp/b/data
```

(These mount points will be used when TS2 is transitioned.)

- 9) Set-up anonymous ftp on new g0acg01 host. Use Technical Directive 99-012.

SPG Pre-Transition

1. Continue creating processing plans that will be using only g0spg07. g0spg01 will be upgraded when the first downtime starts.
2. Unmount g0spg01 on all its NFS clients.

3. If desired, delete the files in /usr/ecs/<MODE>/CUSTOM/logs directory. (This shortens the time for cloning the /data1 disk.)
4. Shutdown and power down the g0spg01 host and install pre-partitioned disk drives.
5. Clone the root and data1 disks; refer to section B.3.2.2.6 and B.3.2.2.7 (steps 1-10) (the cloning procedures) in the IRIX 6.5 PSR document.
6. Shutdown, power down g0spg01, and remove the original root and data1 disks (put in safe storage) and replace with cloned disks. (Label original drives with information about what machine it was pulled out of and which disk it was.)
7. Boot g0spg01 with cloned disks to verify that the cloning was successful. (Make sure that the cloned disks' SCSI address matches the original disks.)
8. Shut down g0spg01 to single user mode.
9. Edit the /etc/fstab file, comment out all local file system mounts except for the root file system.
10. Upgrade the cloned disks to IRIX 6.5 referring to sections B.3.2.2.1 – B.3.2.2.3 and B.3.2.2.8 – B.3.4.4 in the IRIX 6.5 PSR document. (Make sure to uninstall Clearcase as described in the IRIX 6.5 PSR document.)
11. Before rebooting g0spg01, edit the /etc/fstab file to reflect new 6.5 XLV path and uncomment all the local file system mounts.
 - New path = /dev/xlv/(volume name)
 - Old path = /dev/dsk/xlv
12. Boot g0spg01 to multi-user mode.
13. Install the other COTS products, referring to Chapter 5 of this document and the Hardware/Software map (920-TDG-002) for this g0spg01 host.

14. On g0spg01 install the IRIX 6.5 Toolkit, Science Processing Package and configure as specified in the 5B.05 Custom Code PSR.
15. Remount g0spg01 host on all modes for NFS clients.
16. In the TS2 mode re-configure PDPS to use only g0spg01. Begin SSI&T work and test PGE's using all IRIX 6.2 code except g0spg01.

AQG Pre-Transition

1. Upgrade g0aqg02 in place. There will be no cloning of disks for these machines.
2. Upgrade COTS products and configure g0aqg02 referring to Chapter 5 of this document, the Hardware/Software Document and associated PSR documents.

Start* of First DAAC Downtime:

(Estimated downtime after quiese approximately 14-18 hours)

The goal of this downtime is to set-up appropriate mount points for all acg, drg and icg hosts used during transition of TS2 mode; to clone all the disks needed for the Challenge to Origin upgrades and Challenge to Challenge upgrade; rename all SGI hosts (new and old) except for spg and acg hosts; and to move the all SGI databases to the new IRIX 6.5 hosts.

*Before first downtime begins: Stop all 8MM distribution and terminate e-mail parse code, to stop Aster FTP Pushes. (6 hours in advance of first downtime.)

1. Halt all modes.
2. Unmount all drg, acg and icg mount points on the SUN and SGI hosts.
3. Unconfigure DCE on all SGI hosts except for g0spg07. Refer to the section "Unconfigure DCE" procedures in the IRIX 6.5 PSR document.
4. Dump all databases (SGI and SUN). SUN databases dumps only needed if rollback is required.

5. Upgrade the g0icg02 CH DM (icg failover machine) in place (this assumes the g0acg05 host is not yet configured and ready for use) using the following procedure:
 - a. Power down g0icg02 and install new pre-partitioned disks for the root and data1 disks into hosts. Clone disks as per the “Cloning Procedures” in the IRIX 6.5 PSR document. Put original disks in safe storage.
 - b. Boot g0icg02 into single user mode using the new cloned disks to verify that the clone disks are working properly.
 - c. Edit the /etc/inittab file, comment out all entries for EcDsStFTPClientDaemon. This disables the EcDsStFTPClientDaemon in three modes.
 - d. Boot g0icg02, using the cloned disks, in multi-user mode. Check for file systems and network connections.
 - e. Edit the /etc/fstab to comment out the all of the local file system entries except the root file system.
 - f. Boot g0icg02 in Single User Mode and upgrade to IRIX 6.5. Refer the IRIX6.5 PSR document for upgrade procedures. (For now there is no failover capability for gvicgaa.).
 - g. On g0icg02, install additional COTS as described in Section 5 of this document and the Hardware/Software document.
 - h. Before rebooting g0icg02, edit the /etc/fstab file to reflect new 6.5 XLV path and uncomment all the local file system mounts.
 - i. Mount all the local file systems by using the mountall command.
 - j. Disable Sybase on g0icg01:

- Shutdown Sybase on g0icg01 and unmount associated Sybase file system.
(sybase1151)
- On g0icg01, disable Sybase from starting at boot

