

Low level Module Specifications

◆ **Name**

***Sybase ASE 12.5.3.X to 15.0.2 Upgrade Definable Repeatable Process (DRP)
FOR ROLLOUT TO THE REMAINING LABS, CAMPUSES, and DF'S***

◆ **Purpose**

Identify the steps necessary to upgrade a Sybase ASE server from version 12.5.3.X to version 15.0.2 and to upgrade a Sybase Replication server from version 12.6 to version 15.0.2. These upgrades can only be done on systems that have been upgraded to AIX 5.3.

Our current versions:

- A. Adaptive Server Enterprise/12.5.3/EBF 13327 ESD#7/P/RS6000/AIX 5.1/ase1253/1951/64-bit/FBO/Fri Mar 24 04:52:26 2006
- B. Replication Server/12.6/EBF 13314 ESD#6/RS6000/AIX 4.3.3/1/OPT/Wed Feb 15 12:43:54 2006

Our target versions as of 06/12/07:

- A. Adaptive Server Enterprise/15.0.2/EBF 14330/P/RS6000/AIX 5.2/ase1502/2486/64-bit/FBO/Thu May 24 06:55:56 2007
- B. Replication Server/15.0.2/P/RS6000/AIX 5.2/1/OPT/Wed Jan 24 17:27:19 2007

◆ **Revision history**

Name of the Person	Revision History (Dates)	Comments & Reasons
Ryan Putnam	02/27/02	Initial creation for 12.5

I. PREUPGRADE PREP WORK TO BE DONE SEVERAL MONTHS IN ADVANCE

NOTE: All shell scripts should be run from the directory /mdba/upgrade/ase_150.

A. Gather Information About Clients

1. Current Rogue Wave Libraries are ctl031, ctx010, dbt0313, dbx0101, tls070. Most components are from version 3.x of Rogue Wave.
 - Ask the CICS folks, Tim Bredahl.
2. Current Version of Open Server on AIX 5.3 is 12.5.1/P-EBF13433-13432 ESD #13
 - To determine the version run: strings /sybllib/build_03/libsrv.a | grep Sybase
 - Result: Sybase Server-Library/12.5.1/P-EBF13433-13432 ESD #13/DRV.12.5.1.5/RS6000/AIX 4.3.3/BUILD1251-045/OPT/Wed Mar 22 19:32:34 2006
 - On systems not upgraded to AIX 5.3: Sybase Server-Library/11.1.1/P-EBF8059/rs6000/AIX 4.1.4/1/OPT/Sun Aug 9 15:07:32 1998
3. Current Version of Open Client on AIX is 12.5.1/P-EBF13432 ESD #13
 - To determine the version run: strings /sybllib/build_03/libct.a | grep Sybase
 - Result: Sybase Client-Library/12.5.1/P-EBF13432 ESD #13/DRV.12.5.1.5/RS6000/AIX 4.3.3/BUILD1251-045/OPT/Wed Mar 22 19:31:19 2006
 - On systems not upgraded to AIX 5.3: Sybase Client-Library/11.1.1/P-EBF8059/rs6000/AIX 4.1.4/1/OPT/Sun Aug 9 14:55:55 1998
4. Current Version of Open Server on WIN32 is 12.5.1/P-EBF11911-11910 ESD #3/PC Intel
 - To determine the version open the libsrv.dll file in word and search for Sybase
 - Result: Sybase Server-Library/12.5.1/P-EBF11911-11910 ESD #3/PC Intel/BUILD1251-036/OPT/Mon May 03 21:45:06 2004

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5. Current Version of Open Client on WIN32 is 12.5.1/P-EBF11910 ESD #3/PC Intel
 - To determine the version open the libct.dll file in word and search for Sybase
 - Result: Sybase Client-Library/12.5.1/P-EBF11910 ESD #3/PC Intel/BUILD1251-036/OPT/Mon May 03 21:45:06 2004
6. Current Version of PowerBuilder is 10.0.1 Build 6052
 - Start PB, Click Help, Then Click About.
7. Current ODBC driver(s) for Sybase is Sybase ASE ODBC Driver Version # 04.20.0071
 - This may be viewed through the icon ODBC Data Sources in the Control Panel.
 - Click on Drivers and search for all Sybase ODBC drivers.
 - Version from Properties: 12.5.1/P-EBF11910 ESD #3/04.20.0071
8. Current version of DbArtisan is varied.
 - This may be viewed from within DbArtisan by selecting Help from the drop-down menu and selecting About.
9. Current version of Cast Workbench is R4.3.
10. Current Version of the MDAC Libraries is 2.5
 - You will have to ask the Windows Client Archs this.
11. Current version of the C-Compiler is 3.6.6.0. (DF90)
 - Run command: lspp -l | grep -i compile
12. Current version of xa_library is ???
 - View \$SYBASE/install/SPR/cpr_xa to determine version.

B. Determine product compatibility (NEED TO BE DOCUMENTED)

Determining product compatibility can be a very tedious job that could span several weeks. To help facilitate this process I would recommend opening a case with Sybase Tech support and have them gather product compatibility information for you. You may have to test many applications/programs and open cases with the product vendor to help determine/troubleshoot compatibility issues.

1. Current Rogue Wave Libraries
2. The Current Version of Windows Open Client Open Server is compatible with this upgrade.
3. The Current Version of AIX Open Client Open Server (EBF 8059) is compatible with this upgrade.
4. Open Client Open Server 11.1.1 does not support the longer datatypes and longer columns. Any result over the 255 character limit will be truncated. The newer page sizes, which are not considered as part of this upgrade, are also not supported by 11.1.1.
5. PowerBuilder will probably work with this upgrade.
6. The current Sybase ODBC driver is compatible with this upgrade and version 2.5 of MDAC.
7. We believe only DbArtisan 8.1 and higher will work correctly with ASE 15.0.
8. It is not known if Cast Workbench will work correctly.
9. MDAC 2.5 libraries will work for this upgrade if we use the current Sybase ODBC driver 3.11.00.22.
10. Sybase believes that version 3.6.4.0 of the AIX compiler is compatible, but they are not 100% sure.
11. The current version of xa_library is compatible

II. PREUPGRADE PREP WORK TO BE DONE SEVERAL WEEKS IN ADVANCE

NOTE: All shell scripts should be run from the directory /mdba/upgrade/ase_125.

A. Verify AIX Installation Requirements

1. AIX version 5.3.0.0.
Run command: oslevel -r
2. AIX group needs to create a filesystem named /syb150 which has equal or more than 2,560 MBs and is owned by sybase:sybgroup.
3. Verify that the filesystem was created and the ownership is correct by running: ls -l | grep syb150
4. Verify that the filesystem is the correct size by running from /syb150: df -k .

B. Copy the Sybase Software

To perform this installation the Sybase software must be copied out to the host that is being upgraded.

For the labs:

- login into target server and cd to /sybdmp/dataload
 1. scp -pr rdf09s02_en3.blg982.meijer.com:/sybarc/sybssoft/ASE1502e4_REP15e3_SDK15e13_OS15e13.tar.Z to /sybdmp/dataload)
 2. scp -pr rdf09s02_en3.blg982.meijer.com:/sybarc/sybssoft/SDK15e13_OS15e13.tar.Z to /sybdmp/dataload
 3. scp -pr rdf09s02_en3.blg982.meijer.com:/sybarc/sybssoft/MJR_ASE15_STPS.tarZ to /sybdmp/dbdmp02
 4. uncompress the tar files
- 1. You should backup the current /msybase structure via tar.
cd /msybase
tar -cvf /sybdmp/dbdmp01/msybase.old.tar *
if necessary, compress the tar file to save space
- 2. Load the ASE1502_RS15ESD1_OS15e8_SDK15e8.tar file on the server being upgraded.
 - a. Unload the file into /syb150
 - Run command: cd /syb150
 - Run command: tar -xvf /RDIR/ ASE1502_RS15ESD1_OS15e8_SDK15e8.tar
 - If the files are present, remove any remnant files of other servers from the ASE-15_0/install and REP-15_0/install directories
- 3. You must create the directory structure /mdba/upgrade/ase_15 on the host to be upgraded before continuing.
 - Run command: mkdir /mdba/upgrade/ase_15
 - Run command: cd /mdba/upgrade/ase_15
 - Run command: tar -xvf /RDIR/ MJR_ASE15_STPS.tar
- 4. If Direct Connect (DC-12_6) is running on this machine, it needs to be moved into the new /syb150 structure.
 - Run command: ps -ef |grep direct to see if it is running
 - If it is please follow instructions in Appendix A.

C. Setting up the Sybase environment

NOTE: This must be performed on both sides of a clustered server.

