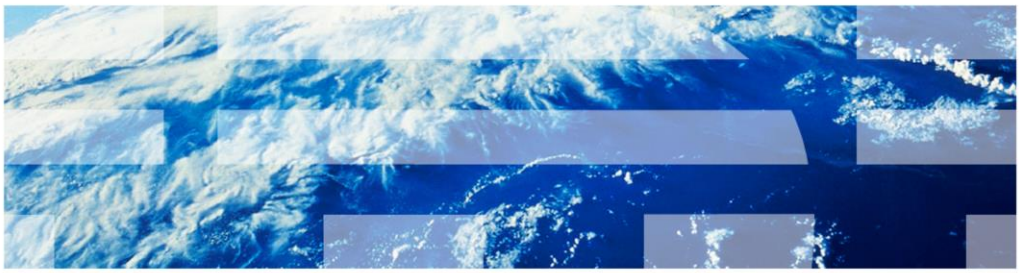
IBM

IBM Tivoli Directory Server Version 6.2

Administration and maintenance



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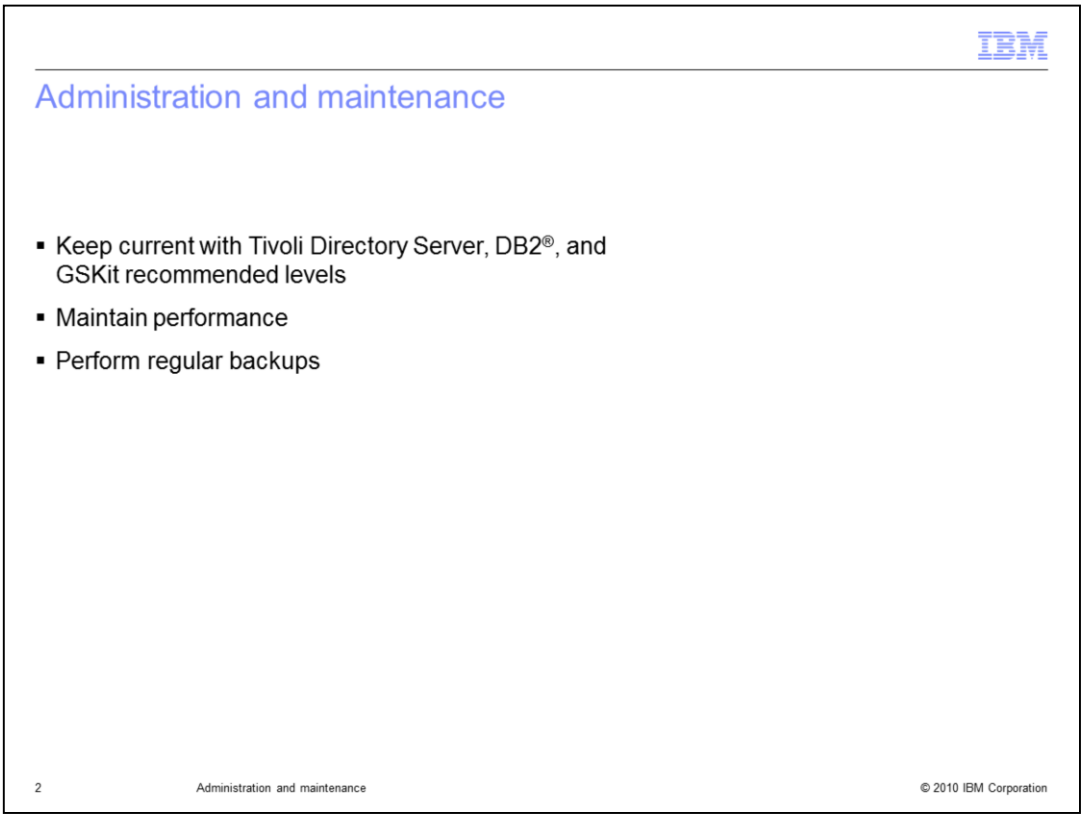
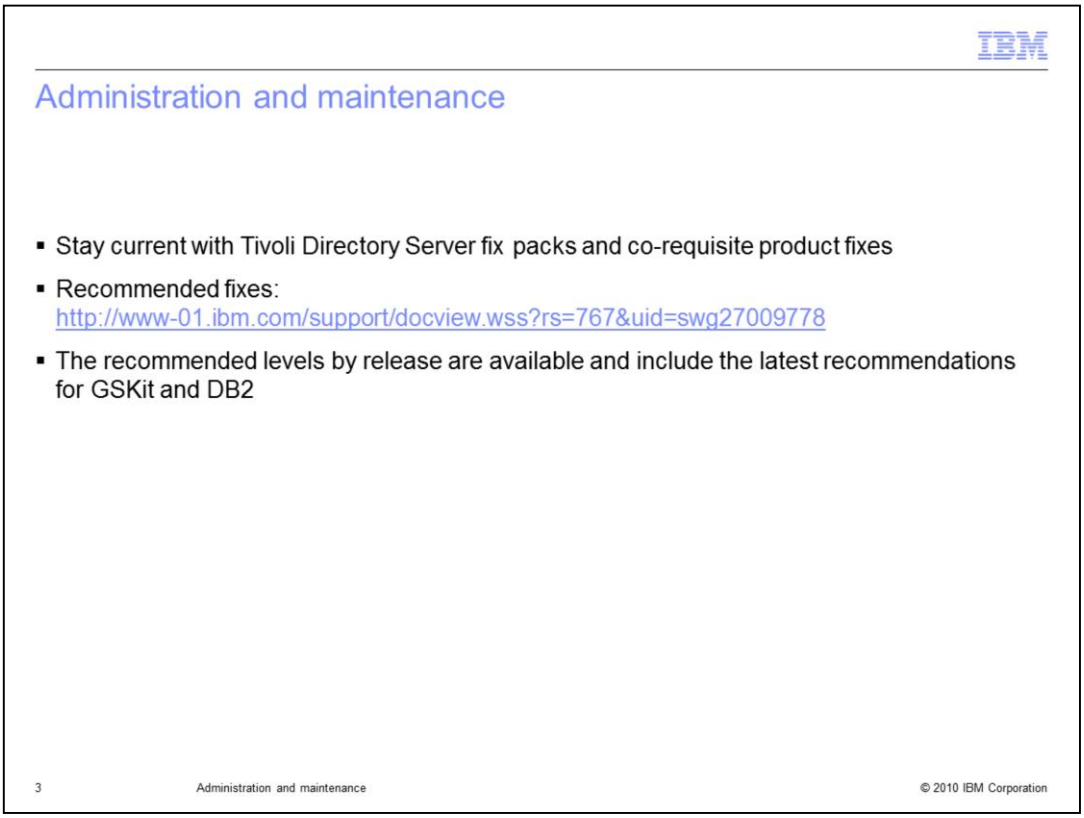
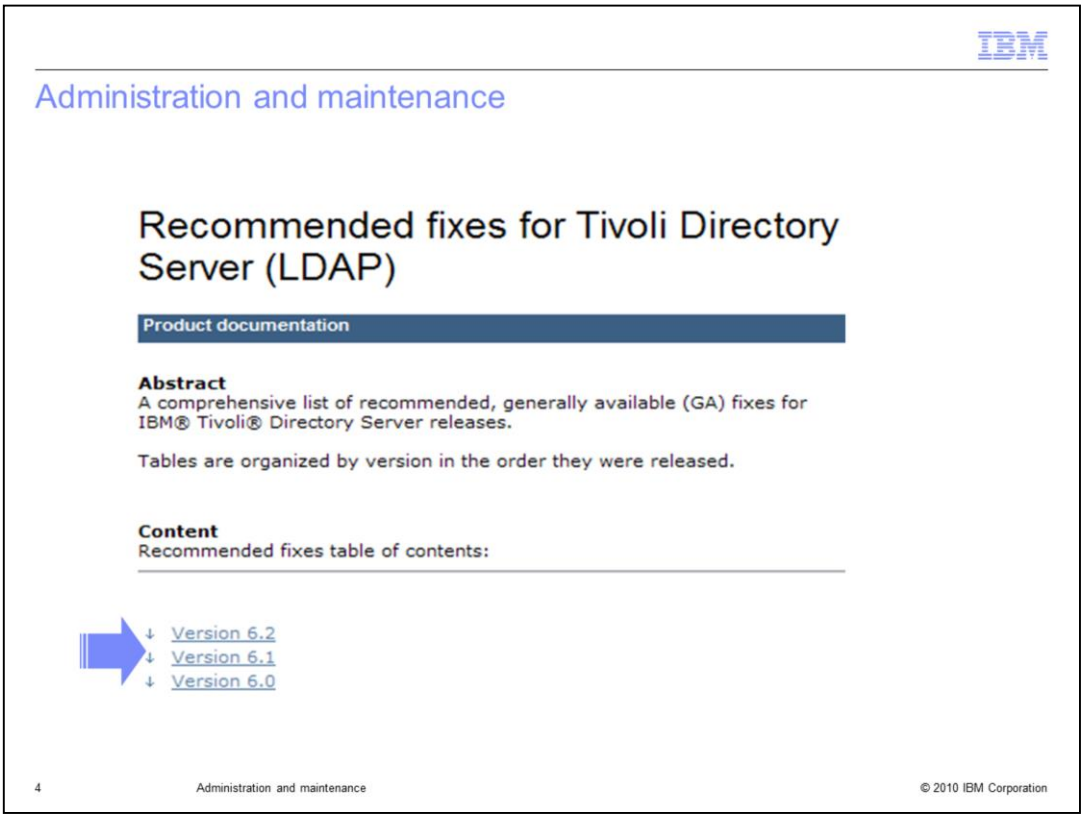
This module focuses on IBM Tivoli® Directory Server Version 6.2 Administration and Maintenance.