```
move /etc/rc2.d/S90sybase to /etc/rc2.d/s90sybase
```
- Edit the /etc/fstab file on g0icg01 and comment out the entries for the Sybase file system: (sybase1151)

k. Enabling Sybase on g0icg02

- On g0icg02, run xlv_mgr and change the nodename of all Sybase devices to g0icg02.
Also change nodename of the XLV associated with the Sybase file system to g0icg02.
- On g0icg02, add entry to mount the Sybase file.
Example: /dev/xlv/sybase1151/sybase1151
- On g0icg02, run xlv_assemble (This re-labels all xlv volumes).
- Mount sybase1151 on g0icg02.
- Check the local Sybase interfaces file on g0icg02 to verify the Sybase servers is pointing to g0icg02 for g0icg01_svr (already in the mounted Sybase Open Client interfaces file).
- Start Sybase. Need to get master, tempdb, and sybsysprocs up only on g0icg02.
(User databases will not mount at this time because Sybase is still using the IRIX 6.2 naming conventions.)
- Execute Sybase procedures Section 7.6 of this document (Procedures for Device Path Transitions).
- cd to /dev/rxlv and chown all of the Sybase devices to Sybase and the group sys:

Example: `chown sybase:sys ingest_data`

- Edit the `/etc/ioperms` to put an entry in for all Sybase devices.

Example: `/dev/rlv/ingest_data 0600 sybase sys`. (This file will be used in the future to change the owner, group, and permission of all Sybase devices at host boot-up).

- Shutdown and restart database. All mode Ingest and Registry database are now available locally.
- Verify that version 12 Sybase Open Client is available on the master NFS server (g0mss10).
- Enable Sybase to start at boot on g0icg02.
`/etc/rc2.d/s90sybase` to `/etc/rc2.d/S90sybase`
- Reboot g0icg02 and verify that Sybase is started and Sybase owns the Sybase devices.

- l. Install two new 4 gig RAID drives into chassis as bind as RAID 1 mirrored pair, to provide a place for custom code to be installed.
 - m. Format RAID 1 mirrored pair as an option drive.
 - n. Run `xlvmake` and create volume `newdata2` (replaces `data2` that is on g0icg01).
 - o. Edit g0icg02 `fstab` file and add entry to mount `/newdata2` on `/data2`. Mount `/data2`
6. On g0acg01 after the Sybase dumps have completed do the following:
 - a. Shut down g0acg01 and install new pre-partitioned drives received from Landover.
 - b. Clone the root and `data1` disk drives.

- c. Shut down and remove the original root and data1 disks and set aside. (Label the original disks with specific host information. These disks are to be used for rollback and can be sent to another DAAC or Landover after transition is complete.)
- d. Boot g0acg01 with cloned disks into single user mode to verify that the clone disks are working properly. (Make sure the change the SCSI address on the disks to match the originals before booting the host.)
- e. Edit the /etc/inittab file, comment out entries for FTP Client daemon and Copy daemon, if applicable.
- f. Boot g0acg01 host into multi-user mode. Check for file systems and network connections.
- g. Shut down and power down g0acg01, g0acg05, and HIPPI switch.
- h. Reconfigure HIPPI switch by Flip-flopping the g0acg01 and g0acg05 cards. (Cables are still connected to the cards and hosts.)
- i. Power up HIPPI switch.
- j. Power up and boot g0acg01 host in Single User Mode.
- k. Edit the /etc/sys_id file to change host name to g0acg05.
- l. Edit the /etc/host file to change IP address to 198.118.210.58 and host name to g0acg05.
- m. View the /etc/config/netif.options file and change if necessary to reflect a generic host name configuration (if it references a physical host).
- n. Disable Sybase from start up at boot on g0acg05 (formerly g0acg01) if appropriate. (i.e. `mv /etc/rc2.d/S90sybase /etc/rc2.d/s90sybase`) (From here on g0acg05 will be the “old” g0acg01 – the challenge acg host.)

- o. At command prompt, type: `hostname g0acg05`.
 - p. Run `xlvmgr` and change node names of all logical volumes (except raw Sybase volumes) from `g0acg01` to `g0acg05`. (Do not change the volume associates with the Sybase file system (`sybase1151`).)
 - q. Run `xlvm assemble` to re-label volumes.
 - r. Edit `/etc/fstab` file, comment out entry associated with Sybase executable file system.
 - s. Verify that AMASS is disabled at start-up.
 - t. Boot new `g0acg05` host in Multi-User Mode. Check that all local file systems are mounted and that Sybase does not start.
7. On Origin ACG host (At this point this host is `g0acg05` and has the OS and all COTS (including Sybase) installed):
- a. Boot `g0acg05` (new Origin) into single-user mode.
 - b. Change the `/etc/sys_id` file to `g0acg01`. (From this point `g0acg01` is the new origin and will be so referenced.)
 - c. Change the `/etc/host` file to `g0acg01` and `198.118.210.57`.
 - d. Check the `/etc/config/netif.options` file to verify generic hostname naming conventions.
 - e. Comment out all entries in the `/etc/exports` file.
 - f. Edit the `/etc/fstab` file to mount only the local file systems.
 - g. Boot `g0acg01` in multi-user mode.
 - h. If not completed, configure Sybase on `g0acg01` using Section 7 of this document and disk partitioning diagrams.

- i. Load SDSRV and STMGT databases on new g0acg01 host and set-up users for all 3 modes.
 - j. Create staging disk directories and data links identical to g0acg05. (old g0acg01)
 - k. Reboot in multi-user mode and check that Sybase starts and that file systems are OK.
8. For DRG hosts (We are only listing directions for g0drg01/g0drg07 Challenge/Origin pair. Please repeat these step for the g0drg02/g0tmp02 pair.)
- a. Shutdown AMASS, take a full AMASS backup and run sysdbchk and dbcheck. If resultant output is not error free make necessary AMASS database corrections before proceeding.
 - b. Shutdown and power off g0drg01 and g0drg07. Bring up g0drg01 in single use mode and install pre-partitioned disks.
 - c. Clone data1 and root disks on g0drg01. Refer to the “Cloning Procedures” in the IRIX 6.5 PSR document.
 - d. Pullout the original root and data1 disks andlable. (These disks are to be used for rollback and can be sent to another DAAC or Landover after transition is complete.)
 - e. Put the clone disks in the g0drg01 and boot into single user mode to verify that the clone disks are working properly. (Make sure the change the SCSI address on the disks to match the originals before booting the host.)
 - f. Boot host in multi-user mode. Check for file systems and network connections.
 - g. Shutdown and powerdown drg01 and drg07 and the HIPPI switch.
 - h. Flip-Flop the HIPPI boards between drg01 and drg07.
 - i. Power up HIPPI switch.

- j. Boot g0drg01 in single user mode
- k. Change g0drg01 host name to g0drg07 and the IP Address to 198.118.210.45 by editing the /ect/sys_id and /etc/hosts files.
- l. View the /etc/config/netif.options file and change if necessary to reflect a generic host name configuration.
- m. Run hostname g0drg07 command.
- n. Change node names of all logical volumes owned by g0drg01 to g0drg07.
- o. Disable AMASS from start-up. (If appropriate run /usr/amass/tools/amass_atboot -d).
- p. Boot g0drg07 Multi-User Mode. Check all local file system are mounted. Switch designated D3 drives from Challenge to Origin.
- q. On the (g0drg07) Origin machine, boot in Single User Mode.
 1. Edit the /etc/sys_id file. Change Host name to g0drg01.
 2. Edit the /etc/hosts file. Change the host name g0drg01 and IP address to 198.118.210.42.
 3. Verify that the host name entries in the /etc/config/netif_options file is generic.
 4. Run hostname g0drg01 command.
 5. Change node names of all logical volumes owned by g0drg07 to g0drg01.
 6. Boot g0drg01 to multi-user mode.
9. Restore /etc/inittab file on g0acg05, g0drg07, and g0tmp02.
10. Verify that the following Challenge machines g0acg05, g0drg07, and g0tmp02 are using IP aliasing.

11. On all SGI NFS Clients edit the /etc/fstab file to include g0drg07h, g0tmp02h, and g0acg05h
and comment out g0drg01h, g0drg02h, and g0acg01h.
12. Mount the NFS clients associated with the SGI hosts.
13. Configure g0icg01, g0drg07, g0tmp02, and g0acg05 into DCE name space.
14. Use EcsAssist run mkcdsentries to change the host names in the Keyfiles.
15. On one of the SUNs, use the registry dbpatch to change the machine names where
appropriate.
16. Warm start the IRIX 6.2 and SUN Servers for all modes and perform a brief checkout to
verify mount points and database availability. (2 hours minimum)
 - Run a PGE.
 - Polling and Auto Ingest.
 - Doing an FTP Push acquire with and without browse.
 - Doing an FTP Pull acquires.
 - Using the Registry GUI to verify Registry database.
 - Bring up and use the DDIST, SDSRV, INGEST, and STMGT GUI's and monitor
activities.

End of First Downtime. Site is now back operational and using new IRIX 6.5 hosts for databases only.

Beginning of Test Modes (TS2 or TS1) Transition of Custom Code

The following can be done while the DAAC is operational.

1. SPG Host upgrade and checkout (2-3 days).

- Configure PDPS to use previously upgraded g0spg01. (No code install is required. Requires simple reconfiguration in registry and SSI&T.)
 - Verify mount points.
 - Perform a brief checkout running appropriate PGE's.
2. Install TS2 mode on g0icg02.
 - a. On g0icg02 NFS mount from g0icg01 the staging area by editing the fstab file on g0icg02. Add the following entry: g0icg01h:/usr/ecs/TS2/CUSTOM/icl/a/data /usr/ecs/ecs/TS2/CUSTOM/icl/a/data
 - b. Mount staging directory on g0icg02 for TS2 mode.
 - c. Configure g0icg02 into the DCE cell.
 - d. Install IRIX 6.5 code on ICG host (reconfigure with new host name in registry database for polling directories and change Sybase Open Client.) This includes making new CDS entries and removing old CDS entries.
 - e. Verify polling directories are created on g0icg02.
 - f. Shut down TS2 mode on g0icg01 and bring it up on g0icg02.
 - g. Verify that the Registry server code is properly installed.
 - h. Checkout appropriate ingest via polling.
 3. Install TS2 mode on g0acg01.
 - a. On g0acg01 make appropriate entries into the /etc/exports file for TS2 mode and run exportfs -a to export staging disks for TS2 mode.

- b. On all ACG SUN NFS clients, unmount all file systems for TS2 mode from server gvacgaa and comment out associated entries in the mount table. Remove comments from entries for server g0acg01 for TS2 mode. Mount /usr/ecs/TS2/CUSTOM/acm/a/data.
- c. On all ACG SGI NFS clients, unmount all file systems for TS2 mode from server g0acg05h and comment out associated entries in the mount table. Remove comments from entries for server g0acg01h for TS2 mode. Mount /usr/ecs/TS2/CUSTOM/acm/a/data.
- d. Configure g0acg01 into the DCE cell.
- e. Install 5B.05 code on g0acg01 (reconfigure with new host name in registry database for polling directories and change Sybase Open Client.) This includes making new CDS entries and removing old CDS entries.
- f. Verify polling directories are created on g0acg01.
- g. Shutdown TS2 mode on g0acg05. Bring TS2 mode up on g0acg01.
- h. Check out by performing ingest and acquires and FTP Pulls.

Beginning of Second Downtime

(Total Downtime approximately 9 – 12 hours.)

Goal of this downtime is to move AMASS for all Modes and to transition OPS Mode. The steps in this section assume TS2 mode is being utilized. If it is desired to go directly to OPS mode, check HIPPI routing, and other details of the steps in this section, and proceed directly to the next section – OPS Mode Install and Checkout.

1. Quiese OPS mode (less than one hour) and stop test modes.

2. Verify that AMASS is quiescent on g0dr07 / g0tmp02. Refer to section B.3.2.2.9 step 1 of the IRIX 6.5 PSR document. (We are only listing directions for g0dr01/g0dr07 (Challenge/Origin pair). Please repeat these steps for the g0dr02/g0tmp02 pair.)
3. Perform full AMASS backup on g0dr07. Make note of barcode of backup volume.
4. Shut down AMASS on g0dr07. Disable AMASS from start up. (If appropriate, run:
`/usr/amass/tools/amass_atboot -d`)
5. Restore AMASS database from g0dr07 to g0dr01.
`/usr/amass/bin/amassrestore -L [insert barcode of back-up volume]`
6. On g0dr01 make appropriate entries into the `/etc/exports` file for TS2 mode and run `exportfs -a` to export staging disks for TS2 mode.
7. On all DRG SUN NFS clients, unmount all file systems for TS2 mode from server gvdrgaa and comment associated entries in the mount table. Remove comments from entries for server g0dr01 for TS2 mode. Mount `/usr/ecs/TS2/CUSTOM/drp/a/data`.
8. On all DRG SGI NFS clients, unmount all file systems for TS2 mode from server g0dr07h and comment associated entries in the mount table. Remove comments from entries for server g0dr01h for TS2 mode. Mount `/usr/ecs/TS2/CUTOM/drp/a/data`.
9. On g0dr01, use provided script from Landover or manually mark **ALL** volumes containing data Read Only. (This allows identification of new volumes should a roll back be necessary.)
10. Using Landover provided script or manually, inactive all volumes associated with TS1 and OPS mode. At this point: AMASS is on g0dr01, TS2 mode volumes are Read Only and active, TS1 and OPS mode volumes are Read Only and inactive.

11. Verify that space pool volumes are formatted, active, and available for use. Verify that TS2 volume groups are space pool enabled.
12. Install Custom Code for TS2 mode on g0drg01. (Can be done before second down time.)
13. Bring up TS2 mode on g0drg01.
14. Checkout by performing Ingest. (15 minutes)
15. Checkout by performing appropriate FTP Push and Pulls acquires. (15 minutes)

This concludes the checkout of the Test Mode Install. Proceed with OPS Install.

OPS Mode Install and Checkout:

Install Custom Code for OPS mode on all new IRIX 6.5 hosts (1 hour). This can be done before down time begins.

1. Upgrade g0spg07 to IRIX 6.5 (first check SSI&T is ready for go ahead).
 - a. Unmount g0spg07 from all of its NFS clients.
 - b. If desired, delete the files in /usr/ecs/<MODE>/CUSTOM/logs directory. (This shortens the time for cloning the /data1 disk.)
 - c. Shutdown and power down the g0spg07 host and install pre-partitioned disk drives.
 - d. Clone the root and data1 disks; refer to the cloning procedures in the IRIX 6.5 PSR documents.
 - e. Shutdown, power down g0spg07, and remove the original root and data1 disks and replace with cloned disks. (Label original drives with information about what machine it was pulled out of and which disk it was.)
 - f. Boot g0spg07 with cloned disks to verify that the cloning was successful. (Make sure that the cloned disks' SCSI address matches the original disks.)

- g. Shut down g0spg07 to Single User Mode.
- h. Edit the /etc/fstab file, comment all the local file system mounts except for the root file system.
- i. Upgrade the cloned disks to IRIX 6.5 following all the procedures in the IRIX 6.5 PSR document. (Make sure to uninstall Clearcase as described in the IRIX 6.5 PSR document.)
- j. Before rebooting g0drg07, edit the /etc/fstab file to reflect new 6.5 XLV path and uncomment all the local file system mounts.
- k. Boot g0spg07 into Multi-User Mode.
- l. Install all the other COTS products, referring to Chapter 5 of this document and the Hardware/Software map for g0spg07.
- m. On g0spg07, install the IRIX 6.5 Toolkit, Science Processing Package and configure as specified in the 5B.05 Custom Code PSR.
- n. Remount g0spg07 on all of its NFS clients for all modes.

At this time, g0spg01 and g0spg07 will be available to perform PDPS in OPS Mode.

- 2. On all ICG NFS clients, unmount ICG staging disk for all modes.
- 3. On g0icg01 execute `exportfs -u`.
- 4. On g0icg01, unmount /L0_buffer. Edit the /etc/exports file to comment all entries.
- 5. On g0icg02, run `xlw_mgr` and change the nodename of buffer to g0icg02.
- 6. On g0icg02, edit a copy of g0icg01's /etc/fstab file making changes to reflect new IRIX 6.5 XLV path.

7. On g0icg02, make a back-up copy of current /etc/fstab file. Replace /etc/fstab file with one modified to reflect IRIX 6.5 XLV path.
8. On g0icg02, edit the /etc/exports file adding export entries for all nodes.
9. Execute xlv_assemble to re-label volumes.
10. cd to /usr/ecs/TS2/CUSTOM/icl directory.
11. rmdir data
12. mount /L0_buffer
13. Link back to local host:

```
ln -s /L0_buffer/TS2/icl data
```
14. Execute the /usr/etc/exportfs -a (Export local staging disks from g0icg02).
15. Turn off ipaliasing on the following hosts: g0icg01, g0drg07, g0tmp02, g0acg05

```
/etc/init.d/aliases-ip stop
```
16. On g0icg02, g0drg01, g0drg02, and g0acg01, edit the /etc/config/ipaliases.options file.

This sets up ip aliases on IRIX 6.5.
 - g0icg02 enter:
 - g0drg01 enter:
 - g0drg02 enter:
 - g0acg01 enter:
17. Enable ip aliasing.

