Advanced DataTools Corporation
Informix Upgrade Project Plan

No.	Item	Change/Process	Resp.	Timeline
I. Upgrade Preparation Step				
1.	Create New Directory for the new version of Informix. (e.g. /opt/Informix.14.10.FC1	• mkdir /<New Informix Directory> • chmod 775 <Informix Directory> • chown informix:informix <Informix Directory> A new Directory owned by informix will be required to install the new version software for the upgrade.		

2	Install Informix into the New Directory.	• Download/Obtain the Informix Software
		• Install Informix Software
		  • Install Tools files (4GL, ISQL)
		  • Install/Copy CSDK files (included in current servers)
		  • Install the Server files		

3.	Edit ONCONFIG configuration files – adjust Old values to New values.	In the New software directory:
		  • Edit the sqlhosts file and add your values
		  • Copy onconfig.std to $ONCONFIG
		  • Edit new $ONCONFIG file making required changes from old version		

4.	Re-compile UDR	Re-compile any C or Java UDR's or datablades that you use.		
5.	Check for "in-place alter" tables The SQL scripts for this can be obtained from Informix tech support (See notes at end of this document)	• Run SQL scripts to check for any "in-place alter" tables in the databases. These are the tables which have any modified structure where the modification is incomplete. Before an upgrade, all tables must have all modifications completed. • Or run oncheck -pT -d dbname -t tabname.		

No.	Item	Change/Process	Resp.	Timeline
		• Perform dummy updates to complete all inplace alter updates • update table set column = column where 1=1		
6.	Verify Integrity of Data	Check Reserved Pages • oncheck –pr or oncheck –cr Check Extents • oncheck –ce Check System Catalog Tables • oncheck –cc <database name> Check Data and Indexes • oncheck –cDI <Database name> Check Smart large objects • oncheck –cs <Sbspace name> • oncheck –cS <Sbspace name>		
7.	Perform Level 0 backup.	Level –0 backup started all servers		
8.	Validate the Backup	Run "Archecker", Informix utility to validate the backup: archecker -tdsv		
9.	Backup plan contingency	Prepare a previous full server archive and all logical logs up to the point of shutdown just in case the new archive cannot be restored.		

II. Perform Upgrade				
1.	Ensure No User Access and Stop all Daily Processing	Disable cron jobs or scheduled processes Disable end user access to Informix Server		
2.	Bring Server to Single User Mode	Shutdown the server to quiescent user mode. • onmode –uy		
3.	Complete Shutdown the Informix Server	Shutdown the server to offline mode • onmode –ky		
4.	Create Symbolic link to new software	Using a link enables you to change when INFORMXDIR points to without editing scripts. If a link was used the previous link needs to be removed. The previous version of Informix may need to be moved to a separate directory. The link will take care of the env.variables setup like "INFORMIXDIR" and "PATH" for the new directory. • ln –s <New Informix Directory> $INFORMIXDIR		
5.	Check the ONCONFIG and sqlhosts file	Review the $INFORMIXDIR/etc/$ONCONFIG file and the sqlhosts file to insure these are the correct versions for your configuration.		
6.	Start the Informix Server (new version) and allow it to perform the internal upgrade.	Start the Engines up in single user mode • oninit -vj Monitor the online.log to see the upgrade completed message.		
7.	Finish the upgrade and monitor progress	Bring the Informix up in multi user mode • onmode –m Monitor the online.log to see the upgrade completed message.		
8.	Test the Installation	Run dbaccess and connect to all databases to test		

		the installation process success		
9.	Update Statistics low on all databases	Run Update Statistics low on all databases dropping the old data distributions. • update statistics low for <database> drop distributions		
10.	Update Statistics for procedures and functions	Perform UPDATE STATISTICS FOR PROCEDURE/FUNCTION for all stored procedures in all databases (except sysmaster, sysuser, and sysadmin).		
11	Update Statistics high on all databases	Perform standard UPDATE STATISTICS HIGH/MEDIUM processing for all tables in all databases (including system catalog tables) to reestablish data distributions. • update statistics high for <database> distributions only This process may take time and can be run post upgrade if needed.		
12	Enable user access	Enable user access to the Informix Server		

III. Post Upgrade Processing				
1.	Test the upgrade	Follow Post Upgrade Test Plan		
2.	Update Statistics high on all databases if this was not done earlier	Perform standard UPDATE STATISTICS HIGH/MEDIUM processing for all tables in all databases (including system catalog tables) to reestablish data distributions. • update statistics high for <database> distributions only		
3.	Enable Daily Processing and Ensure users can connect	Enable cron jobs or scheduled processes and enable connections for users		
4.	Perform Level 0 backup	• Level –0 backup		
5.	Verify Integrity of Data	Check Reserved Pages • oncheck –pr or oncheck –cr Check Extents • oncheck –ce Check System Catalog Tables • oncheck –cc <database name> Check Data and Indexes • oncheck –cDI <Database name> Check Smart large objects • oncheck –cs <Sbspace name> • oncheck –cS <Sbspace name>		

Lab 2: Upgrading to Informix 14

Script to Find In-Place Alters for older versions of Informix:

1. Set OPTCOMPIND to 0.
2. Run the query – this lists all tables that have had an in-place alter.
dbaccess sysmaster << EOF
set isolation to dirty read;
select {+ ORDERED } pg_partnum + pg_pagenum - 1 partn
from syspaghdr, sysdbspaces a
where pg_partnum = 1048576 * a.dbsnum + 1
and pg_next != 0
into temp pp with no log;

select b.dbsname database, b.tabname table
from systabnames b, pp where partn = partnum;
EOF

3. Run oncheck –pT database:table on each table listed above. Review the section "Home Data Page Version Summary" to identify which tables have open in-place alters (pages in more than one version) and perform dummy updates on these tables.

4. Perform dummy update as: update table set column = column where 1=1;

To Find and Fix In-Place in Informix 12.10.xC4 and later:

In Informix 12.10.xC4 and later a new Sysadmin API was introduced, update_ipa, see link for details:
https://www.ibm.com/support/knowledgecenter/en/SSGU8G_12.1.0/com.ibm.mig.doc/ids_mig_274.htm

select dbsname, trim(owner)||"."|| tabname as fullname
from sysmaster:sysptnhdr h,sysmaster:systabnames t
WHERE h.partnum = t.partnum
and dbsname not in ("sysmaster")
and pta_totpgs != 0