1. Run command: setup_new_env.sh

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backs up the current /mdba/.env/.syb_env file into /mdba/upgrade/ase_15 and copies in the new Sybase environment files to /mdba/.env as .syb_env_150_pre and .syb_env_150.

D. Adding License Files for SYSAM-2_0

NOTE: This must be performed on both sides of a clustered server if the Sybase software is NOT shared.

NOTE: The 01 and 02 license files need to both reside in the \$SYSAM/licenses directory

NOTE: We will be running the unserved version of SYSAM 2.0

1. SYSAM-2_0 must be installed wherever this installation will be checking out licensed features. The ASE server and Rep server are licensed features that require valid license files from Sybase.
2. You must acquire the "FLEXlm host ID" by running from the /syb150/SYSAM-2_0/bin directory on the 01 side:


```
$ Imutil lmhostid
Imutil - Copyright (c) 1989-2005 Macrovision Europe Ltd. and/or Macrovision Corporation. All Rights Reserved.
The FLEXlm host ID of this machine is "c5a81c4c"
```
3. You need to also acquire the ID for the 02 side if on a cluster. To do this rlogin to the 02 side and run:


```
$ uname -m
The result will be something like: 00C5A80C4C00
The host ID is formed by stripping off the first and last two characters and using lower case
The host ID in the abover example would be "c5a80c4c"
```
4. The SYSAM license files need to be downloaded from Sybase's license site and then copied into the **SYSAM-2_0/licenses** directory. The FLEXlm host ID is needed to complete the online form.
5. This link works for my login:

<https://sybase.subscribenet.com/control/sybs/switchaccount?nextURL=%2Fcontrol%2Fsybs%2Findex>
5. Choose the 'Meijer, Inc.' entry
6. Choose 15.0.2 ASE Enterprise Edition for IBM AIX 64-bit
7. Choose the License Keys tab
8. Choose the Copy Pool License (the last option listed)
9. Choose the Un-served License
10. Number of machines to license is 1.
11. The node host id is the FLEXlm host ID acquired above
12. The host name is the DNS name, i.e. rdbadev
13. After generating the license file, down load it to your C: drive then FTP it to the **SYSAM_2_0/licenses** directory. (An easier way may be to cut and paste from the Internet Explorer page into a vi session directly on the unix box to create the files.) Licenses for the 02 side also need to be generated separately.
14. Rename the file to ASE_CORE_150_S01.lic (or S02 if for the 02 side of a cluster).
15. The file should look similar to this:


```
#Sybase Software Asset Management License File. SR License for ASE Enterprise
#Edition for IBM AIX - 64bit
PACKAGE ASE_EE SYBASE COMPONENTS=ASE_CORE OPTIONS=SUITE SUPERSEDE \
```

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ISSUED=08-jun-2007

```
# License for 3384a4c rdbadev
INCREMENT ASE_EE SYBASE 2007.11170 permanent uncoun ted \
  VENDOR_STRING=SORT=100;PE=EE;LT=SR HOSTID=3384a4c \
  PLATFORMS="rs6000_u ppc_u rs64_u" ISSUER="CO=Sybase, \
  Inc.;V=15.0;AS=A;MP=2696;EGO=" ISSUED=08-jun-2007 \
  NOTICE="MEIJER, INC. " SN=3986735-274312
```

16. Repeat the steps to now generate a license for ASE DTM Option-Enterprise for IBM AIX 64-bit and name it ASE_DTM_150_S01.lic.

- Also generate a license of the 02 side if needed.

17. The file should look similar to this:

```
#Sybase Software Asset Management License File. SR License for ASE DTM
#Option-Enterprise for IBM AIX 64-bit
# License for c5a81c4c rdf02s01
INCREMENT ASE_DTM SYBASE 2007.11170 permanent uncoun ted \
  VENDOR_STRING=PE=EE;LT=SR HOSTID=c5a81c4c PLATFORMS="rs6000_u \
  ppc_u rs64_u" ISSUER="CO=Sybase, \
  Inc.;V=15.0;AS=A;MP=1530;EGO=" ISSUED=05-jul-2007 \
  NOTICE="MEIJER, INC.
```

18. Repeat the steps to now generate a license for Replication Server 15.0.1 and name it REP_CORE_150_S01.lic.

- Also generate a license of the 02 side if needed.

19. The file should look similar to this:

```
#Sybase Software Asset Management License File. SR License for Replication
#Server for IBM AIX
# License for 3384a4c rdbadev
INCREMENT REP_SERVER SYBASE 2007.11170 permanent uncoun ted \
  VENDOR_STRING=LT=SR HOSTID=3384a4c PLATFORMS="rs6000_u ppc_u \
  rs64_u" ISSUER="CO=Sybase, Inc.;V=15.0;MP=2341;EGO=" \
  ISSUED=08-jun-2007 NOTICE="MEIJER, INC. " SN=3464021-274202 \
```

20. When finished the \$SYSAM/licences directory should look similar to this:

```
sybase@rdf02s01:/syb150/SYSAM-2_0/licenses 4>
$ ll
total 80
drwxr-x--- 2 sybase sybgroup 4096 Jul 05 10:58 .
drwxr-x--- 6 sybase sybgroup 256 Apr 30 16:43 ..
-rw-r----- 1 sybase sybgroup 818 Jul 03 13:42 ASE_CORE_150_S01.lic
-rw-r----- 1 sybase sybgroup 818 Jul 05 10:44 ASE_CORE_150_S02.lic
-rw-rw---- 1 sybase sybgroup 561 Jul 05 10:58 ASE_DTM_150_S01.lic
-rw-rw---- 1 sybase sybgroup 561 Jul 05 10:58 ASE_DTM_150_S02.lic
-rw-r----- 1 sybase sybgroup 535 Jun 29 10:07 REP_CORE_150_S01.lic
-rw-r----- 1 sybase sybgroup 535 Jul 05 10:44 REP_CORE_150_S02.lic
-rw-rw---- 1 sybase sybgroup 37 Jun 29 10:07 SYBASE.lic
-rwxrwx--- 1 sybase sybgroup 840 Jun 29 10:07 SYBASE_ASE_DE.lic
-rwxr-x--- 1 sybase sybgroup 636 Jul 03 13:48 SySAMLicenseServer.lic
```

21. Also verify that the directory /syb150/ASE-15_0/sysam contains this file:

```
-rw-r----- 1 sybase sybgroup 560 Jul 05 10:03 sysam.properties.template
```

22. Within the above file there must be a line that has 'LT=SR', if not change it.

E. Verify ASE System Databases

1. The following system databases must exist and they must be minimum of the following sizes and have sufficient free space to perform the upgrade.
2. run: /syb150/ASE-15_0/upgrade/preupgrade -Usa -P<pwd> -S<server> -Xfree_space
 - 55MB for master
 - 210MB for sybssystemprocs
 - 50MB for sybsecurity
 - 50MB for tempdb
 - 10MB for model
 - 50MB for sybssystemdb
3. If any of the databases (except master) are not the correct size.
 - If there is space on the device alter the database to the correct size
 - If there is not space on the current device you will need to
 - a. Dump the database
 - b. Drop the database
 - c. Drop the device that the database resides on
 - d. Have AIX expand the filesystem to the appropriate size
 - e. Recreate the device
 - f. Recreate the database for load for correct size and allocations
 - g. Load the database
 - h. Online the database

F. PreVerification of source text, reserved words, database sizes.

We need to verify that all objects have source text available and that we are not using any new reserved words and that the database sizes are correct

1. Be sure ASE server is up and run the preupgrade program: preupgrade.sh
 (Note: this may cause deadlocks with other active sessions and the process can run up to an hour).
2. View the file preupgrade.out and check for errors. Do not worry about database options errors. They will be turned off later. Anything that affects stack sizes, network, or memory consider increasing to the default size.
 (Note: a useful script to run that shows where our run values are less than the default values is:
 ck_default_configs.sh)
3. Any objects that did not have source text available will have to be dropped and recreated after the upgrade.
4. Any databases that are not the correct size should be sized accordingly.
5. Perform the reserved word check.
 - Run command: sp_checkreswords.sh
 - Run command: cd RESWDS
 - Run command: vi sp* and check for any reserved words
 - Any reserved word conflicts will have to be addressed by using a different name

G. PreVerification of database dumps.

1. Verify that all databases that should be backed up are getting backed up.
 - Run command: run_verify_dumps.ksh
2. If errors are reported, such as no log output for certain dumps or a database missing from /mdba/dba/dbbackup/DMPINI please correct before the next nights dumps run.

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3. This step is rerun right before the upgrade as part of the preupgrade database dumps so the errors have to be corrected.

III. PREUPGRADE PREP WORK TO BE DONE SEVERAL HOURS IN ADVANCE

NOTE: All shell scripts should be run from the directory /mdba/upgrade/ase_150.