There are three things to remember when administrating and maintaining your environment. First, stay current with the Tivoli Directory Server, DB2, and GSKit patches. Second, maintain your performance by regularly running runstats and indexing attributes. And, as always, perform regular backups in case of catastrophic failure.



You can find the latest recommended fix levels for Tivoli Directory Server and co-requisite product fixes in the Recommended Fixes document. This document has the latest recommended patch levels for Tivoli Directory Server, GSKit, and DB2.



Here is what you see when you visit the recommended fixes site. Under content, find the series of links for each release. After you click the link to the version you need, a table is displayed with details about the latest fixes for the selected release. The table also has fix details for the DB2 and GSKit versions that you are looking for and any exceptions.

Administration and maintenance

Version 6.2			
Fix	**Level**	**Released**	**Comments**
Fixpack 1	6.2.0.3	8 APR 2009	Readme
Other optional V6.1 fixes		**Released**	**Comments**
DB/2 9.5 Fix Pack 3a (except for Solaris, the latest tested level is DB2 v9.5 FP3 for Solaris) DB/2 9.1 FP 6 (except for Solaris, the latest supported level is DB/2 9.1 FP5 see technote: Do not use DB2 9.1 FP6 with ITDS)		06 JAN 2009 14 OCT 2008	ITDS lies on top of DB/2 and was upgraded to the latest tested DB/2 Fixpak. Please follow post installation steps after DB/2 patch install.
GSKIT 7.0.4.20		n/a	All GSKIT releases can be downloaded from this site. You will need to be a registered user of IBM.COM to access. If you have not registered, you can do so here.
Additional information			
For a complete listing of fixes for version 6.2, see the latest Readme			