```
chkconfig ipaliases on
```
18. Start ipaliasing on all machines listed.

```
/etc/init.d/aliases-ip start
```

Confirm that ipaliasing is functioning.

19. On all SGI NFS clients restore the original /etc/fstab and the /etc/vfstab file.
20. On all NFS clients, execute mountall or mount -a.
21. Verify all appropriate mounts points. (1 hour)
22. Update Registry with original host names. (30 minutes)
23. Cold Start STMGT (except Pull Monitor) and Ingest (except polling), DDIST, SDSRV Servers and Warm Start the rest of the servers in OPS Mode and perform checkout.
24. Return to operations.

End of Second Downtime

Continue Transition

1. Reconfigure PDPS in test modes to use 2 IRIX 6.5 Science Processor hosts.
2. Checkout use on new Science Processor hosts.
3. Upgrade remaining Test Mode and checkout. (2 days)
4. Upgrade the “Backup” hosts and replace ICG hosts with Challenges released from ACG.
Refer to the IRIX 6.5 PSR document for the procedures to upgrade remaining machines.
5. Cleanup fstab files for unneeded mount points.
6. Make sure Ingest failover is still OK.

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8.2 EDC Detailed Upgrade Procedures

*EDC upgrade of SGI PC XL to Origin (ACM/DRP)
SGI C DM to PC XL (ICL)
SGI PC XL to SGI PC XL (SPR)
SGI C S to SGI C DM (AQG)*

Note: This upgrade plan is supplied by EDC and is under review.

8.2.1 Introduction to the EDC Approach

8.2.1.1 EDAAC Special Circumstances

EDC's approach to planning the 55 upgrade takes advantage of special circumstances, unique to the site, which benefits the EDAAC in a number of specific ways. For example, these circumstances allow the EDAAC to construct a modular 55 Transition Plan whose components can be executed in small schedule footprints. Separating the upgrade into components allows the EDAAC to conduct a series of smaller upgrades that have the benefit of maximize scheduling flexibility. In addition, these circumstances allow the EDAAC to accommodate normal schedule windows for Mode testing. For the EDAAC, Modes are able transition individually, whereas the other DAACs face circumstances (e.g., schedule drivers and less redundant equipment) such that their Modes must transition simultaneously. Finally, these unique circumstances allow the EDAAC to construct a plan that will result in shorter Science User outages with more flexibility for roll back options than is possible for the other sites.

These special circumstances are highlighted below.

- a. The EDAAC benefits from having sufficient hot spares, other redundancy, and early delivery of down stream capacity to allow transition to occur at the hardware level by Mode. For a significant period of time, EDC has two "strings" of hardware available for key functionality. This means that test Modes can be updated on one hardware item while the OPS mode continues to operate on its original hardware. Unlike the other sites, EDC does not rely on the new "disk clone" method introduced for this transition. However, the EDC plan will undergo continuous review to be sure there are no risk factors present in this plan which are eliminated by the disk clone method. If such a factor arises during EDC rehearsals, one possible fall back will be to emulate parts or all of the transition as done at the other sites.
- b. To simplify transition, NASA removed the hardware dependencies between EDC and other DAACs. Thus, it is not necessary to retire EDC hardware via transition to make it available for another DAAC. EDC benefits in that none of its hardware is in the critical path for another DAAC's transition, which in turn allows the site to entertain a wider variety of transition scenarios. In addition, EDC can entertain roll back concepts that allow the DAAC

to return to its previous hardware suite in the event of a failure of a new hardware item during transition.

- c. The first MOSS test is not a schedule driver for EDC 55 Transition because the DAAC already has sufficient capacity to meet the goals of the test. Other DAACs are highly dependent on having the new 55 capacity available for the test. Because EDC is not dependent on new Drop 55 capacity for MOSS, overall ECS transition planning can be focused on the other sites and the EDC can be transitioned downstream. The MOSS test schedule necessarily shortens the overall install window for the other DAACs. The shortened timetable requires the development of install procedures that are unique to this transition and perhaps introduce a set of new risks. Even though these risks will be mitigated through VATC rehearsals, EDC has the option to perform the update using more familiar install process.
- d. Because science processing for ASTER is operational only at the Instrument Checkout (ICO) level, the EDAAC has more flexibility than the other DAACs in choosing transition scenarios for science processing. EDC has two science processors that together provide full science processing capability for initial Aqua operations. This allows for processing scenarios where only one science processor is operational at a time. The EDAAC can cope with a reduced processing capability for a few weeks where the processors are transitioned one at a time. This circumstance allows EDC to move up the transition of its science processors far earlier than the nominal plan and yet maintain full production capacity on the current version of ECS.

8.2.1.2 Other EDAAC Considerations

The preservation of the current Performance Regression Test plan is a consideration in scheduling the transition. Performance Regression Testing is an end-to-end test done at the EDAAC for each ECS major milestone. There is a semi-formal relationship between the EDAAC and ESDIS Development Management whereby the DAAC provides results to be analyzed in conjunction with Landover Performance Engineering. The results of these tests are used to gain insight as to where performance progress has been made and where other performance efforts need to be focused. The original 5B Performance Regression Test has been delayed awaiting test executables for storage management.

There is a point of no return where 55-transition work will change the EDAAC configuration to such an extent that the 5B leg of Performance Regression Testing can no longer be benchmark of 5B.03+. If necessary, the decision to sacrifice the 5B.03+ performance test will be made at the appropriate time. While the clock is running, however, there is a certain amount of 55-transition work that can be conducted. The EDAAC intends to work up to the point of no return and, if necessary, wait for a few days for an opportunity to run the test. The concern is that loss of this “benchmark” data point will cloud the results of the follow-up test planned for post transition.

EDAAC science processing will transition from the ASTER instrument checkout (ICO) phase to routine processing during the early phases of the 55 transition. Several key issues will be examined and responded to as they present themselves in the schedule. SSI&T efforts involving the recompilation of the old PGEs under IRIX 6.5 will start as soon as spg05 is transitioned. Meanwhile, OPS will continue with the IRIX 6.2 versions on spg01 while SSI&T is underway on spg05. The plan calls for OPS to switch to the old PGEs compiled under IRIX 6.5 on spg05 while spg01 transitions.

Schedule flexibility is especially important with respect to EDAACs science processing. For example, at about the same time the performance test and early science processing transition is underway, the US ASTER Science Team is expected to release a new set of PGEs. After a period of time, using the new PGEs can become of higher priority than 55 transition so it is possible that arrival of new PGEs could impact this plan. It has been decided that transition need not be held up to preserve benchmarking science processing performance, however, an attempt will be made to run the old PGEs compiled under IRIX 6.2 for the performance test.

8.2.2 EDC Transition Overview

Simply stated 55 transition consists of two major activities which are (a) upgrading all SGI systems to IRIX 6.5.6 and (b) transitioning certain ECS subsystems which run on IRIX from one SGI hardware class to another. The fundamental goal is complicated by the fact that the new operating system requires new COTS and re-compiled custom code. In some cases, planning can take advantage of the fact that items compiled under 6.2 will work on 6.5.5 (upwards compatible) and that the custom code built under 6.2 can work along side the code built under 6.5.6.

The foundation of the EDC 55 Transition Plan becomes a carefully orchestrated scenario to configure new hardware, use backup machines and re-deploy existing hardware as it is needed to enable the EDAAC to stay on its current science operations readiness plan. To meet the milestones in the plan, it is necessary for OPS Mode to continue to run while the Test Modes are used to verify preservation of functionality. One of the major themes driving the EDAAC scenario layout has to do with preserving the integrity of Mode testing. Thus, to the maximum extent possible, OPS Mode will be configured to run in the same configuration as was used to regression test in the test Modes.

The EDAAC plan calls for introducing a few new host names to accommodate situations where the Test Modes are running on one SGI system while the OPS mode continues on current equipment. The plan is that the new host names will replace the old host names. Table 8.2.2-1 summarizes host-naming conventions used in this plan.

Table 8.2.2-1 New Host names at EDAAC€

Functionality Served	NEW HOST NAME	NEW SGI TYPE	OLD HOST NAME	OLD SGI TYPE	WAS HOST NAME	WAS SGI TYPE
ACG	e0acg11	Origin 2K	e0acg01	Challenge 10K	n/a	
DRG - L7	e0drg11	Origin 2K	e0drg01	Challenge 10K	n/a	
DRG -ASTER & MODIS	e0drg12	Origin 2K	e0drg02	Challenge 10K	n/a	
ICG	e0icg11	Challenge 10K	e0icg01	Challenge DM	e0acg02	Challenge 10K

EDC has grouped its install into a series of “components” each having a specific theme. These components are discussed herein in the order most likely to occur but there is considerable flexibility to manage the components so that they over lap or to occur in a different order. The components are referred to as Pre-Transition, Science Processing, Archive Servers, Ingest Server, HDF Sub-setter and Post Transition.

8.2.2.1 EDAAC Pre-Transition Component

The 55 Transition effort consists of a number of activities that can be done before the mainstream transition with does not effect current operations of any of the ECS MODEs. This is because either the effort is done on hardware currently not in the operational configuration or because the transitioned item is downwards compatible to Drop 5B.03+. These items are listed below roughly in chronological order.

- Install Gigabit Ethernet.
- Receive three new SGI Origin platforms, provide power and network connectivity.
- Install the Origins, name them acg11, drg11, and drg12 and burn them in.
- Install SGI 02 (e0console1) to serve as console concentrator for Origins.
- [After the PSR] Update Origins to IRIX 6.5.6.
- Install AMASS 4.12.3 on Origins.
- Install AMASS 4.12.3 on Challenges.
- Stage Drop 55 custom code on Origins.

8.2.2.2 EDAAC Science Processing Component

The EDC 55 Transition Science Processing Component can be accomplished without downtime to the Science User community. There is no hardware change involved in this transition. EDC’s two science processors are sized for reprocessing such that there is enough capacity to process at

ASTER ICO volumes on one machine while another is down. This allows spg01 to be left on-line for OPS while spg05 is taken off-line and upgraded.

The science processor referred to as spg05 houses the EDAAC SSI&T function and is the logical choice to go first. Immediately following the upgrade of spg05 to IRIX 6.5.6, SSI&T will verify the old PGEs compiled under 6.2 run under the new operating system. After this quick regression test, the old PGEs will be re-compiled with the new toolkit and the IRIX 6.5.6 version of the old PGEs will be tested. Meanwhile, OPS will be using the old PGEs on spg01.