A. DataServer NON-Corruption Validation

1. View the latest production issues report and correct any errors for this installation that are present.
2. Verify that the latest results for dbcc checkstorage and dbcc checkverify did not return any errors.
3. Run command: dbcc.sh.

NOTE: This will run the following for all databases on \$DSQUERY:

- dbcc checkdb
 - dbcc checkcatalog
4. Verify that the output files in DBCC/ did not contain any errors.
 - cd DBCC
 - run ck_dbcc.sh which executes the following checks:
 - grep Msg check*
 - The following will produce a page or two of output but look for corruption error messages:
 - grep 6[0-9][0-9] check*
 - grep 25[0-9][0-9] check*
 - grep Msg check*

*** Contact NetOps (x13535) to let them know we are starting the upgrade. Verify CR Exists ***

B. Copy files from the current \$SYBASE directory to the /syb150 directory.

1. Run command: cd /mdba/upgrade/ase_150
2. Run command: copy_cfg_runfiles.sh

NOTE: This script will copy the following \$SYBASE \$DSQUERY files to the /syb150 directory and a backup to the CONFIGS directory.

- a. \$SYBASE/Localsqlsrvr
- b. \$SYBASE/interfaces
- c. \$SYBASE/ASE_SERVER.bak
- d. \$SYBASE/ASE_SERVER.cfg
- e. \$SYBASE/ASE_SERVER.krg
- f. \$SYBASE/ASE_SERVER.mrg
- g. \$SYBASE/ASE_SERVER.srg* (may not exist)
- h. \$SYBASE/install/RUN_ASE_SERVER*

C. Backup the master database Via Bcp

1. Run command: server_info.sh to create text files of the following master system tables. The bcp files will be located in BCPS:

sysalternates	syscurconfigs	syskeys
syscharsets	sysdatabases	sysloginroles
sysconfigures	sysdevices	syslogins

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sysmessages	sysroles	systypes
sysprotects	syssservers	sysusages
sysremotelogins	sysssrvroles	sysusermessages
sysresourcelimits	systhresholds	sysusers

NOTE: *These files will BCP'd out in character format -c so that they may be viewed and modified if necessary.*

D. Backup Some General Database Information.

1. Run Command: sp_helpdball.sh
 - This will make a text file backup of all databases device mappings, segment mappings, and set options.
 - These files will be named HELPDB/db.sp_helpdb.
2. Run command: defncopy_sysprocs.sh
 - This will make a copy of all system procedures using defncopy.
 - These files will be named DEFNCOPY/proc.sql
3. Run command: gettrunc.sh
 - This will generate A Listing of all Replicated Databases and their current secondary truncation point.
 - These files will be named TRUNCS/gettrunc.db

E. Verify all users are off the system

1. Contact Customer and have them shutdown all applications
2. Run command: cron_disable.sh
 - This will make a backup of the current Sybase crontab named CRON/crontab.preupgrade.
 - The current Sybase crontab will then be nullified.
3. Run command: locklogins.sh -Sservername
 - This will lock all users logins prior to upgrade.
 - The rssid_prim_user and rsmaint_user logins will not be locked.
 - It may be a good idea to send a note if this is a lab server reminding people the server is locked down.
4. Run command: display_audit.sh
 - If auditing is on it must be disabled for the upgrade
5. Kill any left over user processes and cycle server if necessary.

F. Stop All Replication

1. On host replicate sites, place the RepServer into the repchk_bypass.data file with your initials.
2. Run commands to suspend all routes to this replication server.
3. Run command: quiesce_ck.sh until the replication server is quiescent.
4. Run command: flush_logs.sh to flush the transaction logs.
5. Run command: quiesce_ck.sh until the replication server is quiescent.
6. Run command: suspend_conn.sh to suspend all the connections and routes.
7. Run command: suspend_log_transfer.sh to suspend all log transfer.

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8. Run command: stop_rep_agents.sh to stop all replication agents.
9. Run command: rssid_hibernate_on.sh to suspend the rssid connection.
10. Run command: admn disk_space and make note of the stable queue file location for Rep Server
11. Run command: rep_down.sh to shutdown the \$DSQUERY replication server.

G. Pre-Upgrade database dumps and log dumps

NOTE: *These dumps reflect ALL replication being caught up.*

1. Run command: verify_fs.ksh
2. If file space is a concern, run the prune script to prune old dumps.
3. Run command: pre_dumps.sh <ASE Server> | tee pre_dumps.output
4. The dumps and recovery files will be created with an additional prefix of 'PRE' to prevent automatic pruning.
 - ls -l /sybdmp/*/*PRE* to list the files
5. Run command: syb_stop to shutdown all Sybase processes.
6. Backup the **master.dat** and **sysprocs.dat** database devices by using cp. Name the files **B_master.dat** and **B_sysprocs.dat**. For example:
 - cp /sybdev/ase/sysdb/master01/master.dat /sybdmp/dbdmp01/B_master.dat
 - cp /sybdev/ase/sysdb/procs01/sysprocs.dat /sybdmp/dbdmp01/B_sysprocs.dat
7. Backup the Replication Server's stable queue. Name the file using a prefix of 'B_'. For example:
 - cp /sybdev/rep/sybtabq1/sybtabq1.dat /sybdmp/dbdmp01/B_sybtabq1.dat
 - cp /sybdev/rep/sybtabq2/sybtabq2.dat /sybdmp/dbdmp01/B_sybtabq2.dat
8. Run command: ase_start.sh to startup the ASE server.

H. Turn off all db options

1. Turn off all database options for all databases except master, sybssystemprocs, and tempdb.
 - Run command: dboptionsoff.sh
2. Drop all Meijer created system catalog table views.
 - Run command: drop_sysviews.sh
3. Delete statistics on system tables in all databases.
 - Run command: delete_stats_sys.sh
4. Make a note of and turn off all tempdb dboptions except for "select into". For example:
 - sp_dboption tempdb,'trunc log','false'
 - sp_dboption tempdb,'abort tran','false'

I. Disable LTM truncation points and run sp_setreplicate false on primary tables.

1. Run command: sp_set_rep_false.sh
 - This will set the replication status for all tables to false.

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2. Run command: settrunc_off.sh
 - This will disable the LTM trunc point for all databases.

G. Final Verification of source text, reserved words, database sizes.

We need to verify that all objects have source text available and that we are not using any new reserved words and that the database sizes are correct.

1. Run the preupgrade program: preupgrade.sh
2. View the file preupgrade.out and check for errors.
3. Any objects that did not have source text available will have to be dropped and recreated after the upgrade.
4. Any databases that are not the correct size should be sized accordingly.
5. Perform the reserved word check.
 - Run command: sp_checkreswords.sh
 - Run command: cd RESWDS
 - Run command: vi sp* and check for any reserved words
 - Any reserved word conflicts will have to be addressed by using a different name

IV. START THE UPGRADE

1. Run the upgrade.
 - a. Run command: aseupgrade.sh | tee aseupgrade.out
 - b. The process also runs installmaster
2. Run command: copy_to_sybenv.sh
(copies /mdba/.env/.syb_env_150_prerepupgrade to /mdba/.env/.syb_env)
last time .ramdisk_env was missing from syb_env_150, verify that it is there
3. Run commands: ./mdba/.env/.syb_env
unset LM_LICENSE_FILE
4. Run command: echo \$SYBASE (should return /syb150)
5. Run command: echo \$ASE (should return /syb150/ASE-15_0)
6. Run command: echo \$REP (should return /msybase/REP-12_6 since rep server stills need upgrading)
7. Shutdown and restart the ASE server.
 - Run command: ase_down.sh to shutdown the server.
 - Run command: ase_start.sh to startup the server.
 - Run command: ase_certify
 - Verify \$ASE/install/<server>.log to insure license is valid, no mention of “grace period”.
7. Run command: instmsgs.sh <Server>

V. POSTUPGRADE STEPS

NOTE: All shell scripts should be run from the directory /mdba/upgrade/ase_150.