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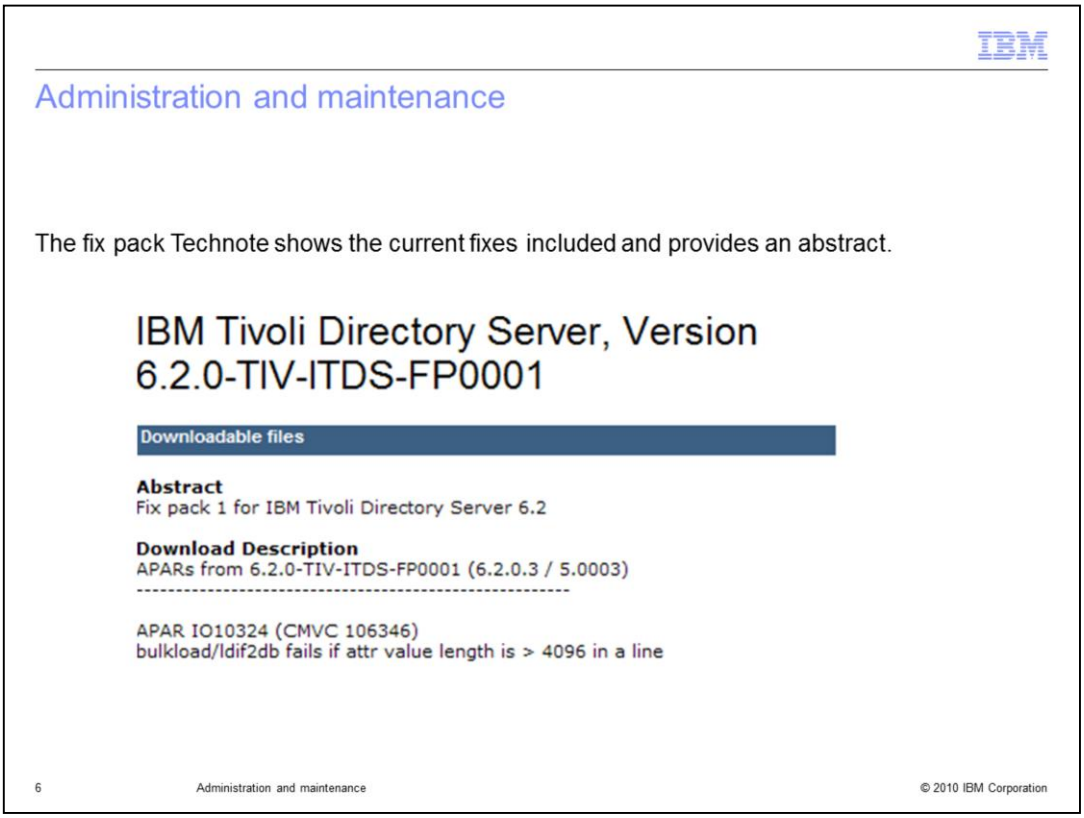
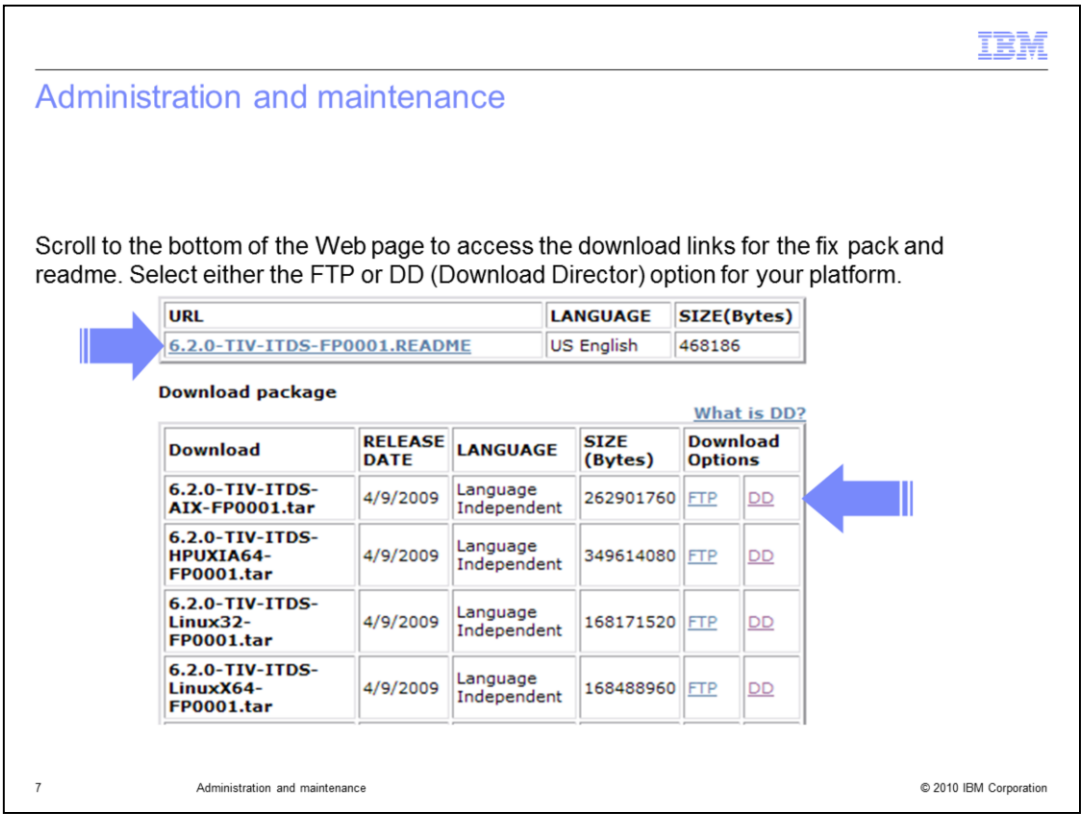
As you can see on the slide, there is an exception for the Solaris platform because of a known issue. Next, apply a Tivoli Directory Server fix pack, a DB2 fix pack, and upgrade the GSKit version.