It remains to be determined as to exactly when or if OPS will transition to the re-compiled old PGEs. This will depend on test results and the arrival of new PGEs about to be shipped by the US ASTER Science Team. Considerable flexibility has been put into the plan. Under one scenario, OPS will transition the upgraded spg05 with the IRIX 6.2 PGEs and under another the old PGEs will have been re-compiled. The plan calls for a transition to OPS on spg05 as quickly as possible so that spg01 can be upgraded. As soon as spg01 is upgraded and made available to OPS, SSI&T activities can resume on spg05. These steps are listed below roughly in chronological order but several permutations are possible.

- De-activate spg05 and update to IRIX 6.5.6.
- Install COTS
 - Legatto
 - Tripwire
 - IMSL
 - Purify
 - Open client
- Reconfigure Autosys to not use spg05
- Unconfigure spg05 from DCE
- Load IRIX 6.5
- Reconfigure spg05 into DCE
- Reconfigure Autosys to use spg05
- Load and configure Flex LM, IDL and TCP wrappers
- Activate spg05* for early SSI&T and test old PGEs on new IRIX.
- [if time permits] Re-compile old PGEs for IRIX 6.5 and test.
- Activate spg05* transition to OPS production using old IRIX 6.2 PGEs.
- De-activate spg01 and update to IRIX 6.5.6.
 - Reconfigure Autosys to not use spg01
 - Unconfigure spg01 from DCE
 - Load IRIX 6.5
 - Reconfigure spg01 into DCE
 - Reconfigure Autosys to use spg01
 - Load and configure Flex LM, IDL and TCP wrappers
- Support Performance Regression Benchmark test.
- Activate Update spg05* OPS and spg01* for IRIX 6.5 recompiled [SSI&T approved] PGEs.

- Activate spg01* for OPS.

A clean install is not used when existing Challenges are upgraded to IRIX 6.5 to insure that the bulk of the configuration is left intact (the exception is DCE which is un-configured and uninstalled then re-installed).

8.2.2.3 EDAAC Archive Servers Component

For this discussion the ACG function is lumped into the DRG function because the emphasis will be on what is transpiring within the AMASS database while transition testing is underway. (ACG has the AMASS servers for Browse.)

The EDC 55 Transition Archive Servers Component is a transition from three SGI Power Challenges to Origins. The Origins were built from scratch in order to conform exactly to ECS specifications. COTS will have been installed and custom code will be pre-staged in order to allow mode-by-mode functionality conservation testing. The key to understanding this transition is that the OPS Mode will be running simultaneously with the Test Modes but on different hardware platforms so that it will be necessary to introduce new hardware names.

One major effort will be in the implementation of a strategy to allow the STK Silos and AMASS database to be exercised in the mode tests. EDC will simplify this concept by allowing AMASS updates made in the Test Modes to be overwritten when it is necessary to re-synchronization the AMASS database for OPS transition. The re-synchronization step will be verified when the transition from TS2 to TS1 occurs. EDC is considering special techniques involving special volume groups and a one-time partitioning of the available tape pool to actually preserve updates made for the test Modes during transition testing but this is not critical to the success of the plan.

One of the activities involved will be to take down half of the SCSI drives from the appropriate STK silos from the OPS Challenges and re-allocate them to the appropriate Origins. In the process, the SCSI switch will be removed from the configuration so that when the final transition to the Origins is made the switch will off-line.

- For each Origin the following hardware setup required:
 - RAID configuration
 - Ethernet connectivity
 - HIPPI connectivity
 - License servers setup
 - Install IRIX 6.5
 - Install AMASS
 - Mountpoints
 - Install COTS
 - Legatto
 - Tripwire
 - IMSL

- IDL
- Purify
- SQS – Sequel Server
- Open client

- Install and Configure Sybase
 - Layout devices for Sybase
 - Build database structures
 - Initial database load
- Install Shared mode
- Install custom code in all 3 modes
- Drop drg01, drg02, and acg01 down to 4 SCSI silo drives each.
- Duplicate AMASS (shared mode) databases on drg11, drg12, and acg11 for test.
- Cable drg11, drg12, and acg11 to free SCSI silo drives bypassing switch and test STK and AMASS.
 - TS2 MODE:
 - Perform Database backups
 - Perform AMASS backup
 - Halt all TS2 mode activity
 - Load final copy of database to Origins
 - Copy AMASS database
 - Transition TS2 to the Origins by changing/verifying DCE mapping, custom code mapping, mountpoints
 - Bring up TS2 mode
 - Testing and checkout
 - Possibly accomplish a rollback to the power challenges followed by a roll forward to the Origins again.
 - TS1 MODE:
 - Perform Database backups
 - Perform AMASS backup
 - Halt all TS1 mode activity
 - Load final copy of database to Origins
 - Copy AMASS database
 - Transition TS1 to the Origins by changing/verifying DCE mapping, custom code mapping,
 - Mountpoints
 - Bring up TS1 mode
 - Testing and checkout
- Disconnect remaining SCSI cables from drg01, drg02, and acg01 and switch and connect SCSI cable directly to drg11, drg12, and acg11.
 - OPS MODE:
 - Perform Database backups
 - Perform AMASS backup
 - Halt all OPS mode activity
 - Load final copy of database to Origins
 - Copy AMASS database

- Transition OPS to the Origins by changing/verifying DCE mapping, custom code mapping,
- Mountpoints
- Bring up OPS mode
- Testing and checkout

8.2.2.4 EDAAC Ingest Server Component

The EDC 55 Ingest Server Component is a transition from a DM to a Power challenge as well as an operating system upgrade. A hot spare (acg02) will be used making this component independent from the others. From a hardware point of view, this component is very much like the Archive Servers component in that a new hardware name must be introduced.

- Hardware setup required:
 - RAID configuration
 - Ethernet connectivity
 - HIPPI connectivity
 - Install IRIX 6.5
 - Mountpoints
 - Install COTS
 - Legatto
 - Tripwire
 - Open client ???
 - Install Shared mode
 - Install custom code in all 3 modes
- De-activate acg02 (hot spare), update to IRIX 6.5.6 and re-activate it as icg11*.
- TS2 MODE:
 - Halt all TS2 mode activity
 - Transition TS2 to the Challenge by changing/verifying DCE mapping, custom code mapping, mountpoints
 - Bring up TS2 mode
 - Testing and checkout
 - Roll back test???
- TS1 MODE:
 - Halt all TS1 mode activity
 - Transition TS1 to the Challenge by changing/verifying DCE mapping, custom code mapping, mountpoints
 - Bring up TS1 mode
 - Testing and checkout
- Activate icg11 for OPS.
- Halt all OPS mode activity

- Transition OPS to the Challenge by changing/verifying DCE mapping, custom code mapping, mountpoints
- Bring up OPS mode
- Testing and checkout

8.2.2.5 EDAAC HDF Sub-setter Component

The EDC 55 HDF Sub-setter Component is an operating system upgrade where hot spare (drg05) will be used to make this component independent from the others. From a hardware point of view, this component is very much like the Science Processor component in that functionality is move to one hardware unit while the other is upgraded. EDC has performed these steps for the HDF Server in the past. The HDF Server supports Landsat 7 sub-setting which is unique to EDC; the choice of machine for this function is somewhat arbitrary.

One of the keys to understanding the feasibility of this effort with respect to machine capacity is that the TS modes only run one sub setter per mode while the OPS Mode runs 5 copies simultaneously. There is considerable flexibility in this component. One scenario calls for moving the Modes mode-by-mode to drgo5 under IRIX 6.5.6 then to moving back to an upgraded wkg01. At the other end of the spectrum, EDC may decide to not use drg05 for OPS and simply bring up OPS on an upgraded wkg01. This would violate the EDC principle of bringing up OPS on the same configuration that was tested in the TS Modes but because this is only one custom function that has been moved around before, the risk might be ruled low enough to proceed down that path. The steps given below are for the most conservative approach.

- Hardware setup required:
 - RAID configuration
 - Ethernet connectivity
 - HIPPI connectivity
 - Install IRIX 6.5
 - Mountpoints
 - Install COTS
 - Legatto
 - Tripwire
 - Install Shared mode
 - Install custom code in all 3 modes
- De-activate drg05 (hot spare), update to IRIX 6.5.6 and re-activate it as drg05*.
- TS2 MODE:
 - Halt all TS2 mode activity
 - Transition TS2 by changing/verifying DCE mapping, custom code mapping, mountpoints
 - Bring up TS2 mode
 - Testing and checkout

- Roll back test
- TS1 MODE:
 - Halt all TS1 mode activity
 - Transition TS1 by changing/verifying DCE mapping, custom code mapping, mountpoints
 - Bring up TS1 mode
 - Testing and checkout
- Activate drg05 for OPS.
- Halt all OPS mode activity
- Halt TS2/TS1 Landsat 7 mode activity
- Transition OPS by changing/verifying DCE mapping, custom code mapping, mountpoints
- Bring up OPS mode with three HDS Servers (**with none in the TS Modes**)
- Testing and checkout
- De-activate wkg01, update to IRIX 6.5.6 and re-activate it as wkg01*.
- TS2 MODE:
 - Transition TS2 by changing/verifying DCE mapping, custom code mapping, mountpoints
 - Bring up TS2 mode on wkg01* with three HDF Servers, test and then drop to one
 - Testing and checkout
- TS1 MODE:
 - Transition TS1 by changing/verifying DCE mapping, custom code mapping, mountpoints
 - Bring up TS1 mode on wkg01* with one HDF Server
 - Testing and checkout
- Activate wkg01* for OPS.
- Halt all OPS mode activity
- Transition OPS by changing/verifying DCE mapping, custom code mapping, mountpoints
- Bring up OPS mode with three HDS Servers
- Testing and checkout

8.2.2.6 EDAAC Post Transition Component

- De-activate icg01 (having been replaced by icg11) and remove two CPUs.
- De-activate aqg01.
- Remove two CPUs from icg02 (hot spare), upgrade to IRIX 6.5.6 and configure it to aqg01*.
- Add two CPUs to each of spg01 and spg05.
- By the end of the year, the temporary 100Mbit Ethernet link to the Fore PowerHub 8000 FDDI switch will be disabled as each host is reconfigured to use its Ethernet port.

After the upgrade, acg02, wkg11 and spg05 will be the ESI license servers (we will start with acg02 and spg05).

The following will be re-visited for future role in the EDC configuration.

Table 8.2.6-1 EDAAC Host names to become spares

OLD HOST NAME	OLD SGI TYPE	COMMENTS
e0acg01	Challenge 10K	hot spare to icg11* as icg12*
e0drg01	Challenge 10K	hot spare to drg's, M&O Server
e0drg02	Challenge 10K	AMASS and Sybase backup verification machine
e0drg05	Challenge 10K	hot spare to wkg01*, special projects
e0icg01	Challenge DM	surplus

8.3 EDAAC Transition Schedule

As illustrated above, EDAAC is attempting to maximize schedule flexibility to accommodate a number of dynamic elements such as ESDT-by-ESDT public release of data, PGE delivery, Test Executable flow down, and OPS readiness test events which are highly dependent upon each other. This schedule is carefully coordinated each week in a formal meeting with ESDIS and ECS Program Management. No attempt will be made to publish the schedule herein because the schedule is available as part of another process.

EDAAC acknowledges that it is vital to conduct the transition as quickly as possible in order to avoid a situation where the custom code baseline it is currently on becomes “stale” and costly to maintain. In addition, there are a number of important Performance Tests based on 55 capacity that need to be conducted at EDC in support of the Aqua Launch. Should EDC mode-by-mode transition be proven to be flawed, overly risky or costly; the EDC will no doubt alter the plan to be a hybrid between what is presented herein and the plan used for the other DAACs. Finally, the steps above have been presented herein at a high level for readability; this plan will be followed by a detailed step-by-step procedure prior to executing any transition components.

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8.3 LaRC Detailed Upgrade Procedures

LaRC Upgrade Plan

Note: This upgrade Procedure is the old “Appendix E” and may be updated after the VATC has matured the procedures.