A. Upgrade Backup Server

1. Run command: bkupgrade.sh
2. Run command: bk_start.sh to start the backup server.
3. Run command: instothers.sh <Server>
 - This runs installmodel, installsecurity installdbccdb installdbextend, and installupgrade

B. Turn all options back on, update stats and update sybstart

1. Run command: dboptionson.sh
2. Turn database option “trunc log on chkpt” on for tempdb.
3. Verify that the XP Server is up and running:


```
isql -Usa
exec xp_cmdshell 'date'
go
```

 The result should be today’s date like this:
Tue Jan 13 13:58:59 EST 2004
4. Shutdown the ASE server and Backup server then verify the RUN file is correct:
 - Run commands: bk_down.sh
ase_down.sh
 - In the \$ASE/install directory, verify that the new RUN file has the -T5303 (serialized tempdb access) added to the dataserver line like this (this is the only trace flag to be used):


```
/syb150/../../syb150/ASE-12_5/bin/dataserver \
-sSD0092AA \
-d/sybdev/master/master.dat \
-e/syb150/../../syb150/ASE-12_5/install/SD0092AA.log \
-M/syb150/../../syb150/ASE-12_5 \
-c/syb150/../../syb150/ASE-12_5/SD0092AA.cfg \
-i/syb150 \
-T5303 \
```
5. Configure syb_start so ASE will start under 15.0 and Rep Svr will still start under 12.6
 - run command: ase_new_files.sh
(copies new version of getversiondir to fpath
copies in new sybstarttypes to /mdba/dba/sybstart
creates sybstartup with \$DSQUERY as server name with ASE150; will start rep svr as REP125)
 - If this box runs Direct Connect (DC-12_6) and has had its software moved to be under the /syb150 directory structure be sure sybstart, and .syb_env are set properly as outlined in APPENDIX “A”.
6. Run command: \$ASE/install/setperm_all
7. Run command syb_start
 - Verify SYSAM did not start (un-served license model)
 - run command: ps -ef | grep ‘lmgr’
 - Verify ASE and Backup Server started under /syb150 and Rep Server started under /msybase (12.6)
 - Rep Server is still in hibernation mode at this point so we need to shut it down for now
 - syb_stop -S<Rep Svr Name>
8. Run command: update_sys_stats.sh to update ASE’s system table statistics for each database.

Low level Module Specifications

9. Rename old dataserver binary in /msybase/ASE-12_5/bin to B4_dataserver in /msybase/ASE-12_5/bin as well as backupserver to B4_backupserver.

C. Perform post upgrade backup FOR THE PURPOSE OF THE ROLLOUT SKIP THIS PART

1. Run command: post_dumps.sh <Server name> | tee post_dumps.output
2. They will be created with an additional prefix of "PST" to prevent automatic pruning.
3. Run command: ase_down.sh to shutdown the ASE server.
4. Backup the **master.dat** and **syrops.dat** database devices by using cp. Name the files **A_master.dat** and **A_sysprocs.dat**.
5. Run command: ase_start.sh to startup the ASE server.

VI. COMPLETING THE ASE UPGRADE

NOTE: All shell scripts should be run from the directory /mdba/upgrade/ase_125.

A. PostUpgrade Tasks for Current Rep Server

1. Verify that \$REP is set to /msybase/REP-12_6 and your current directory is /mdba/upgrade/ase_15.
2. Load \$REP/scripts/rsspmsgs.sql into the RSSD database using isql. This is to rebuild the rssid messages stored procedures.
Run command: isql -Usa -Pxxxxx -Drssid db name -i\$REP/scripts/rsspmsgs.sql |tee rsspmsgs.out
3. Run command : rs_zeroltm.sh
 - This will run rs_zeroltm for each PDB.
4. Run command: settrunc_on.sh
 - This will enable the secondary truncation point for all PDBs.
5. Run command: **rep_start.sh** to restart the replication server.
6. Run command: rssid_hibernate_off.sh to resume the rssid connection.
7. Run command: resume_log_transfer.sh to resume all log transfer.
8. Run command: start_rep_agents.sh to start all replication agents.
9. Run command: sp_set_rep_true.sh to set all primary table replicate status to true.
10. Run command: resume_conn.sh to resume replication connections/routes.
11. Troubleshoot any connections that are still down.
12. Routes should still be still down.

B. Upgrade Replication Server (if present)

1. Replication server needs to be up under its 12.6 version and ASE server needs to be up under 15.0.2
2. Prepare the resource files, one for the rssid, and one for each primary database
Run command: cd /mdba/upgrade_ase15/rs

Low level Module Specifications

Run command: upgr_build.sh to build the rssid rs file

Run command: upgrdb_build.sh to build the rs files for each primary and replicate database

3. Review the generated resource files (*.rs) for completeness
4. Run command: grant_roles.sh (grants rep and sa role to rssid_prim_user)
5. Verify subscriptions are not materializing or dematerializing, run command: ck_rssid.sh
 - command fix_rssid_subs.sh can be run to set the statuses to zero if needed
6. Source your environment so that \$REP is set to /syb150/REP-15_0

Run command: . /mdba/.env/.syb_env_150
echo \$REP to confirm
7. Upgrade the rssid

Run command: rsinit_rssid.sh
If successful the Rep Svr should have shutdown after upgrading the rssid
8. Upgrade each primary and replicate database at this site

Run command: ls -ltr |grep <repserver name> ← produces list of resource files
Run command: rsinit_db.sh <database name>
This command upgrades databases on the ASE server, Rep Server does not have to be up
9. Run work around for possible problem with rs_statcounters

Run command: rs_statcounters.sh
10. Copy and verify RUN files and CFG files

Run command: rs_copy_cfg_files.sh
(Copies the config, log, and run files)

View and edit the RUN file:

in place of msybase, syb150 is used

in place of REP-12_6, REP-15_0 is used

Example RUN file:

```
#
# Runserver file for Replication Server 'RL0982LD'. Created by rs_init.
#
/syb150/REP-15_0/bin/repserver -SRL0982LD \
-C/syb150/REP-15_0/install/RL0982LD.cfg \
-E/syb150/REP-15_0/install/RL0982LD.log -I/syb150/interfaces
```

11. Run command: cp /mdba/.env/.syb_env_150 /mdba/.env/.syb_env

Make sure startserver is in \$REP/install
Verify sybstartup uses REP150
Review /mdba/.env/.syb_env for correctness
12. Run syb_stop then syb_start to restart everything under version 15
13. Review logs and make sure all rep agents and connections are up; routes should still be suspended
14. Resume all routes.
15. Verify versions.


```
$ isql -Usa -S<Rep Server>
Password:
1> sysadmin site_version,1500
2> go
```

Low level Module Specifications

```

The site version has been set to '1500'.
1> sysadmin site_version
2> go
The current site version is '1500'.
1> sysadmin system_version
2> go
The current system version is '1260'.
1>

```

16. On host replicate sites, remove the RepServer from the repchk_bypass.data file.
17. Rename old binary, run command: `cd /msybase/REP-12_6/bin`
`mv repserver B4_repserver`

C. Finishing Up (cd /mdba/upgrade/ase_15)

(If **no** Rep Server Upgrade
then `cp /mdba/.env/.syb_env_150 /mdba/.env/.syb_env`
on host with replicate repservers, resume routes
on hosts with replicate repservers, edit repchk_bypass.data and remove the bypass for the upgrade.)

1. Run command: `cron_enable.sh` to enable the Sybase crontab.
2. Check errorlogs for any errors.
3. Have the customer restart all applications.
4. Establish errorlog link on both sides of a cluster.
 - Run command: `cd $ASE/install`
 - Run command: `ln -f -s ASE_SRVR.log errorlog`
5. Recreate the Meijer created system catalog table views.
 - `cd /mdba/upgrade/ase_15/SVIEWS`
 - run the command: `create_all_sviews.ksh <server name>`
 - note: script uses `ALL_DB_CMN_VWS.sql`; also can use `drop_sysviews.sh` in this directory to drop all the views if needed
6. Perform a `syb_stop` and `syb_start` and verify that all components expected to start do in fact startup.
7. If an ASE server is running here, perform a `ase_certify`.
 - Run command: `/mdba/dba/sybstart/ase_certify`
8. All compiled objects should be dropped and recreated. To kick off the job that drops and recreates the views, triggers, and stored procedures run the commands:

```

cd /mdba/upgrade/ase_15/COMPILE
nohup getcompiled.sh >getcompiled.out &

```

The job will run hours and create individual sql text files to drop and recreate the objects for each database. If the create fails the sql text file and isql output file will remain in the directory for later fixing. Procs we know that have a problem if they exist but can be ignored:

- `sp_schema_partitions.sql`
- `svrprf01.monitor.*` (use `monitor.sql` if there which creates the tmp tables needed)
- move `.sql` and `.out` files to either `fix` or `fixnot` directories as problems are resolved

Low level Module Specifications

9. For a cluster environments where /syb150 and /mdba are NOT shared, we have to copy interfaces files, config files, run files to the S02 side of the cluster and vice versa. That is, for an AIX server running Sybase servers on different sides of a cluster you will need to perform this on s02 to s01 as well.

- tar up /syb150 on the 01 side, copy and untar it on the 02 side
- from the 01 side run command: copy_over_configs.sh
- on the 02 side of cluster run: \$ASE/install/setperm_all
- AIX should perform a failover test and verify that there are no issues with failover.