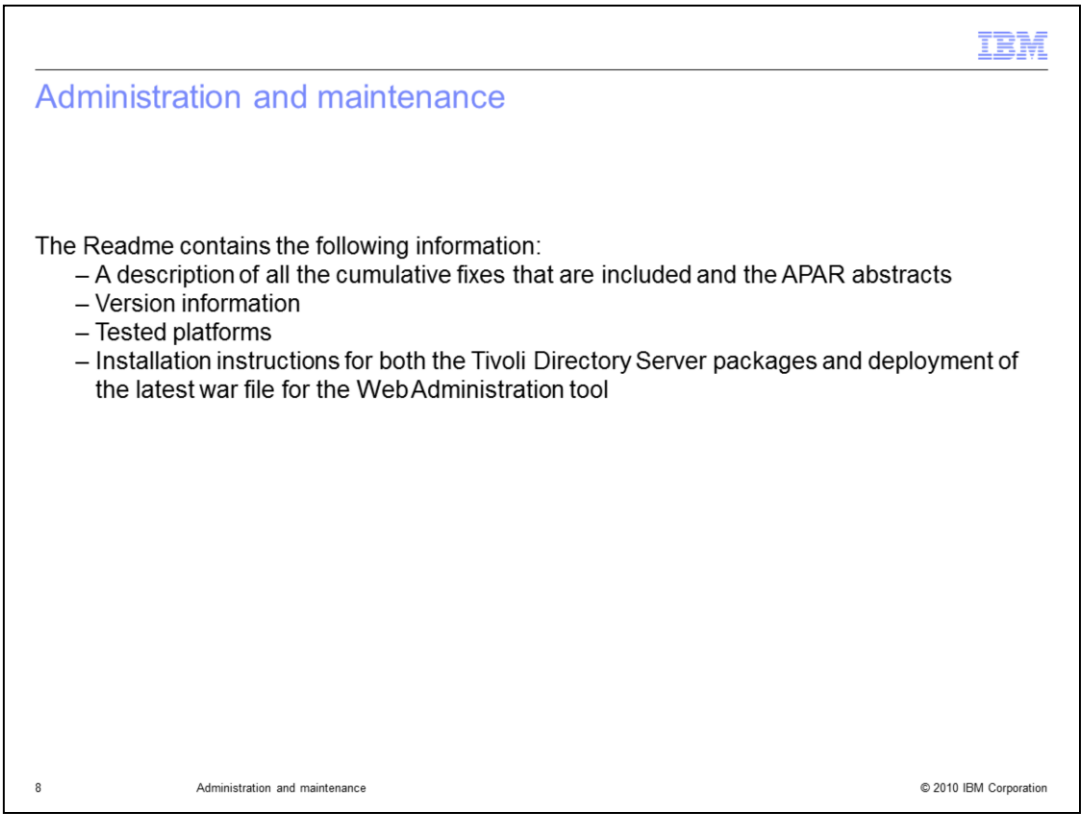


After you click the link to the version 6.2 fix pack 1, you see the version and fix pack numbers. All of the APAR abstracts added to this fix pack are also listed.

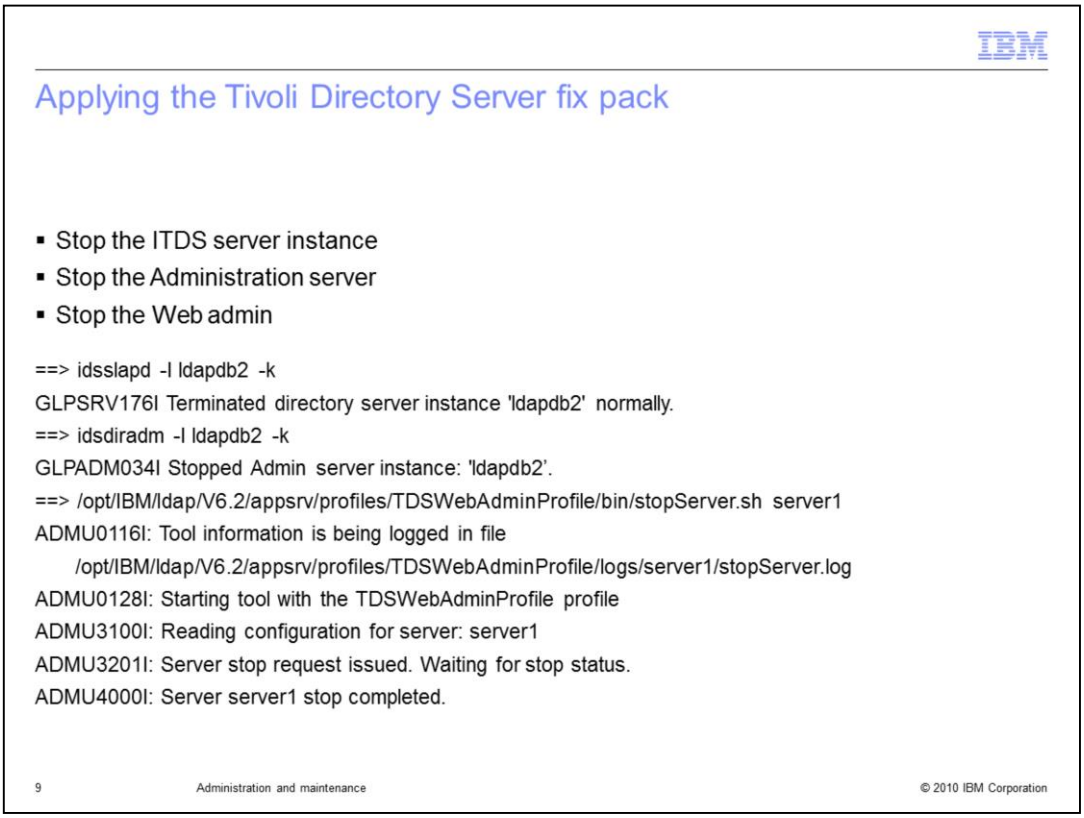


Scroll to the bottom of the page to view a table that lists the fix pack links per platform and a link to the readme.

This link is very important. The readme contains a description of all of the cumulative fixes. It also includes installation instructions and other important information.