(Note: All instances requiring the cloning of disks may not be identified.)

l0spg01 Science Processor Server (PC XL)

1. Shutdown l0spg01
 2. Install new boot disk
 3. Install new data1 disk Install OS and COTS as identified in Section 5, Table 5-4, SPG Upgrade OS and COTS Process.
Install Custom Code as identified in Release 5B.05 PSR.
 4. Check out upgraded l0spg01 (PC XL)
 5. Turn over upgraded l0spg01 (C DM) to DAAC for production.
-

l0spg05 Science Processor Server (PC XL)

1. Shutdown l0spg05
2. Install new boot disk
3. Install new data1 disk
Install OS and COTS as identified in Section 5, Table 5-4, SPG Upgrade OS and COTS Process. Install Custom Code as identified in Release 5B.05 PSR.
4. Check out upgraded l0spg05 (PC XL)
5. Turn over upgraded l0spg05 (PC XL) for production.

l0spg06 Science Processor Server (PC XL)

1. Shutdown l0spg06
 2. Install new boot and data1 disks (disk images)
Install OS and COTS as identified in Section 5, Table 5-4, SPG Upgrade OS and COTS Process. Install Custom Code as identified in Release 5B.05 PSR.
 3. Check out upgraded l0spg06 (PC XL)
 4. Turn over upgraded l0spg06 (PC XL) for production.
-

l0acg02 Primary ACM Server (PC XL)

1. Shut down l0acg02 (PC XL)
2. Shut down l0acg05 (PC XL)
3. Remove SCSI cables that go from ACG RAID to l0acg05 (PC XL).
4. Terminate RAID SCSI ports that were connected to l0acg05 (PC XL)
5. Restart l0acg02 (PC XL)
6. Install transition RAID. (We'll have to verify that this is available)
7. Connect n0acg05 (PC XL) to new transition RAID per the Disk Configuration documents.
8. Connect (4) 9840 drives to l0acg05
9. Install OS/COTS as indicated in Table 5-2, ACG UPGRADE.
10. Configure RAID per Disk Configuration documents
11. Test OS and COTS on upgraded l0acg05 (PC XL)
 - a. Install and configure CUSTOM code in TS2 mode on upgraded l0acg05 (PC XL).
12. Bring down TS2 mode on l0acg02 (PC XL).
 - a. Dump Storage Management and Science Data Server database and restore on l0acg05 (PC XL)

13. Check out TS2 mode on upgraded l0acg05 (PC XL).
 - a. Install and configure CUSTOM code in TS1 mode on upgraded l0acg05 (PC XL)
14. Bring down TS1 mode on l0acg02 (PC XL)
 - a. Dump Storage Management and Science Data Server database and restore on l0acg05 (PC XL)
15. Check out TS1 mode on upgraded l0acg05 (PC XL)
16. Suspend Ops production.
 - a. Suspend OPS ingest activities
 - b. Set Data Distribution to “SUSPEND ALL”
17. Dump Storage Management and Science Data Server databases and restore on upgraded l0acg05 (PC XL).
18. Run Sybase Consistency Checker against restored database.
 - a. Run AMASS to Sybase check
19. Install and check out CUSTOM code in OPS mode on upgraded l0acg05. (PC XL)
20. Shut down l0acg02 (PC XL)
21. Change network configurations on upgraded l0acg05 to l0acg02
 - a. Change IP= 198.118.219.62 Production network
 - b. Change IP= 198.118.218.12 User network
 - c. Change name= l0acg02u and l0acg02
 - d. Change HIPPI=192.168.2.8
22. Flush Router
23. Shut down upgraded l0acg02 (PC XL)
24. Attach RAID from old l0acg02 to upgraded l0acg02 per Disk Configuration documents.
25. Remove HIPPI cables from HIPPI switch in Port 7
 - a. Relocate HIPPI cables from Port 6 to Port 7
 - b. Remove FDDI cable LB120 from l0acg05
 - c. Relocate FDDI cable LB033 from l0acg02 to l0acg05
 - d. Relocate FDDI cable LB032 from l0acg02 to l0acg05
 - e. Remove FDDI jumper cable that connects l0acg02 to l0acg05
 - f. Attach 4 remaining 9840 drives to upgraded l0acg02

26. Restart upgraded l0acg02 as primary ACG Server.
 - a. Configure AMASS to include remaining 9840 drives
 28. Relocate old l0acg02 “00001215” to become new l0icg01
-

l0drg01 Primary DRP Server (SILO 1) (PC XL)

1. Shutdown l0drg01 (PC XL)
2. Shutdown l0drg03 (C L)
3. Switch 4 D3 drive to l0drg03
4. Restart l0drg01 (PC XL) with 4 D3 drives attached.
 - a. Deactivate in AMASS 4 D3 drives that was switched to l0drg03 (PC XL)
5. Turn over l0drg01 to DAAC for production.
6. Install OS/COTS on l0drg03 (PC XL) as indicated in Section 5, Table 5-6, DRG UPGRADE
7. Deleted.
8. Restart upgraded l0drg03. (PC XL)
11. Configure system disk drives.
12. Test OS and COTS on upgraded l0drg03 (PC XL)
 - a. Install and configure CUSTOM code in TS2 mode on upgraded l0drg03 (PC XL)
13. Bring down TS2 mode on l0drg01 (PC XL)
14. Check out TS2 mode on upgraded l0drg03 (PC XL)
 - a. Install and configure Custom code in TS1 mode on upgraded l0drg03.
15. Bring down TS1 mode on l0drg01 (PC XL)
14. Check out TS1 mode on upgraded l0drg03 (PC XL)
 - a. Install and configure CUSTOM code in OPS mode on upgraded n0drg03.
15. Suspend OPS production
16. Shut down l0drg01.

18. Switch remaining 4 D3 drives from l0drg01 (PC XL) to upgraded l0drg03 (PC XL)
 - a. Configure AMASS to include the 4 remaining D3 drives
 19. Restart l0drg03 (PC XL) with 8 D3 drives.
 - a. Run AMASS to Sybase check.
 20. Perform check out on upgraded l0drg03 (PC XL) in OPS mode.
 21. Turn over upgraded l0drg03 to DAAC for production
 21. Relocate old l0drg01 to ICL
-

l0icg01 (New PC XL) Primary ICL Server (C L to PC XL)

Reuse PC XL from l0acg02

1. Configure old l0acg02 to meet ICL requirements
 - a. TBD
2. Shut down l0icg01 (C L)
3. Shut down l0icg02 (C L)
4. Disconnect SCSI RAID cables from l0icg02 (C L)
 - a. Disconnect SCSI RAID cables from RAID
 - b. Terminate SCSI ports on RAID
 - c. Disconnect FDDI cables LB045 and LB046
 - d. Remove l0icg02 from Data Center floor
5. Install old l0acg02
 - a. Connect FDDI cables LB045 and LB046
6. Install OS/COTS (Disk Image) as indicated in Section 5, Table 5-8, ICG UPGRADE.
7. Configure system disk
 - a. Name= l0icg02
 - b. IP= 198.118.217.6
8. Test OS and COTS on upgraded l0icg02 (PC XL)
 - a. Install and configure CUSTOM code in TS2 mode on new l0icg02 (PC XL)

9. Bring down TS2 on l0icg01 (C L)
 - a. Check out TS2 mode on new l0icg02 (PC XL)
10. Install and configure CUSTOM code in TS1 mode on new l0icg02 (PC XL)
11. Bring down TS1 on l0icg01 (C L)
 - a. Check out TS1 mode on new l0icg02 (PC XL)
12. Suspend OPS ingest on l0icg01 (C L)
 - a. Quiesce ingest activities on l0icg01(C L)
13. Dump ingest and registry databases to new l0icg02 (PC XL)
14. Shut down l0icg01(C L)
15. Change name and IP address
 - a. Disconnect FDDI cables LB045 and LB046 from new l0icg02 (PC XL)
 - b. Relocate FDDI cables LB043 and LB044 from l0icg01(C L) to new l0icg02 (PC XL)
 - c. Change IP address on new l0icg02 to 198.118.217.5
 - d. Change name of new l0icg02 to l0icg01
16. Shut down new l0icg01 (PC XL)
 - a. Relocate SCSI cables from old l0icg01 (C L) to new l0icg01(PC XL) per disk configuration documents
17. Flush Router
16. Restart new l0icg01 (PC XL)
19. Install and configure CUSTOM code in OPS mode on new l0icg01 (PC XL)
20. Check out new l0icg01 (PC XL) in OPS mode
 - a. Test new l0icg01 (PC XL) using test data
21. Turn over new l0icg01 (PC XL) to production.

l0icg02 (New PC XL) Secondary ICL Server (C L to PC XL)

Reuse PC XL from l0drg01

1. Configure old l0drg01 to meet ICL requirements.
 - a. TBD

2. Relocate old l0drg01 to the location of l0icg02
3. Attach FDDI cables LB045 and LB046 to new l0icg02 (PC XL)
4. Flush router
5. Install OS/COTS as indicated in Section 5, Table 5-8, ICG UPGRADE.
6. Configure system disk
 - a. Name= l0icg02
 - b. IP= 198.118.217.6
7. Test OS and COTS on upgraded l0icg02 (PC XL)
 - a. Install and configure CUSTOM code in TS2 mode on new l0icg02 (PC XL)
8. Bring down TS2 on l0icg01 (PC XL)
 - a. Check out TS2 mode on new l0icg02 (PC XL)
9. Install and configure CUSTOM code in TS1 mode on new l0icg02 (PC XL)
10. Bring down TS1 on l0icg01 (PC XL)
 - a. Check out TS1 mode on new l0icg02 (PC XL)
11. Suspend OPS ingest on l0icg01 (PC XL)
 - a. Quiesce ingest activities on l0icg01(PC XL)
12. Dump ingest and registry databases to new l0icg02 (PC XL)
13. Shut down l0icg01 (PC XL)
14. Shut down new l0icg02 (PC XL)
 - a. Connect SCSI cables from l0icg02 (PC XL) to ICL RAID per disk configuration documents
15. Restart l0icg01 (PC XL)
16. Restart l0icg02 (PC XL)
17. Install and configure CUSTOM code in OPS mode on new l0icg02 (PC XL)
18. Check out new l0icg02 (PC XL) in OPS mode
 - a. Test new l0icg02 (PC XL) using test data

19. Turn over new l0icg02 (PC XL) to production.
-

AQA l0aqq02 (C S - C L)

Reuse C L from l0icg02

1. Shutdown l0aqq02 (C S)
2. Disconnect vaults from l0aqq02 (C S)
3. Relocate and install old l0icg02 (C L) as new l0aqq02.
 - a. Connect vaults to C L
 - b. Connect FDDI cable LB006 to new l0aqq02
 - c. Re-configure hardware to meet AQA requirements.
4. Restart new l0acg02 (C L)
5. Install new OS as identified in Section 5, Table 5-10, AQG New Install OS and COTS Process.
 - a. Change name from l0icg02 to l0aqq02
 - b. Change IP address to 198.118.219.27
6. Configure disk.
7. Install COTS upgrades as indicated in Table 5-10, New AQQ.
8. Test system
9. Turn over new l0aqq02 to DAAC for production.

AQA l0aqq01 (Indigo)

OS upgrade only

1. New 4GB disk drive has been installed.
2. Install operation system.
3. Configure disk
4. Install COTS upgrades as indicated in Section 5, Table 5-10, New AQQ.
5. Test system.

8.4 NSIDC Detailed Upgrade Plan

*NSIDC upgrade of SGI CH XL (ACM)
SGI CH L (DRP)
SGI CH DM to CH XL (ICL)
SGI CH DM (SPR)
SGI CH S to CH DM (AQA)*

Note: The following procedure is a DRAFT and will be updated from experience in the VATC and as iterations are made with the NSIDC DAAC.

Pre-Transition Activities

1. Set-up n0aqq02 as distribution server. Use section B.3.1 (Distribution Sever Configuration) procedures of the IRIX 6.5 PSR document. (Recommend using the pre-installed disks sent from Landover.)
2. Install additional COTS products on all hosts needed prior to IRIX upgrade as appropriate to the specific hosts. Refer to Pre-Installation COTS in Chapter 5 of this document as well as the Hardware/Software documents for each machine.
3. Upgrade new n0icg01 (old g0drg07) to IRIX 6.5. **Note:** This machine will be built as n0aqq01. The disks will be removed and cloned disks from n0icg01 will be installed. This machine will then replace the current n0icg01 machine. Currently this machine has problems with kernel. Solve problems before building disks.
 - a. Stop all user activities.
 - b. Upgrade system to IRIX 6.5. Refer to section B.3.2.2.10 (all steps) (Create a Software Profile) then proceed with sections B.3.3 (all steps) – B.3.5 (all steps) (Install/Upgrade

from Network Distribution, OS Configuration, and Post-Installation Software Verification) of the IRIX 6.5 PSR document.

- c. Install additional COTS products as described in Section 5 of this document as well as using the 920-TDA-002 revXX (Hardware/Software Map).
4. Receive pre-partitioned disk drives from Landover for cloning of system disks.
5. Make back-up copies of the /etc/host/license.dat files for each server.

Transition Plan

1. Upgrade n0acg02 to IRIX 6.5
 - a. Stop all user activities on n0acg02.
 - b. Shutdown and install pre-partitioned disk drives. Refer to section B.3.2.2.5 (Hardware Setup) step 2 of the IRIX 6.5 PSR document to set the SCSI address of the pre-partitioned disk drives.
 - c. Power up n0acg02 and boot into Single-User Mode. Clone the root and data1 disk drives. Refer to section B.3.2.2.6 (all steps) and B3.2.2.7 (steps 1 – 13) (Commands for Cloning the Data Disk and Command for Cloning the Root disk) of the IRIX 6.5 PSR document. (Label original root and data1 disks and store in a safe place in case they are needed for rollback.)
 - d. Boot n0acg02 into Multi-User Mode and verify file systems and network connections.
 - e. Boot n0acg02 into Single-User Mode. Comment out /etc/fstab file entries for non-system file systems and unmount them.
 - f. Implement Technical Directive 00-006 (Instruction for IRIX 6.5 removal of DCE Cell Manager Host Agent for Transition UPGRADES from IRIX 6.2 to 6.5.

- g. Uninstall Clearcase. Refer to section B.3.2.2.8 (all steps) (Uninstall Clearcase procedures) of the IRIX 6.5 PSR document. If Clearcase is not installed on this machine, skip to next step.
 - h. Upgrade system to IRIX 6.5. Refer to section B.3.2.2.10 (all steps) (Create a Software Profile) then proceed with sections B.3.3 (all steps) – B.3.5 (all steps) (Install/Upgrade from Network Distribution, OS Configuration, and Post-Installation Software Verification) of the IRIX 6.5 PSR document.