10. From the upgrade directory run the command: unlocklogins.sh -S<server name>

11. From the upgrade directory run the command: proc_mon_chg.sh

- copies in a revised version of proc_mon plus alters some tables

*** Contact NetOps (x13535) to let them know we have completed the upgrade. ***

APPENDIX “A”

For servers with Direct Connect, we need to take the following action.

1. We need to create several directories to store the old software developer kit software and to store direct connect.

```
# goto new sybase directory.
$ cd /syb150

# create directory to hold software.
$ mkdir OLD_125

# goto OLD_125 directory
$ cd OLD_125

# create directories to hold 12.5 software
$ mkdir charsets
$ mkdir collate
$ mkdir config
$ mkdir locales
$ mkdir OCS-12_5
$ mkdir DC-12_6
```

2. We need to tar up the software.

```
# tar up the 12_5 directories to load into these new directories
$ cd /msybase/charsets
$ tar -cvf /sybdmp/dbdmp01/charsets.tar *

$ cd /msybase/collate
$ tar -cvf /sybdmp/dbdmp01/collate.tar *

$ cd /msybase/config
$ tar -cvf /sybdmp/dbdmp01/config.tar *

$ cd /msybase/locales
$ tar -cvf /sybdmp/dbdmp01/locales.tar *

$ cd /msybase/OCS-12_5
$ tar -cvf /sybdmp/dbdmp01/OCS125.tar *

$ cd /msybase/DC-12_6
$ tar -cvf /sybdmp/dbdmp01/DC126.tar *
```

3. We need to untar the software.

```
# untar the 12_5 tar files into new directories
$ cd /syb150/OLD_125/charsets
$ tar -xvf /sybdmp/dbdmp01/charsets.tar

$ cd /syb150/OLD_125/collate
$ tar -xvf /sybdmp/dbdmp01/collate.tar

$ cd /syb150/OLD_125/config
$ tar -xvf /sybdmp/dbdmp01/config.tar

$ cd /syb150/OLD_125/locales
```

```
$ tar -xvf /sybdmp/dbdmp01/locales.tar
```

```
$ cd /syb150/OLD_125/OCS-12_5
```

```
$ tar -xvf /sybdmp/dbdmp01/OCS125.tar
```

```
$ cd /syb150/OLD_125/DC-12_6
```

```
$ tar -xvf /sybdmp/dbdmp01/DC-12_6
```

4. Create a link to the interfaces file

```
$ cd /syb150/OLD_125
```

```
$ ln -fs /syb150/interfaces interfaces
```

5. Update /syb150/OLD_125/DC-12_6/DC_SYBASE.sh

```
# It should appear exactly as below
```

```
$ cat /syb150/OLD_125/DC-12_6/DC_SYBASE.sh
```

```
#!/bin/sh
```

```
export SYBASE=/syb150/OLD_125
```

```
export SYBASE_OCS=OCS-12_5
```

```
export ODBCINI=${SYBASE}/DC-12_6/odbc.ini
```

```
export PATH=${SYBASE}/DC-12_6/bin:$PATH
```

```
export LIBPATH=${SYBASE}/DC-12_6/lib:${SYBASE}/${SYBASE_OCS}/lib:/lib:/usr/lib
```

```
export SYBASE_ECON=DC-12_6
```

```
export SYBASE_JRE="${SYBASE}/shared/jre142"
```

6. Update the /syb150/OLD_125/DC-12_6/odbc.ini file to have the correct location of the drivers.

```
# Any location that references /msybase needs to be updated to point at /syb150/OLD_125
```

7. If this is a cluster, tar up /syb125/OLD_125 and create it on the other node.

ONLY DO ON THE DAY OF UPGRADE

8. Update /mdba/.env/.syb_env

```
# The Entry for SYBASE_ECON should point to /syb150/OLD_125/DC-12_6
```

```
# It should say SYBASE_ECON=OLD_125/DC-12_6
```

9. Copy the modified /mdba/.env/.syb_env to any other nodes in the cluster.

10. Log out and log back in.

11. Validate that syb_stop and syb_start are working.

APPENDIX “B”**IMMEDIATELY FAILED UPGRADE BACKOUT PROCEDURE**

NOTE: *This procedure is to be followed if an upgrade to ASE12.5 has failed and needs to be rolled back during the upgrade process and/or during the certification testing.*

I. RESTORE DATABASES

NOTE: *All shell scripts should be run from the directory /mdba/upgrade/ase_125.*

1. Run command: locklogins.sh to lock all logins.
2. Kill any left over user processes and cycle server if necessary.
3. Retire the replication server created for testing.
 - Run command: retire_upg_rs.sh to shutdown the replication server created as part of this upgrade.
 - Run command: remove_upg_rssd.sh to drop the RSSD database created for this upgrade.
4. Shutdown BOTH the upgraded backup server and the dataserver.
 - Run command: bk_down.sh
 - Run command: ase_down.sh
5. Restore the pre-upgrade copy of the master.dat and sysprocs.dat data files from the backups that were made. The file names of the backups should be B_master.dat and B_sysprocs.dat.
6. Restore the old sybase /mdba/.env/.syb_env environment file.
 - Run command: syb_env_bak.sh to restore the old .syb_env file.
 - Run command: ./mdba/.env/.syb_env to set the environment.
 - Run command: echo \$SYBASE this should be your old \$SYBASE variable.
7. Start the dataserver and mark necessary databases suspect.
 - Run command: ase_start.sh to startup the ASE server.
 - Run command: mark_all_dbs_suspect.sh to make all databases suspect.
 - Run command: ase_down.sh to shutdown the ASE server.
8. Start the dataserver and drop all suspect databases.
 - Run command: ase_start.sh
 - Run command: dbcc_drop_all_suspect.sh to drop all suspect databases.
9. Start the PRE-UPGRADE backup server
 - Run command: bk_start.sh
10. Restore all old databases.
 - The databases need to be created so that they have the correct dbid. To do this change to GENDB and do a ls -l. The files should not have any gaps in the numbers starting at 1. If there is you will have to create a filler database by using the syntax in the GENDB directory.
 - Run command: create_all_dbs.sh to create the databases.
 - Run command: load_pre_dumps.sh to load all the pre-upgrade database dumps except for master, model, tempdb, and sybystemprocs.
 - Run command: online_all_dbs.sh to online all databases.

I. ENABLE REPLICATION

NOTE: *All shell scripts should be run from the directory /mdba/upgrade/ase_125.*

1. Run command : rs_zeroltm.sh
 - This will run rs_zeroltm for each PDB and Prssd.
2. Run command: settrunc_on.sh
 - This will enable the secondary truncation point for all PDBs and Prssds
3. Run command: rep_start.sh to restart the replication server.
4. Run command: rssid_hibernate_off.sh to resume the rssid connection.
5. Run command: resume_log_transfer.sh to resume all log transfer.
6. Run command: start_rep_agents.sh to start all replication agents.
7. Run command: /mdba/upgrase/ase_125/resume_conn.sh to resume replication connections/routes.
8. Troubleshoot any connections or routes that are still down.
9. Run command: sp_set_rep_true.sh to set all primary table replicate status to true.
10. Run command: unlocklogins.sh to unlock all logins.

II. START ALL APPLICATIONS

NOTE: *All shell scripts should be run from the directory /mdba/upgrade/ase_125.*

1. Run command: dboptionson.sh to enable all dboptions.
2. Run command: cron_enable.sh to enable the Sybase crontab.
3. On syb2, edit the repchk_bypass.data file and remove the bypass for this upgrade.
4. Check errorlogs for any errors.
5. Have the customer restart all applications.

If this is a cluster AIX should perform a failover test and verify that there are no issues with failover.