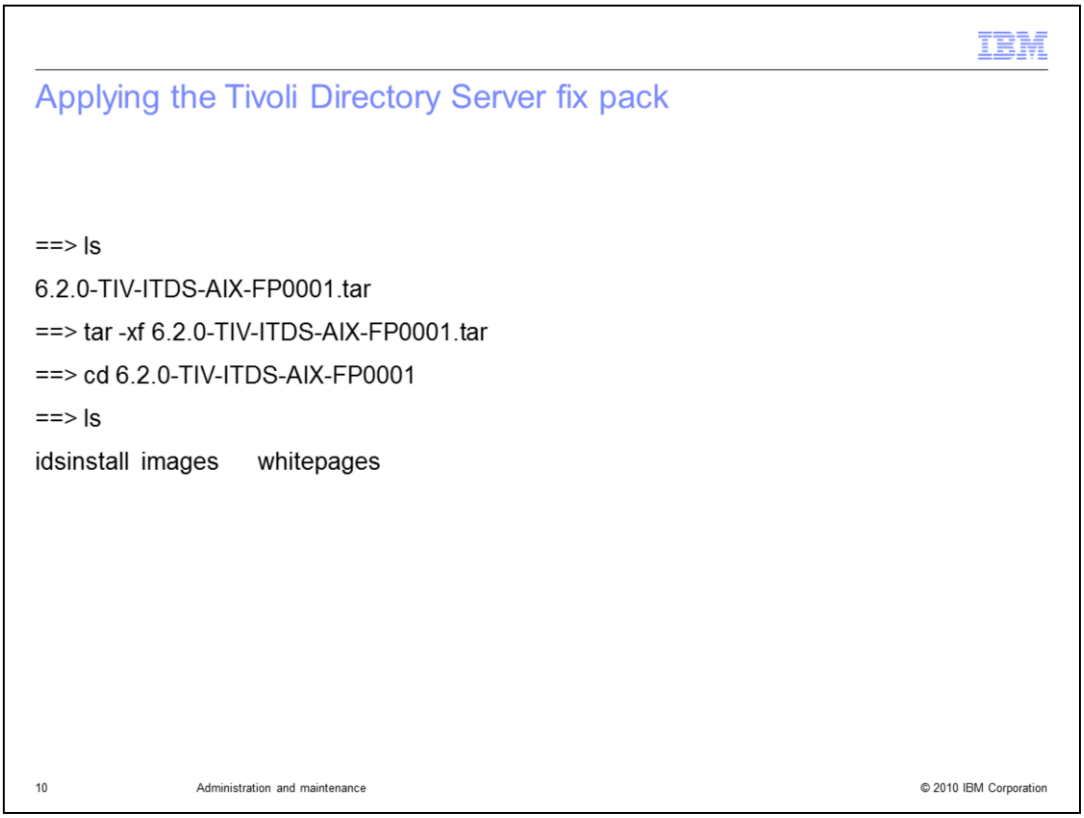
In addition to a cumulative APAR history, the readme contains information about: the latest tested platforms and combinations, the installation instructions for the Tivoli Directory Server fix level, the instructions for deploying the latest WAR file into the eWAS, instructions for verifying the installation, and instructions for uninstalling.



The instance name, ldapdb2, is used in the following examples. To confirm the name of the instance configured in your environment, issue an idsilist –a command.

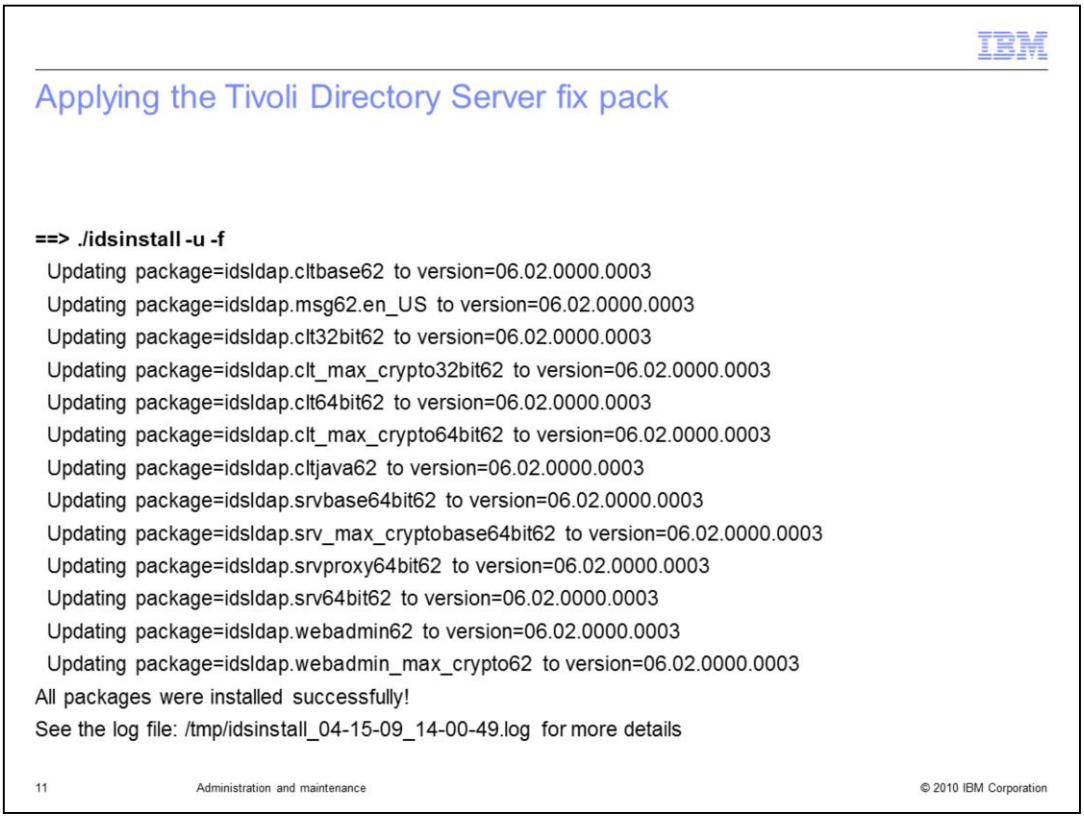
Next, install the Tivoli Directory Server fix pack.

Stop the server and the administrative server using the commands shown on the slide. Then, stop the Web Administration tool by going into appsrv/profiles/TDSWebAdminProfile/bin and issue the stopServer.sh server1 command. You can confirm that server1 has stopped by viewing the output messages.