 - i. Edit the /etc/fstab file, uncomment entries for non-system file systems and mount them.
 - j. Reboot n0acg02 into Multi-User Mode.
 - k. Install additional COTS products as described in Section 5 of this document as well as using the 920-TDA-002 revXX (Hardware/Software Map).
 - l. Install custom code as per 5B.05 PSR document.
 - m. Perform system and custom code checkout.
2. Upgrade n0spg03 to IRIX 6.5
- a. Stop all user activities on n0spg03. Unmount n0spg03 from all of its NFS Clients.
 - b. Shutdown and install pre-partitioned disk drives. Refer to section B.3.2.2.5 (Hardware Setup) step 2 of the IRIX 6.5 PSR document to set the SCSI address of the pre-partitioned disk drives.
 - c. Power up n0spg03 and boot into Single-User Mode. Clone the root and data1 disk drives. Refer to section B.3.2.2.6 (all steps) and B3.2.2.7 (steps 1 – 13) (Commands for Cloning the Data Disk and Command for Cloning the Root disk) of the IRIX 6.5 PSR document.

(Label original root and data1 disks and store in a safe place in case they are needed for rollback.)

- d. Boot n0spg03 into Multi-User Mode and verify file systems and network connections.
- e. Boot n0spg03 into Single-User Mode. Comment out /etc/fstab file entries for non-system file systems and unmount them.
- f. Implement Technical Directive 00-006 (Instruction for IRIX 6.5 removal of DCE Cell Manager Host Agent for Transition UPGRADES from IRIX 6.2 to 6.5).
- g. Uninstall Clearcase. Refer to section B.3.2.2.8 (all steps) (Uninstall Clearcase procedures) of the IRIX 6.5 PSR document. If Clearcase is not installed on this machine, skip to next step.
- h. Upgrade system to IRIX 6.5. Refer to section B.3.2.2.10 (all steps) (Create a Software Profile) then proceed with sections B.3.3 – B.3.5 (all steps) (Install/Upgrade from Network Distribution, OS Configuration, and Post-Installation Software Verification) of the IRIX 6.5 PSR document.
- i. Edit the /etc/fstab file, uncomment entries for non-system file systems and mount them.
- j. Reboot n0spg03 into Multi-User Mode.
- k. Install additional COTS products as described in Section 5 of this document as well as using the 920-TDA-002 revXX (Hardware/Software Map).
- l. On n0spg03 install the IRIX 6.5 Toolkit, Science Processing Package and configure as specified in the 5B.05 Custom Code PSR.
- m. Mount all n0spg03 NFS Clients.
- n. Perform system and custom code checkout.

3. Upgrade n0icg01 to IRIX 6.5.
 - a. Complete Sybase dumps and create backups of fstab file.
 - b. Stop all user activities on n0icg01 (original). Unmount n0icg01 from all of its NFS Clients.
 - c. Shutdown and install pre-partitioned disk drives. Refer to section B.3.2.2.5 (Hardware Setup) step 2 of the IRIX 6.5 PSR document to set the SCSI address of the pre-partitioned disk drives.
 - d. Power up n0icg01 and boot into Single-User Mode. Clone the root and data1 disk drives. Refer to section B.3.2.2.6 (all steps) and B3.2.2.7 (steps 1 – 11) (Commands for Cloning the Data Disk and Command for Cloning the Root disk) of the IRIX 6.5 PSR document.
 - e. Remove cloned disks from n0icg01. Set the SCSI address of the cloned disks to match original root and data1 disk drives.
 - f. Install cloned disks into (new) n0icg01.
 - g. Power up and boot into Single-User mode. Edit the /etc/fstab file to reflect new controllers.
 - h. Boot n0icg01 into Multi-User Mode and verify file systems and network connections.
 - i. Boot n0icg01 into Single-User Mode. Comment out /etc/fstab file entries for non-system file systems and unmount them.
 - j. Implement Technical Directive 00-006 (Instruction for IRIX 6.5 removal of DCE Cell Manager Host Agent for Transition UPGRADES from IRIX 6.2 to 6.5).

- k. Uninstall Clearcase. Refer to section B.3.2.2.8 (all steps) (Uninstall Clearcase procedures) of the IRIX 6.5 PSR document. If Clearcase is not installed on this machine, skip to next step.
 - l. Upgrade system to IRIX 6.5. Refer to section B.3.2.2.10 (all steps) (Create a Software Profile) then proceed with sections B.3.3 – B.3.5 (all steps) (Install/Upgrade from Network Distribution, OS Configuration, and Post-Installation Software Verification) of the IRIX 6.5 PSR document.
 - m. Edit the /etc/fstab file, uncomment entries for non-system file systems and mount them.
 - n. Reboot n0icg01 into Multi-User Mode and verify that files system files are mounted.
 - o. Transition Sybase device path from IRIX 6.2 to IRIX 6.5. Follow Section 7.5 (Procedures for Device Path Transitions) of this document. Complete all steps in this section.
 - p. Install additional COTS products as described in Section 5 of this document as well as using the 920-TDA-002 revXX (Hardware/Software Map).
 - q. Install custom code as per 5B.05 PSR document.
 - r. Mount all n0icg01 NFS Clients.
 - s. Perform system and custom code checkout.
4. Upgrade n0acg01 to IRIX 6.5.
- a. Stop all user activities on n0acg01. Unmount n0acg01 from all of its NFS Clients.
 - b. Shutdown and install pre-partitioned disk drives. Refer to section B.3.2.2.5 (Hardware Setup) of the IRIX 6.5 PSR document to set the SCSI address of the pre-partitioned disk drives.

- c. Power up n0acg01 and boot into Single-User Mode. Clone the root and data1 disk drives. Refer to section B.3.2.2.6 (all steps) and B3.2.2.7 (steps 1 – 13) (Commands for Cloning the Data Disk and Command for Cloning the Root disk) of the IRIX 6.5 PSR document. (Label original root and data1 disks and store in a safe place in case they are needed for rollback.)
- d. Boot n0acg01 into Multi-User Mode and verify file systems and network connections.
- e. Boot n0acg01 into Single-User Mode. Comment out /etc/fstab file entries for non-system file systems and unmount them.
- f. Implement Technical Directive 00-006 (Instruction for IRIX 6.5 removal of DCE Cell Manager Host Agent for Transition UPGRADES from IRIX 6.2 to 6.5).
- g. Uninstall Clearcase. Refer to section B.3.2.2.8 (all steps) (Uninstall Clearcase procedures) of the IRIX 6.5 PSR document. If Clearcase is not installed on this machine, skip to next step.
- h. Upgrade system to IRIX 6.5. Refer to section B.3.2.2.10 (all steps) (Create a Software Profile) then proceed with sections B.3.3 – B.3.5 (all steps) (Install/Upgrade from Network Distribution, OS Configuration, and Post-Installation Software Verification) of the IRIX 6.5 PSR document.
- i. Edit the /etc/fstab file, uncomment entries for non-system file systems and mount them.
- j. Reboot n0acg01 into Multi-User Mode.
- k. Install additional COTS products as described in Section 5 of this document as well as using the 920-TDA-002 revXX (Hardware/Software Map).
- l. Install custom code as per 5B.05 PSR document.

- m. Mount all n0acg01 NFS Clients.
 - n. Perform system and custom code checkout.
5. Upgrade n0drg01 to IRIX 6.5.
- a. Stop all user activities on n0drg01. Unmount n0drg01 from all of its NFS Clients.
 - b. Shutdown and install pre-partitioned disk drives. Refer to section B.3.2.2.5 (Hardware Setup) of the IRIX 6.5 PSR document to set the SCSI address of the pre-partitioned disk drives.
 - c. Power up n0drg01 and boot into Single-User Mode. Clone the root and data1 disk drives. Refer to section B.3.2.2.6 (all steps) and B3.2.2.7 (steps 1 – 13) (Commands for Cloning the Data Disk and Command for Cloning the Root disk) of the IRIX 6.5 PSR document. (Label original root and data1 disks and store in a safe place in case they are needed for rollback.)
 - d. Boot n0drg01 into Multi-User Mode and verify file systems and network connections.
 - e. Boot n0drg01 into Single-User Mode. Comment out /etc/fstab file entries for non-system file systems and unmount them.
 - f. Implement Technical Directive 00-006 (Instruction for IRIX 6.5 removal of DCE Cell Manager Host Agent for Transition UPGRADES from IRIX 6.2 to 6.5).
 - g. Uninstall Clearcase. Refer to section B.3.2.2.8 (all steps) (Uninstall Clearcase procedures) of the IRIX 6.5 PSR document. If Clearcase is not installed on this machine, skip to next step.
 - h. Uninstall AMASS. Refer to section B.3.2.2.9 (all steps) (Uninstall AMASS) of the IRIX 6.5 PSR document.

- i. Upgrade system to IRIX 6.5. Refer to section B.3.2.2.10 (all steps) (Create a Software Profile) then proceed with sections B.3.3 – B.3.5 (all steps) (Install/Upgrade from Network Distribution, OS Configuration, and Post-Installation Software Verification) of the IRIX 6.5 PSR document.
 - j. Edit the /etc/fstab file, uncomment entries for non-system file systems and mount them.
 - k. Reboot n0drg01 into Multi-User Mode.
 - l. Install additional COTS products as described in Section 5 of this document as well as using the 920-TDA-002 revXX (Hardware/Software Map).
 - m. Install custom code as per 5B.05 PSR document.
 - n. Mount all n0drg01 NFS Clients.
 - o. Perform system and custom code checkout.
6. Upgrade secondary machines to IRIX 6.5
 - a. Stop all user activities on n0XXg0X. Unmount all necessary NFS Clients if applicable.
 - b. Shutdown and install pre-partitioned disk drives. Refer to section B.3.2.2.5 (Hardware Setup) step 2 of the IRIX 6.5 PSR document to set the SCSI address of the pre-partitioned disk drives.
 - c. Power up n0XXg0X and boot into Single-User Mode. Clone the root and data1 disk drives. Refer to section B.3.2.2.6 (all steps) and B3.2.2.7 (steps 1 – 13) (Commands for Cloning the Data Disk and Command for Cloning the Root disk) of the IRIX 6.5 PSR document. (Label original root and data1 disks and store in a safe place in case they are needed for rollback.)
 - d. Boot n0XXg0X into Multi-User Mode and verify file systems and network connections.

- e. Boot n0XXg0X into Single-User Mode. Comment out /etc/fstab file entries for non-system file systems and unmount them.
- f. Implement Technical Directive 00-006 (Instruction for IRIX 6.5 removal of DCE Cell Manager Host Agent for Transition UPGRADES from IRIX 6.2 to 6.5).
- g. Uninstall Clearcase. Refer to section B.3.2.2.8 (all steps) (Uninstall Clearcase procedures) of the IRIX 6.5 PSR document. If Clearcase is not installed on this machine, skip to next step.
- h. Uninstall AMASS. Refer to section B.3.2.2.9 (all steps) (Uninstall AMASS) of the IRIX 6.5 PSR document. If AMASS is not installed on this machine, skip to next step.
- i. Upgrade system to IRIX 6.5. Refer to section B.3.2.2.10 (all steps) (Create a Software Profile) then proceed with sections B.3.3 (all steps) – B.3.5 (all steps) (Install/Upgrade from Network Distribution, OS Configuration, and Post-Installation Software Verification) of the IRIX 6.5 PSR document.
- j. Edit the /etc/fstab file, uncomment entries for non-system file systems and mount them.
- k. Reboot n0XXg0X into Multi-User Mode.
- l. Install additional COTS products as described in Section 5 of this document as well as using the 920-TDA-002 revXX (Hardware/Software Map).
- m. Install custom code as per 5B.05 PSR document.
- n. Mount all applicable NFS Clients.
- o. Perform system and custom code checkout.

8.5 VATC Upgrade Procedures

The VATC is being utilized to mature procedure segments for the DAACs. After this is complete, the VATC will be brought to an upgrade condition to serve the planned Release updates. The upgrade procedures shown below pertain to the old Appendix B.1 for reference.

The overall plan for the VATC is to upgrade all SGIs to IRIX 6.5 using TS2 mode, one after the other. Then rollback will be tested by returning each of the SGIs to IRIX 6.2, one after the other. The SGIs will then be upgraded to IRIX 6.5 using TS1 mode, as if it were OPS mode (including changing names of machines). Finally, the machines will be converted to whatever final state is desired by the SV & A team.

t1console1 (Console Manager) SGI Indy

New workstation

1. Install t1console1
2. Install and connect ethernet cable from CAT 6006 switch to t1console1.
 - a. Install console cables to new Origin locations
3. Configure workstation

(New Origin) t1acg04 Primary ACM Server (PC XL to ORIGIN)

Baseline documentation (mount points, HW-DB table, HW-SW map, and so on) must be available prior to starting. Ecs Assist config files like .sitemap must be updated to include the new machines (with the appropriate names). The interfaces file should include all new Sybase servers. New boxes should have been added to Whazzup's config files.