*** *Contact NetOps (x13535) to let them know we have completed the upgrade.* ***

APPENDIX “C”**FAILED UPGRADE BACKOUT PROCEDURE**

NOTE: *This procedure is to be followed if an upgrade to ASE12.5 needs to be backed out after the df has been running ASE 12.5 in a production/committed state. Verify the output of every command that is run and make sure that you are familiar with the intent of the script. Serious data loss could occur if the highest precautions are not taken.*

I. GATHER ASE DEVICE AND MASTER DATABASE INFORMATION

NOTE: *All shell scripts should be run from the directory /mdba/upgrade/ase_125.*

1. Certain system tables need to be bcp'd out of to get correct information for the ASE server that we will be building. These master database tables are syslogins, sysloginroles, syssservers, and sysssrvroles. Due to new and extended features 12.5 supports the definition of the tables between 12.5 and 11.9.2 do not match. As such, commands must be run to create views on the 12.5 server that transform the data to a 11.9.2 ASE server format.
 - Run command: createbcpvws.sh to create the transformation views.
 - Run command: bcpoutvws.sh to bcp the data out of the views into the subdirectory BAKVWS.
2. Run commands to get all of the creation statements for both disk and dump devices. The SQL script file that is produced can be located under /mdba/upgrade/ase_125/DEVICES/devcreates.sql
 - Run command: getcreatestatements.sh
3. Run commands to get all of the creation statements for the databases.
 - Run command: genalldbs.sh to get all of the database creation statements. The creation statements are output under the directory /mdba/upgrade/ase_125/BAKDB
1. Run commands to get all of the current database options.
 - Run command: getdboptions.sh The options are output in a runnable fashion via the isql command to the file /mdba/upgrade/ase_125/BAKOPTS/dbopts

II. GATHER DATABASE INFORMATION

1. Run commands to get all of the compiled text for objects which exist on all databases of the server. These include defaults, views, triggers, and procedures.
 - Run command: sp_getalltxt.sh to get all of the compiled text. The objects are output under the directory /mdba/upgrade/ase_125/TEXT and are compressed to save space. The objects are in the format of type.database.owner.object.sql.
1. Run commands to get all user datatypes in all databases.
 - Run command: getusrdtypes.sh to get all of the user datatypes. The user datatypes are output to the file /mdba/upgrade/ase_125/BAKDTYPES/datatypes.sql and are in isql format.
2. Run commands to get all groups in all databases.
 - Run command: getgroups.sh to get all of the groups. The groups are output to the file /mdba/upgrade/ase_125/BAKGRPS/groups.sql and are in isql format.
3. Run commands to get all user defined roles.
 - Run command: getroles.sh to get all of the roles. The roles are output to the file /mdba/upgrade/ase_125/BAKRLS/roles.sql and are in isql format.
4. Run commands to get all users defined in all databases.
 - Run command: getusers.sh to get all of the users. The users are output to the file /mdba/upgrade/ase_125/BAKUSRS/users.sql and are in isql format.

Low level Module Specifications

5. Run commands to get all group permissions in all databases.
 - Run command: `getgrouperms.sh` to get all group permissions. The group permissions are output to the file `/mdba/upgrade/ase_125/BAKGRPS/grouperms.sql` and are in isql format.
6. Run commands to get all role permissions in all databases.
 - Run command: `getroleperms.sh` to get all role permissions. The role permissions are output to the file `/mdba/upgrade/ase_125/BAKRLS/roleperms.sql` and are in isql format.
7. Run commands to get all user permissions in all databases.
 - Run command: `getuserperms.sh` to get all user permissions. The user permissions are output to the file `/mdba/upgrade/ase_125/BAKUSRS/userperms.sql` and are in isql format.
8. Run commands to get all aliases in all databases.
 - Run command: `getaliases.sh` to get all aliases. The aliases are output to the file `/mdba/upgrade/ase_125/BAKALS/aliases.sql` and are in isql format.
9. Run commands to get all tables in all databases.
 - Run command: `gentblddl.sh` to get the ddl for all tables in all databases. The tables are output to the file `/mdba/upgrade/ase_125/TABLES/DBNAME.tables` and are in isql format.
10. Run commands to get all primary key constraints in all databases.
 - Run command: `genpks.sh` to get the ddl for all primary key constraints in all databases. The primary keys are output to the file `/mdba/upgrade/ase_125/BAKPKS/pks.sql` and are in isql format.
11. Run commands to get all indexes in all databases.
 - Run command: `genidxs.sh` to get the indexes in all databases. The indexes are output to the file `/mdba/upgrade/ase_125/BAKIDXS/indexes.sql` and are in isql format.
12. Run commands to get all segment to device mappings in all databases.
 - Run command: `getsegmaps.sh` to get the segment to device mappings in all databases. The `sp_addsegments` and `sp_extendsegments` commands are output to the file `/mdba/upgrade/ase_125/BAKSEGS/segmaps.sql` and are in isql format.
13. Run commands to get all foreign key constraints in all databases.
 - Run command: `genfks.sh` to get the ddl for all foreign key constraints in all databases. The foreign key constraints are output to the file `/mdba/upgrade/ase_125/BAKFKS/fks.sql` and are in isql format.
14. Run commands to get the configuration of all replication agents for all primary databases.
 - Run command: `getrepagentcfg.sh` to get the configuration of all primary replication agents at this site. The configs are output to the file `/mdba/upgrade/ase_125/BAKREP/repagents.sql` and are in isql format. This will get the enable replication agents, enable replicate the replicate if present, and will run `rs_zeroltm` and `dbcc settrunc(ltm, gen_id, db_generation number + 1)` prior to enabling the replication agents. This is done so that the repserver knows that it is definitely not seeing duplicate data.
15. Run commands to get the replication settings for all objects on this server.
 - Run command: `getrep.ksh` from a directory created to store this information.
16. Run commands to get all bound defaults.
 - Run command: `genbdefaults.sh` to get all bound defaults for all databases. The bound defaults are output to the file `/mdba/upgrade/ase_125/BAKBDEF/bdefaults.sql` and are in isql format.
17. Run commands to get all index cache bindings.
 - Run command: `genidxcache.sh` to get all index cache bindings for all databases. The index cache bindings are output to the file `/mdba/upgrade/ase_125/BAKIDXCACHE/idxcache.sql` and are in isql format.

Low level Module Specifications

18. Run command to get all table cache bindings.
 - Run command: gentblcache.sh to get all table cache bindings for all databases. The table cache bindings are output to the file /mdba/upgrade/ase_125/BAKTBLCACHE/tblcache.sql and are in isql format.
19. Run commands to get all table partition numbers.
 - Run command: gentblpartitions.sh to get all table partition numbers for all databases. The table partition numbers are output to the file /mdba/upgrade/ase_125/BAKTBLPART/tblpart.sql and are in isql format.
20. Run commands to get the checkstorage workspace configurations and database configurations.
 - Run command: gencheckstorage.sh to get the information. The dbccdb setup information is output to the file /mdba/upgrade/ase_125/BAKSTORE/checkstorage.sql in isql format.

III. PREPARE FOR BACKOUT

a. Verify all users are off the system

1. Contact Customer and have them shutdown all applications
1. Run command: cron_disable.sh
 - This will make a backup of the current Sybase crontab named crontab.preupgrade.
 - The current Sybase crontab will then be nullified.
2. Run command: locklogins.sh
 - This will lock all users logins prior to upgrade.
 - The rssid_prim_user and rsmaint_user logins will not be locked.
3. Kill any left over user processes and cycle server if necessary.

b. Stop All Replication

1. On host replicate sites, place the RepServer into the repchk_bypass.data file with your initials.
3. Run commands to suspend all routes to this replication server.
4. Run command: quiesce_ck.sh until the replication server is quiescent.
5. Run command: flush_logs.sh to flush the transaction logs.
6. Run command: quiesce_ck.sh until the replication server is quiescent.
7. Run command: suspend_conn.sh to suspend all the connections and routes.
8. Run command: suspend_log_transfer.sh to suspend all log transfer.
9. Run command: stop_rep_agents.sh to stop all replication agents.
10. Run command: rssid_hibernate_on.sh to suspend the rssid connection.
11. Run command: rep_down.sh to shutdown the \$DSQUERY replication server.

c. Get Data For All Tables

1. Run commands to bcp out all data for all user tables and replication tables.
 - Run command: bcpalldataout.sh to bcp out all data.

d. Final Database Dumps and Log Dumps

Low level Module Specifications

NOTE: *These dumps reflect ALL replication being caught up.*

1. Run command: `verify_fs.ksh`
2. If file space is a concern, run the prune script to prune old dumps.
4. Run command: `pre_dumps.sh | tee pre_dumps.output`
5. The dumps will be created with a prefix of `B_` to prevent automatic pruning.
6. Run command: `ase_down.sh` to shutdown the ASE server.
7. Backup the **master.dat** and **sysprocs.dat** database devices by using `cp`. Name the files **B_master.dat** and **B_sysprocs.dat**.

IV. PERFORMING BACKOUT

1. Shutdown the ASE server if it is running for some reason.
 - Run command: `ase_down.sh`
2. Delete all database .dat files by using `rm`.
3. Run commands to export the environment needed to build a new 11.9.2.5 SWR 9676 ESD 1 dataserver.
 - Run command: `export SYBASE=/sybase119`
 - Run command: `export LIBPATH=/sybase119/lib`
 - Run command: `export DISPLAY=YOUR_IP_ADDRESS:0.0`
4. Run commands to remove the interfaces entry for this server from the `/sybase119/interfaces` file.
 - Run command: `vi /sybase119/interfaces`
 - Run command: `dd` to remove the ASE server from the interfaces file. Save the file `wq`.
5. Run commands to build a new 11.9.2.5 dataserver.
 - Run command: `cd /sybase119/bin`
 - Run command: `srvbuild`
6. When prompted type in the information for the ASE server, including a master device around 160MB and a master database size of 60MB. The `sysprocsdev.dat` file should be created for 320MB and the database should be sized at 120MB. Type in the port number and the DNS name for this server. Be sure to put the errorlog location in the `/sybase119/install` directory. Build the server.
8. Run commands to shutdown the server and restart it using the old .cfg file.