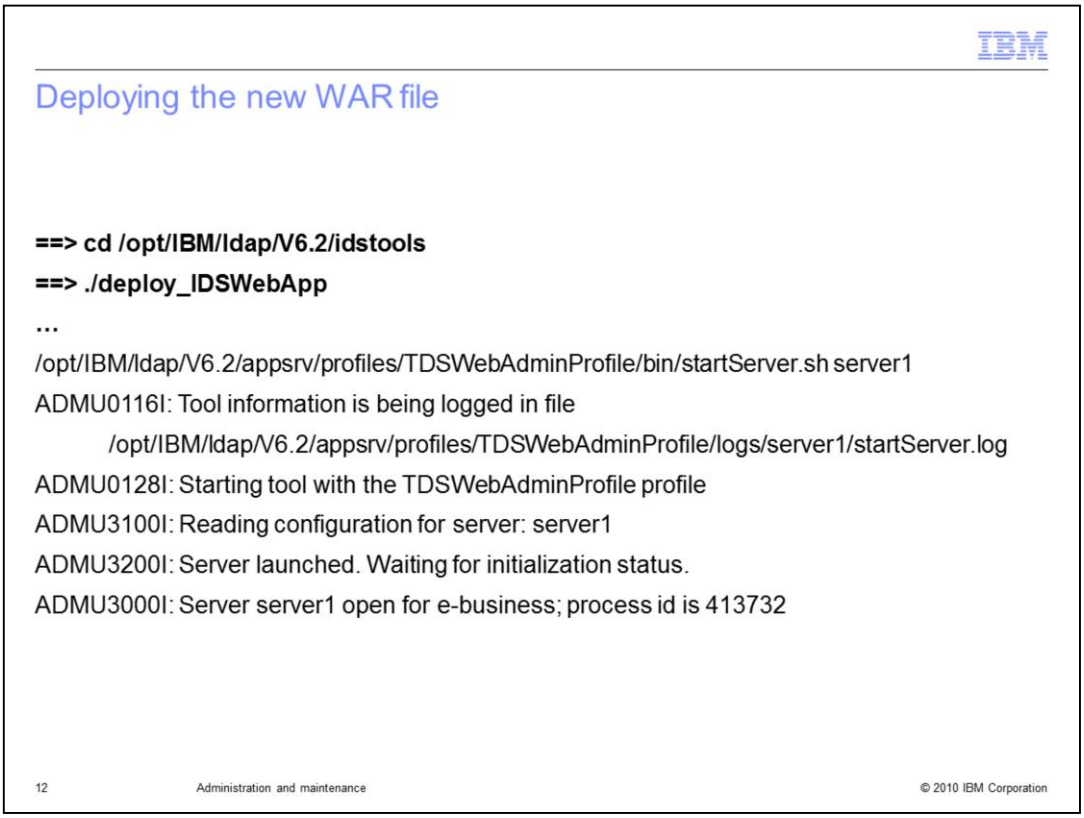


Now, download the fix level by using either the download director or ftp. After the download is complete, copy the file to the system where you are installing the fix pack. Extract the tar file by using the tar -xf command. A directory with the same name will be created. In this example, the directory is 6.2.0-TIV-ITDS-AIX-FP0001.

In that directory are three listings: idsinstall, images, and whitepages.



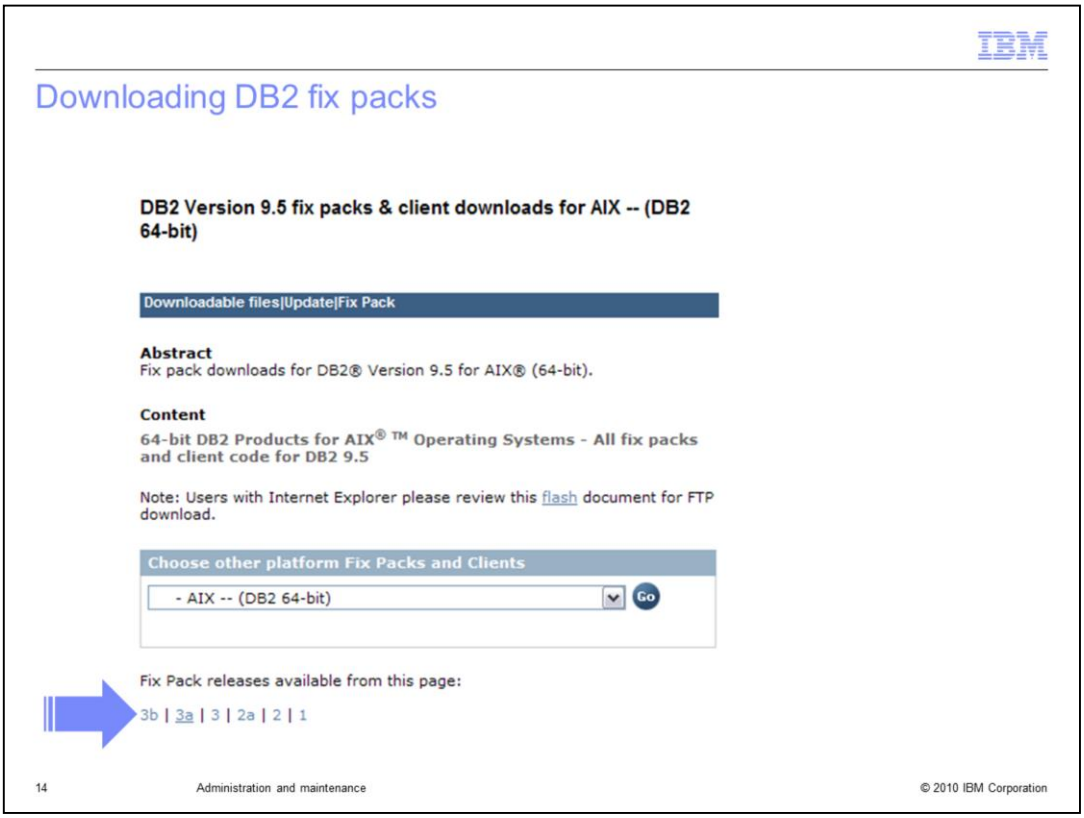
To install the fix pack, use the idsinstall script. Issue a ./idsinstall command with -u and -f flags. The fix pack updates all of the installed Tivoli Directory Server packages in your environment to the most current level. If for any reason there is a failure, it is listed in the installation log, which is displayed with the output of the command.