The following procedure describes the upgrade process for one mode.

1. Shutdown HIPPI Switch.
 - c. Install Serial HIPPI card into Port 8 of the HIPPI Switch.
 - d. Restart HIPPI Switch.
2. Install new t1acg04 (ORIGIN)

- a. Install and connect Fast Ethernet cable from new t1acg04 (ORIGIN) to CAT 6006 switch. **Production Interface Port**
- b. Install and connect FDDI cable from t1acg04 (ORIGIN) to the User Network.
- c. Install and connect *serial* HIPPI cable from new t1acg04 (ORIGIN) to HIPPI switch and connect into Port 8.
3. Flush Router
4. Start new t1acg04. (ORIGIN)
5. Install OS/COTS as specified by 920-TDV-002, using the PSR documents. Section 5, Table 5-3 provides details. Also perform checkout of COTS ** SVAT to provide procedures.
6. Configure system disk drives.
 - a. IP = 198.118.232.53
 - b. HIPPI = 192.168.12.9
 - c. USER IP = 198.118.233.79
 - d. Configure HIPPI static routes and build HIPPI.IMAP table
 - e. Install S87Route_add script
7. Configure Raid.
8. Configure system for new machine:
 - a) Create cds entries for the new machine (if not done during custom software install process)
 - b)
 - c) Set up mount points for the new machine to mount other machines, for all modes, per 920-TDV-008. Mount points should be set up to and from both the “old” and the “new” SGIs, and the ones in use will be selected by config parameters.
 - d) Create databases for all modes on the new machine, per 920-TDV-009. It is essential that space is allocated on the new machine exactly the same way it was on the original. Login accounts must also be identical to the original. This will be achieved by running the create_db scripts (* we must audit these scripts prior to transition).
 - e) Configure anonymous ftp for the mode to be used first (can be configured for only one mode). This is in the anonymous ftp directive # 99-012.
9. Install shared mode on t1acg04.
10. Perform mode transfer and checkout procedure (see Section 9.1).
- 11 Deleted.

12 Tests must include pulling files from the pull area on the old machine, as well as from the pull area on the new machine. The pull area is sized for 72 hours, and after that the old machine can be stopped. It is not necessary to run the pull monitor on the old machine.

(New Origin) t1drg03 Primary DRP Server (PC XL to ORIGIN)

The following procedure describes the upgrade process for one mode.

4. Shutdown t1drg01 (PC XL)
2. Disconnect 2 D3 drives from t1drg01 (PC XL).
3. Shutdown HIPPI Switch. **(Complete HIPPI network down)**
 - a. Install Serial HIPPI card into Port 7 of the HIPPI Switch.
 - b. Restart HIPPI Switch.
4. Restart t1drg01 (PC XL) with 2 D3 drives attached.
 - a. Deactivate D3 drives that were relocated to t1drg03 (ORIGIN)
5. Turn over old t1drg01 to VATC for production.
6. Install new t1drg03 (ORIGIN)
 - a. Install and connect Gigabit cable from new t1drg03 (ORIGIN) to CAT 6006 switch.
 - Production Interface Port**
 - b. Install and connect *serial* HIPPI cable from new t1drg03 (ORIGIN) to HIPPI switch and connect into Port 7.
 - c. Connect new t1drg03 (ORIGIN) to silo 1 with 2 D3 drives.
 - f. Connect new t1drg03 (ORIGIN) to new FC RAID.
 - g. Connect console cable.
7. Flush Router
8. Restart new t1drg03. (ORIGIN)
9. Install OS/COTS as indicated in Table 5-7, New DRG.
10. Configure system disk drives.
 - a. IP = 198.118.232.52
 - b. HIPPI = 192.168.12.8
 - c. Configure HIPPI static routes and build HIPPI.IMAP table

11. Configure RAID.
12. Test OS and COTS on new t1drg03 (ORIGIN)
 - a. Install shared mode on t1drg03.
13. Perform procedure B.2 to transfer the mode from t1drg01 to t1drg03. However, if changing machine name (to simulate OPS transition) perform the following additional steps prior to restarting the ECS servers:
 - c. a. Shutdown old t1drg01 (PC XL) and RAID. **Impact on operations** b. Shutdown t1drg03. (ORIGIN) Unconfigure both machines from DCE
 - d. configure mode on t1drg03 as t1drg01
 - e. Change name and IP address of new t1drg03 (ORIGIN) to t1drg01
IP = 198.118.232.29
 - f. Configure HIPPI switch hunt group to look for DRG01 on DRG03's port.
 - g. Flush Router
 - h. Restart t1drg01 (ORIGIN) as new DRP primary production server.
14. a. Run AMASS to Sybase check.
b. Perform check out of new t1drg01 (ORIGIN) in all modes.

(New PC XL) Primary ICL Server (C L)

The following procedure describes the upgrade process for one mode.

1. Install t1icg03 (C L) as new ICL Server.
2. Clone Boot and Data1 disk on t1icg01
3. Restart new t10icg03 (C L) and remove the DCE client software from the cloned disk prior to bringing the client into the live network, this can be done from single user mode. Once the client software has been removed, bring it into multi-user mode and install it as a new DCE client. In addition, change any local occurrences of the name and IP and any references on other machines, like registry parameters (e.g mount point locations may change).
Install upgrade OS/COTS per 920-TDV-002, using the PSR documents. Section 5, Table 5-8, ICG UPGRADE provides details. Also perform checkout of COTS ** SVAT to provide procedures.

5. Configure system disk drives.
 - a. IP = 198.118.232.44
 - b. HIPPI = 192.168.12.6
 - c. Configure HIPPI static routes and build HIPPI.IMAP table.
6. Create mount points, cds entries, databases, and registry entries.
7. Install shared mode on t1icg03.
8. Perform mode transfer and checkout procedure (see Section 9.1). However, if changing the name of the machine, perform the following additional steps before restarting ECS servers:
 - a. Shutdown old t1icg01 (C L)
 - b. Change name and IP address of new t1icg03 (C L) to virtual host IP.
Name= t1icgaa
IP = _____ ??
HIPPI = _____ ??
 - c. Configure HIPPI static routes and build HIPPI.MAP table
 - d. Start new t1icg03(C L) as new primary ICL Server.
9. Checkout new t1icg03

WKG t1wkg01 (PC XL)

The following procedure describes the upgrade process for one mode.

1. Clone Boot and Data1 disks.
2. Shutdown t1wkg01.
3. Install new clone disk. (Disk Image)
4. Install upgrade of OS/COTS as indicated in Table 5-9, WKG UPGRADE, and check out.
5. Install CUSTOM code and check out.

SPR t1spg01 (PC XL)

The following procedure describes the upgrade process for one mode.

1. Add new boot and data1 disks (the disks are added without removing the old ones to avoid downtime and make rollback easier).
2. Clone Boot and Data1 disks onto the new disks.
3. Upgrade OS/COTS on the cloned disks per Section 5, Table 5-4 (SPG UPGRADE).
4. Also perform checkout of COTS ** SVAT to provide procedures.
5. Install CUSTOM code on the cloned disks
6. Check out

AQA t1aqq01 (C S to C L)

The following procedure describes the upgrade process for all modes.

1. Shutdown t1icg03
2. Disconnect vaults from t1aqq01
3. Relocate and install old t1icg03 (C L) as new t1aqq01.
 - a. Connect vaults to C L
 - b. Clone Boot and Data1 disk. (The clones will be used for the AQQ upgrade)
4. Restart new t1aqq01 (C L)
5. Install new OS
 - a. Change name from t1icg03 to t1aqq01
 - b. Change IP address to 198.118.232.15
6. Configure disk.
7. Test system
8. Fail back to t1icg03. (needed for the ICG upgrade) (Original disks)

AQA t1aqq02 (Indigo)

OS upgrade only

The following procedure describes the upgrade process for all modes.

1. Shutdown t1aqq02.
2. Install new 4GB disk drive.
3. Install new operating system.
4. Test system
5. Turn over t1aqq02

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9. Process Reference Procedures

This section contains procedures for various processes which may or may not be utilized. Included here are procedures for renaming machines, mode transfer to another machine and rollback procedures.

9.1 Machine Renaming

Changing a machine's name and IP address comprises the following tasks:

- 1) DCE: prior to the rename, the machine must be unconfigured as a DCE client. Afterwards, the machine must be configured as a new DCE client. See the IRIX 6.5 PSR document, 914-TDA-140, for details.
- 2) Mount points: Prior to the transition, the `/etc/fstab` files on all NFS clients are set up with entries (commented out) for all additional mount points that will be needed during transition. When a machine changes name, entries are uncommented and commented as needed. Tables showing the mount points needed during the transition will be provided in the next version of this document.
- 3) HIPPI recabling: Since the HIPPI switch selects ports based on IP address, cables must be moved between ports when an IP address is changed. A table listing the cable movements will be provided in the next version of this document.
- 4) Registry values: Configuration parameters containing the machine name must be changed. However, because during the first downtime the databases are moved to new hosts with the same names as the old hosts, few if any parameters need to be changed during the downtime (assuming that registry entries for all hosts were set up prior to the downtime). Any changes needed may be made manually via the Registry GUI, or automatically with a patch to the Registry database (a `.rgypatch`).
- 5) Storage Management database parameter changes: The directory structures on the old machines will not be changed. Therefore no changes are needed through the `stmgt` GUI. (The old pull area will continue to exist on the old `acg` box until all files have expired).
- 6) XLV node names: When a machine's name is changed, the node names must be changed to correspond. A table specifying the changes will be provided in the next version of this document.

9.2 Mode Transfer to Another Machine.

- 1) Create staging area containing 55 release plus any test executables.
- 2) Run Ecs Assistant to install and configure the custom code - **on the new machines ONLY**. Run mkcfg for all components. Verify the installation and configuration are correct.
- 3) On the old machines, stop or quiesce mode, per DAAC SOP
 - a) suspend_all distributions several hours in advance to allow long distributions (e.g., to Japan) to complete
 - b) complete ingests
 - c) complete Autosys jobs
 - d) review sdsrv and ddist GUIs to ensure no processing of orders
 - e) bring down servers via kill_mode
 - f) for DRG, wait for AMASS dirty blocks to get written out to tape, then backup the AMASS db to tape
 - g) flush all distributions from read-only cache
- 4) Cold Start STMGT (except Pull Monitor) and INGEST (except Polling), DDIST, SDSRV Servers and Warm start rest of servers in mode and perform checkout (2 hours). The cold start is more efficient and is needed to create directory structures on the new machines.
- 5) Checkout the mode
Subsystem specific, but tests should include supporting 2 pull areas and verifying that orders from the old pull area are marked “shipped” in the MSS db.

9.3 Rollback Procedure to Another Machine (No Name Change)

The general strategy for providing rollback capability is to minimize the rollback activities should this become necessary. This is accomplished mainly by taking the “same name” approach during the transition, and by performing Sybase activities first so the same databases can be utilized with either the IRIX 6.2 or IRIX 6.5 system with little additional actions.

Data created in the system since transition to the new machine will not be transitioned back to the old machine.

- 1) Quiesce the mode
- 2) Change config parameters for mount points and machine names back to refer to the old machine, by mapping the mode to the saved registry tree.

- 3) If the contents of the new databases can be preserved, copy them back from the new platforms to the old (this preserves consistency with other system databases). Otherwise, restore ALL system databases from dumps taken at transition.
- 4) Warmstart servers
- 5) Checkout the mode
- 6) If databases were restored from dumps, repeat any work done in the new string – e.g., reingest any data ingested on the new machines.

9.4 Database Rollback Procedures

Rollback Procedures for Restoring Science Data Server, Storage Management, Ingest, and Registry Databases are as follows:

1. For the **Science Data Server Database**:

```
$SYBASE/bin/isql -U $DBO -P $DBO_PASSWORD -S $SERVERNAME
```

```
use master
go
```

```
load database EcDsScienceDataServer1(_$MODE) from "$pathname_of_full_dump"
go
```

```
load tran EcDsScienceDataServer1(_$MODE) from "$pathname_of_incremental_dump"
go
```

```
online database EcDsScienceDataServer1(_$MODE)
go
```

2. For the **Storage Management Database**:

```
$SYBASE/bin/isql -U $DBO -P $DBO_PASSWORD -S $SERVERNAME
```

```
use master
go
```

```
load database stmgtdb1(_$MODE) from "$pathname_of_full_dump"
go
```

```
load tran stmgtdb1(_$MODE) from "$pathname_of_incremental_dump"  
go
```

```
online database stmgtdb1(_$MODE)  
go
```

3. For the **Ingest Database**:

```
$SYBASE/bin/isql -U $DBO -P $DBO_PASSWORD -S $SERVERNAME
```

```
use master  
go
```

```
load database Ingest(_$MODE) from "$pathname_of_full_dump"  
go
```

```
load tran Ingest(_$MODE) from "$pathname_of_incremental_dump"  
go
```

```
online database Ingest(_$MODE)  
go
```

4. For the **Registry Database**:

```
$SYBASE/bin/isql -U $DBO -P $DBO_PASSWORD -S $SERVERNAME
```

```
use master  
go
```

```
load database EcCsRegistry(_$MODE) from "$pathname_of_full_dump"  
go
```

```
load tran EcCsRegistry(_$MODE) from "$pathname_of_incremental_dump"  
go
```

```
online database EcCsRegistry(_$MODE)  
go
```