Run command: shutdown ase server, restore an old .cfg file for sybase119, view the interfaces file and edit the entry for the server and put in the correct interfaces, edit the run file for the server and add `traceflag -T5303` to turn off partitioned objects in tempdb, and start the server.
9. Run commands to allocated all previously allocated devices and dump devices for the server.
 - Run command: `cd /mdba/upgrade/ase_125/DEVICES/`
 - Run command: `isql -Usa -S<SERVER> -P<PASSWD> -idevcreates.sql | tee output`
10. Run commands to create all previous databases that existed for this server.
 - Run command: `cd /mdba/upgrade/ase_125/BAKDB`
 - Run command: `isql -Usa -S<SERVER> -P<PASSWD> -i<DB create statement in order of creation> | tee db.output`
11. Run commands to turn on the truncate log on checkpoint option on for all databases.
 - Run command: `trunclogallon.sh` to turn truncate log on checkpoint on for all databases.

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12. Run commands to establish all previous segment to device mappings in all databases.
 - Run command: cd /mdba/upgrade/ase_125/BAKSEGS
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -isegmaps.sql | tee output
13. Run commands to create all defaults that existed.
 - Run command: cd /mdba/upgrade/ase_125/
 - Run command: createalldefaults.sh to create all defaults in all databases that existed prior to the upgrade.
14. Run commands to create all user defined datatypes that existed.
 - Run command: cd /mdba/upgrade/ase_125/BAKDTYPES
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -idatatypes.sql | tee output
15. Run commands to create all tables that previously existed for all databases.
 - Run command: cd /mdba/upgrade/ase_125/TABLES
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -D<DB> -iDB.tables | tee DB.output
16. Run commands to populate all tables with the data that existed prior to the upgrade.
 - Run command: cd /mdba/upgrade/ase_125
 - Run command: bcpalldatain.sh to bcp all the data for all tables back in.
17. Run commands to create all previous bound defaults.
 - Run command: cd /mdba/upgrade/ase_125/BAKBDEF
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -ibdefaults.sql | tee output
18. Run commands to partition partitioned tables.
 - Run command: cd /mdba/upgrade/ase_125/BAKTBLPART
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -itblpart.sql | tee output
19. Run commands to create all primary key constraints.
 - Run command: cd /mdba/upgrade/ase_125/BAKPKS
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -ipks.sql | tee output
20. Run commands to create all indexes that existed.
 - Run command: cd /mdba/upgrade/ase_125/BAKIDX
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -iidxs.sql | tee output
21. Run commands to create all foreign key constraints that existed.
 - Run command: cd /mdba/upgrade/ase_125/BAKFKS
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -ifks.sql | tee output
22. Run commands to setup master with all logins and servers.
 - Run command: cd /mdba/upgrade/ase_125/BAKVWS
 - Run command: bcp master.dbo.sysrvroles in BCP_sysrvroles.bcp | tee sysrvroles.output
 - Run command: bcp master.dbo.sysservers in BCP_sysservers.bcp | tee sysservers.output
 - Run command: bcp master.dbo.syslogins in BCP_syslogins.bcp | tee syslogins.output
 - Run command: bcp master.dbo.sysloginroles in BCP_sysloginroles.bcp | tee sysloginroles.output
23. Run commands to create all roles.
 - Run command: cd /mdba/upgrade/ase_125/BAKRLS
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -iroles.sql | tee output
24. Run commands to create all groups.
 - Run command: cd /mdba/upgrade/ase_125/BAKGRPS
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -igroups.sql | tee output

Low level Module Specifications

25. Run commands to create all users.
 - Run command: cd /mdba/upgrade/ase_125/BAKUSRS
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -iusers.sql | tee output
26. Run commands to establish all role permissions.
 - Run command: cd /mdba/upgrade/ase_125/BAKRLS
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -iroleperms.sql | tee perms.output
27. Run commands to establish all group permissions.
 - Run command: cd /mdba/upgrade/ase_125/BAKGRPS
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -igrouperms.sql | tee perms.output
28. Run commands to establish all user permissions.
 - Run command: cd /mdba/upgrade/ase_125/BAKUSRS
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -iuserperms.sql | tee perms.output
29. Run commands to create all aliases.
 - Run command: cd /mdba/upgrade/ase_125/BAKALS
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -ialiasess.sql | tee output
30. Run commands to set truncate log on checkpoint to false for all databases.
 - Run command: trunclogalloff.sh to turn truncate log on checkpoint on for all databases.
31. Run commands to establish all database options.
 - Run command: cd /mdba/upgrade/ase_125/BAKOPTS/
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -idbopts | tee output
32. Run commands to cache all previously cached indexes.
 - Run command: cd /mdba/upgrade/ase_125/BAKIDXCACHE
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -iidxcache.sql | tee output
33. Run commands to cache all previously cached tables.
 - Run command: cd /mdba/upgrade/ase_125/BAKTBLCACHE
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -itblcache.sql | tee output
34. Run commands to change the guest accounts group in temp01 to temp10 to mids12_1.
 - Run command: temp01_10_guest.sh
35. Run commands to create the dbccdb objects.
 - Run command: cd /sybase119/scripts
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -iinstalldbccdb | tee dbccdb.output
36. Run commands to create the sybsecurity objects.
 - Run command: cd /sybase119/scripts
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -iinstallsecurity | tee security.output
37. Run commands to create the sybssystemdb objects.
 - Run command: cd /sybase119/scripts
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -iinstallcommit | tee sybssystemdb.output
38. Run commands to setup the databases for checkstorage.
 - Run command: cd /mdba/upgrade/ase_125/BAKSTORE
 - Run command: isql -Usa -S<SERVER> -P<PASSWORD> -icheckstorage.sql | tee output

Low level Module Specifications

39. Run commands to configure replication agents.
 - Run command: `cd /mdba/upgrade/ase_125/BAKREP`
 - Run command: `isql -Usa -S<SERVER> -P<PASSWD> -irepagents.sql | tee output`
40. Run commands to start the replication server.
 - Run command: `syb_start -SREPSERVER`
41. Run commands to take the replication server out of hibernation mode.
 - Run command: `rssd_hibernate_off.sh`
42. Run commands to turn the replication setting for objects to true.
 - Run command: `cd` to directory used to get `getrep.ksh` info.
 - Run command: Execute/Run all of the `run.sp_setrep.*.true` files.
43. Run commands to resume all down routes and connections.
 - Run command: `resume_conn.sh`
44. Run commands to establish the sybase119 environment. From a remote server copy in `/mdba/scripts`, `/mdba/dba/sybstart`, and `/mdba/fpath`. Edit the `/mdba/dba/sybstart/sybstartup` files to have the correct information for this server.
45. Run commands to start the backup server.
 - Run command: `syb_start -S<SERVER>_BK`
46. Run commands to sync the other node of this cluster.
 - Run command: `rcp -pr /sybase119/ othernode:/sybase119/`
 - Run command: `rcp -pr /mdba/fpath/ othernode:/mdba/fpath/`
 - Run command: `rcp -pr /mdba/scripts/ othernode:/mdba/scripts/`
 - Run command: `rcp -pr /mdba/dba/sybstart/ othernode:/mdba/dba/sybstart/`
47. Run commands to enable the crontab for this server.
 - Run command: `cron_enable.sh`
48. Run commands to unlock all logins for this server.
 - Run command: `unlock_logins.sh -S<SERVER>`

V. VALIDATING BACKOUT

1. Run commands to dump all databases.
 - Run command: `/mdba/dba/dbbackup/do_all_dbdumps`
2. Contact the customer have them begin acceptance testing.
3. Resolve any issues that occur.

APPENDIX “D”**FAILED UPGRADE RESTART PROCEDURE**

NOTE: *This procedure is to be followed if an upgrade to ASE12.5 has failed and may be rolled forward.*

I. UPGRADE ANY REMAINING DATABASES

NOTE: *All shell scripts should be run from the directory /mdba/upgrade/ase_125.*

1. Attempt to resolve any errors and shutdown the Dataserver if it is still running.
2. Run command: export SYBASE=/msybase
3. Restart the Dataserver and attempt to address any errors that are present.
4. Run “ONLINE DATABASE <DB NAME>” for all databases on the server to complete the upgrade to the user databases.
 - Run command: online_all_dbs.sh | tee failed_upgrade.out
5. Review the failed_upgrade.out output file for any critical errors and attempt to resolve any errors. Should you encounter a critical error attempt resolution and restart this procedure at **I. UPGRADE ANY REMAINING DATABASES**.