This slide shows how to deploy the WAR file.

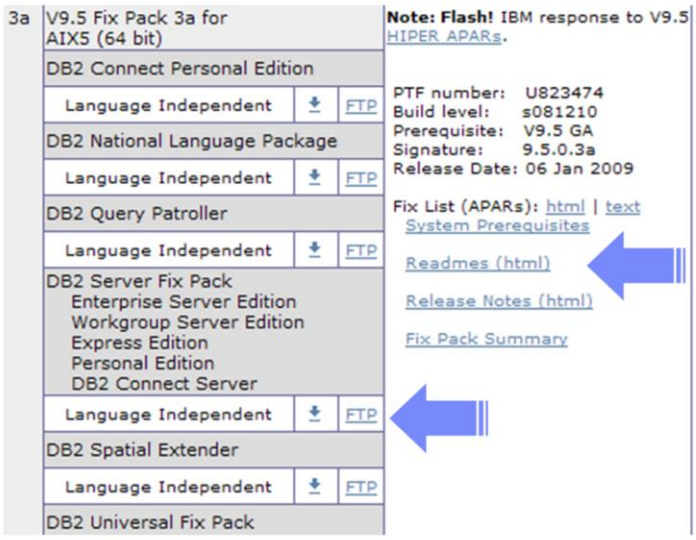
This step is sometimes overlooked when installing fixes for Tivoli Directory Server, but it is an important step. It updates the Web Admin tool to the latest fix level being applied to the components.
Every time a fix pack is installed, the latest WAR file is placed in the idstools directory. Change directories the idstools directory of the TDS install path and issue the ./deploy_IDSWebApp script.
This command is the same one that was originally used to deploy the WAR file. If you chose a custom installation path, you need to specify that path with this command. To view the parameters, issue the command with a -? or look into the online documentation for an example. After all the messages have finished outputting, you see a new process ID has been assigned and is running.

To confirm that the new WAR file has been applied, go into idstools and issue the same script as earlier, specifying a -v for version. The program outputs an application version and build date. You can confirm the version and build date by checking the fix pack readme or the VRMF document link in the Recommended Fixes document.



In this step, you are reaching the DB2 fix packs from the link in the Recommended Fixes document. Install the latest recommended level, fix pack 3a, by selecting it from the list and then selecting the platform.

Downloading DB2 fix packs



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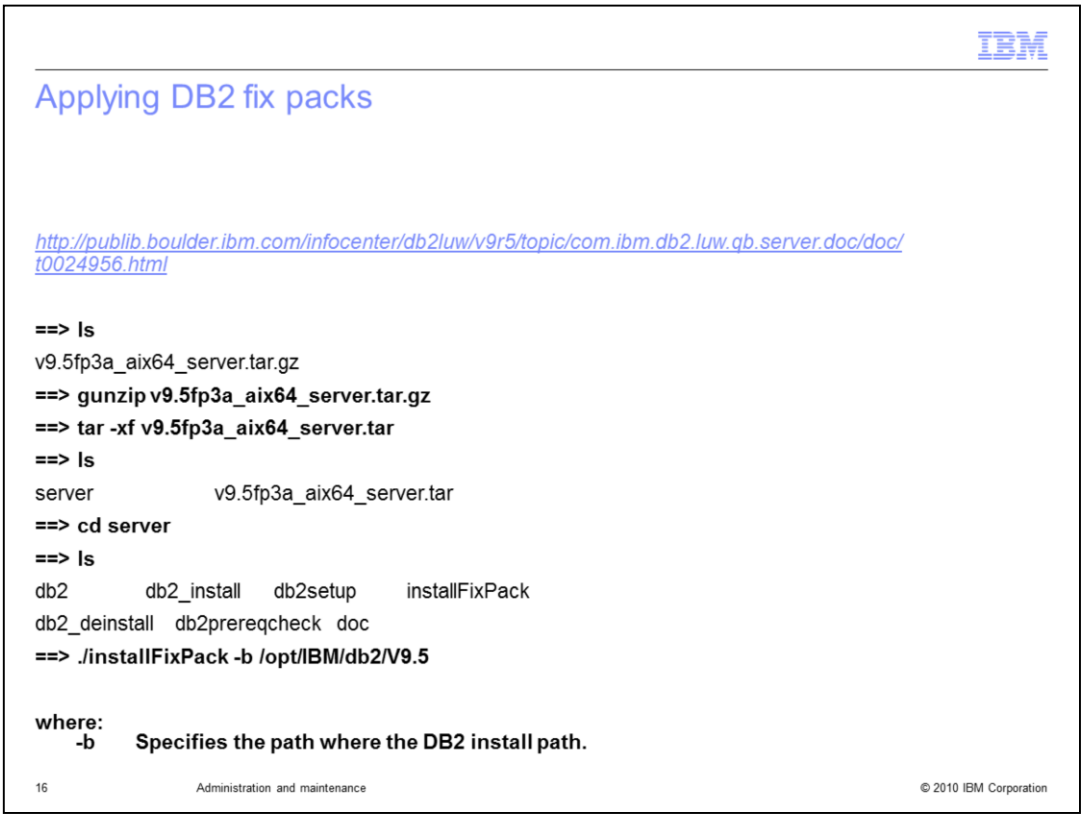
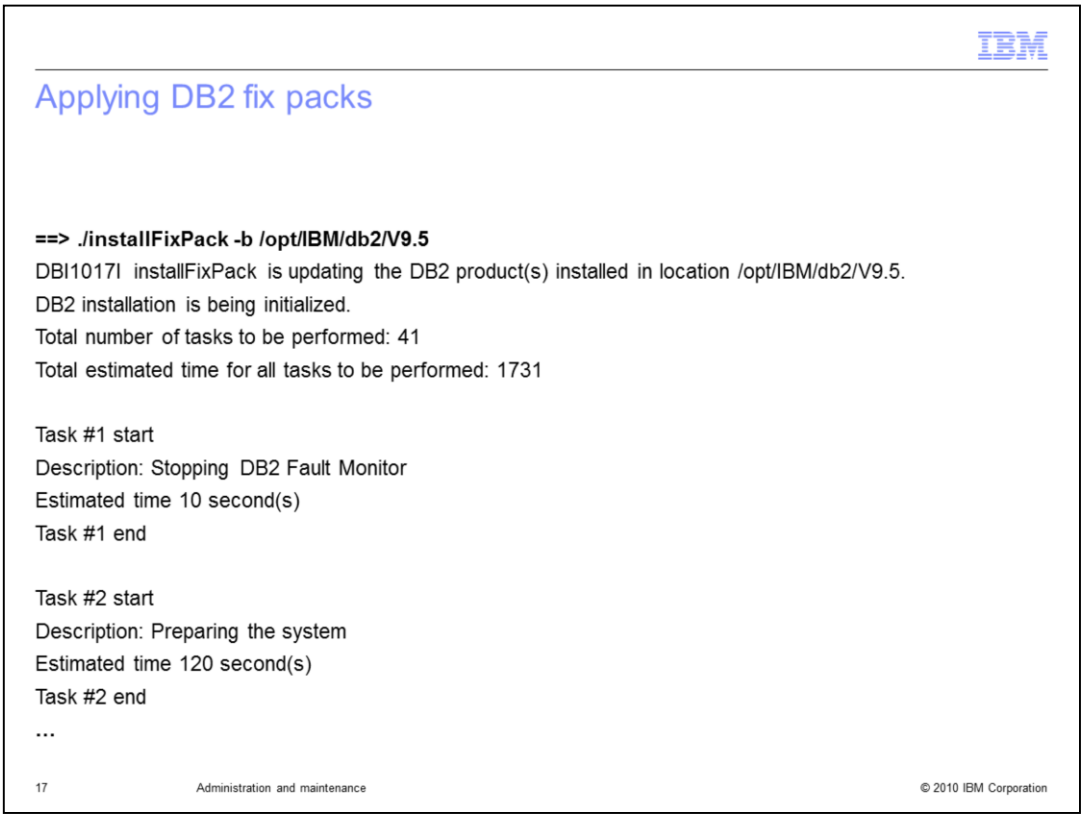
When you select fix pack version 3a, you are directed to a table that is lower in the document. When you select the package for the DB2 fix pack, you have the option to download the readme as well.