II. RESTARTING THE UPGRADE

1. Run the command sp_configure “upgrade version”, 11920 on the dataserver to lower the upgrade version.
2. Restart the upgrade using the upgrade utility provided by Sybase.
 - Run command: \$ASE/upgrade/upgrade -S{SERVER} -P{SA PASSWD}
3. You will need to install the following scripts to complete the upgrade.
 - intallmaster
 - installsecurity
 - installmodel
 - instmsgs.ebf
 - installupgrade
4. Shutdown and Restart the Dataserver. Address any errors that are present.
5. Verify the dataserver version by running sp_configure “upgrade version”. This should show upgrade version to be 12500.
6. Continue the upgrade at step **V. POSTUPGRADE STEPS**.

APPENDIX “E”**KNOWN ISSUES TRACKING LOG FOR ASE15 UPGRADE**

RESOLVED 1. need script to update stats on sysobjects, sysindexes, syscolumns, systypes, syslogins, sysusers

RESOLVED 2. need script to recompile our compiled objects or use script that runs dbcc upgrade_object

3. In Known Problems of 15.0 (not 15.0.2?), config parm allow backward scans does not work

4. Known Problems of 15.0.1, binding tempdb to named cache
and ASE uses HASH operator can cause infected with signal 11

5. Merge existing lib config files manually (from 15.0.2 rel bulletin)?
Merge any existing libtcl.cfg/libcl64.cfg manually to libtcl.cfg. Before doing so make sure the service provider entry names are unique in the configuration file being used. Make sure a softlink, libtcl64.cfg under
\$SYBASE/\$SYBASE_OCS/config is created and is pointing to libtcl.cfg.

6. Syntax error for Queries containing certain clauses (from 15.0.2 rel bulletin)
[CR# 467548] Queries containing 'order by' or 'group by' clauses may run into a syntax error if the column name follows the 'order by' or 'group by' is 'range', 'list', 'hash', or 'roundrobin'.
Workaround: Add '()' around the column name following 'order by' or 'group by'.

7. Source code text in syscomments corruption (from 15.0.2 rel bulletin)
[CR# 470100] If there are spaces before the create procedure keywords in a batch, the procedure source code text in syscomments may be corrupted. The first execution of these procedures after upgrade has marked them for recompilation, will generate a syntax error.
Workaround: If the execution generates a syntax error, re-create that procedure manually.

8. SINF_SEGMENTS – check space calculation

9. SINF_PARTITIONS – needs rewrite, does not create

10. Increase memory limit for Replication Server from 150mb to 200mb:

F. 2007/08/05 10:01:09. FATAL ERROR #7036 RSI USER(RL0982LM) - tr/mdint.c(392)

Additional allocation of '1008' bytes to the currently allocated memory of '15728640' bytes would exceed the memory_limit of '157286400' specified in the configuration.

T. 2007/08/05 10:01:09. (170): Exiting due to a fatal error (OCCURRED ON RMIDINT5)

RESOLVED 10. Change sp_proc_mon and tables in svrprf01 – columns ipaddr, hostname, program_name, and cmd in the sysprocesses table have changed nullability and/or datatype. Also a bcp stmt in sp_proc_mon script needed the –E flag added to suppress a warning message re:identity columns.

11. Adaptive Server 15 does not support server class db2. This causes our Direct Connect sysserver entries to be invalid thus causing issue with rep server connections.

RESOLVED 11. After opening case with Sybase, used workaround where we set srvnetname = direct_connect and srvclass = 7 in sysservers.

Low level Module Specifications

12. rs_objects.minvers – text not available. Recreate default using:

```
EXEC sp_unbindefault 'rs_objects.minvers'
go
IF OBJECT_ID('dbo.rs_objects_minvers') IS NOT NULL
BEGIN
    DROP DEFAULT dbo.rs_objects_minvers
    IF OBJECT_ID('dbo.rs_objects_minvers') IS NOT NULL
        PRINT '<<< FAILED DROPPING DEFAULT dbo.rs_objects_minvers >>>'
    ELSE
        PRINT '<<< DROPPED DEFAULT dbo.rs_objects_minvers >>>'
END
go
CREATE DEFAULT dbo.rs_objects_minvers AS 0
go
IF OBJECT_ID('dbo.rs_objects_minvers') IS NOT NULL
    PRINT '<<< CREATED DEFAULT dbo.rs_objects_minvers >>>'
ELSE
    PRINT '<<< FAILED CREATING DEFAULT dbo.rs_objects_minvers >>>'
go
EXEC sp_bindefault 'dbo.rs_objects_minvers','rs_objects.minvers'
go
```

PENDING/FUTURE MODIFICATIONS NEEDED FOR ASE 15.0 AND XA??

I. Configuring The Open Client Open Server 15.0 Environment for the First Time

II. Configuring The Open Client Open Server 15.0 Environment for the nn Time

III. Configuring The Sybase 15.0 Environment

IV. Configuring The CICS Region

APPENDIX “F”**APPLICATION TESTING FOR A DF (not for campus, reporting, or coporate)**

NOTE: All shell scripts should be run from the directory /mdba/upgrade/ase_150.

D. Creating A New Replication Server

NOTE: To perform an as valid as possible replication test we will need to create a new replication server and add replication for *ptaw01*, *wusw01*, and *dtpl01* databases.

NOTE: Before performing this section make sure that you load \$REP/scripts/rsspmsgs.sql SQL script into the RSSD database using isql. This is to rebuild the rssid messages stored procedures.

1. Disable the mids12 replication agent.
 - Run command: disable_mids12_rep_agent.sh
2. Create a new replication server for testing purposes.
 - Run command: rupgrade_interfaces.sh to add the interfaces information for this server.
 - Run command: vi repserver.sh. Examine the variables in this file and edit for this installation.
 - Run command: repserver.sh | tee repserver.out to create the RUPGRADE repserver.
3. Add replication definitions, function strings, and subscriptions for this new replication server.
 - Run command: repgen.sh | tee repgen.out
4. We are now replicating data from mids12 to *dtpl01*, *ptaw01*, and *wusw01*.

E. Establish all Permissions

1. Run command: setperm_all.sh
2. (SKIP for now, will do later) Run command: unlocklogins.sh to unlock all logins.

F. Application Testing Commencing

1. Contact the customer and notify them to begin application testing.
2. Once application testing is done and is successful continue.
3. If a valid application test cannot be performed you will need to backout this upgrade. Follow the **BACKOUT A FAILED SYBASE UPGRADE** document.

G. Post Application Testing Cleanup

1. Run command: locklogins.sh
 - This will lock all users logins.
2. Kill any left over user processes and cycle server if necessary.
3. Retire the replication server created for testing.
 - Run command: retire_upg_rs.sh to shutdown the replication server created as part of this upgrade.
 - Run command: remove_upg_rssid.sh to drop the RSSD database created for this upgrade.
4. Load **post upgrade** database dumps for all databases except master, model, sybssystemprocs, and tempdb.
 - Run command: load_post_dumps.sh | tee load_post_dumps.out
5. Upon completion of the load_post_dumps.sh script review the load_post_dumps.out output file and check for any errors that may have occurred. These errors need to be corrected and the database loaded successfully prior to continuing beyond this point.
 - Run command: view load_post_dumps.out

Low level Module Specifications

6. After validating that all databases were loaded successfully you will need to online all of the databases.
 - Run command: `online_all_dbs.sh`

APPLICATION TESTING FOR OTHER (NOT FOR A DF)

NOTE: *All shell scripts should be run from the directory /mdba/upgrade/ase_125.*

A. Establish all Permissions

1. Run command: `setperm_all.sh`
1. As a check, verify permissions on `/msybase/config/objectid.dat` is r-x for other.
2. Run command: `unlocklogins.sh` to unlock all logins.

B. Application Testing Commencing

2. Contact the customer and notify them to begin application testing.
2. Once application testing is done and is successful continue.
3. If a valid application test cannot be performed you will need to backout this upgrade. Follow the **BACKOUT A FAILED SYBASE UPGRADE** document.

C. Post Application Testing Cleanup

4. Run command: `locklogins.sh`
 - This will lock all users logins.
3. Kill any left over user processes and cycle server if necessary.
4. Load **post upgrade** database dumps for all databases except master, model, sybssystemprocs, and tempdb.
 - Run command: `load_post_dumps.sh`