Following the DB2 fix pack post installation steps is critical. You must complete the post installation steps to start the server after a DB2 fix pack installation.

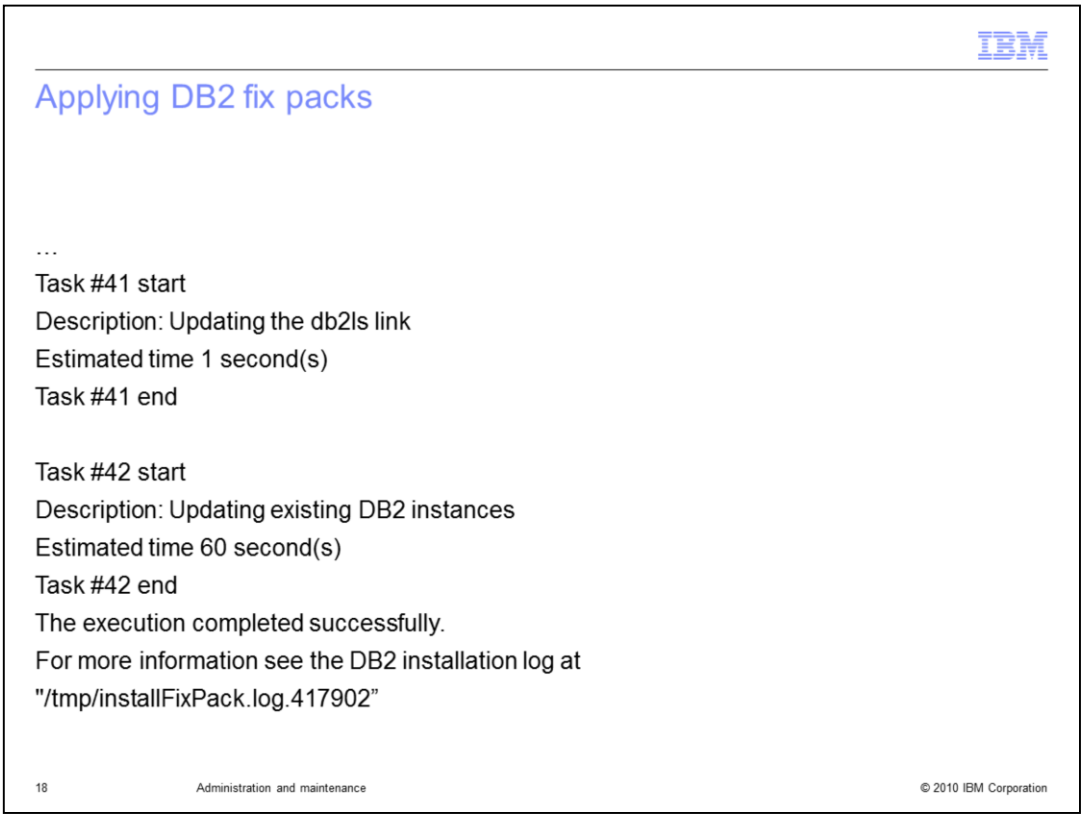


Next are the post installation steps for DB2.
First, download and extract fix pack version 3a and extract the file. Next, go into the server directory and enter an ls command.
You have several options. Because you are updating an existing installation, use the installFixpack command, and enter a -b command to specify the base installation path.
Some applications only support a certain level of DB2. Check with the application documentation or support to determine the latest levels supported.

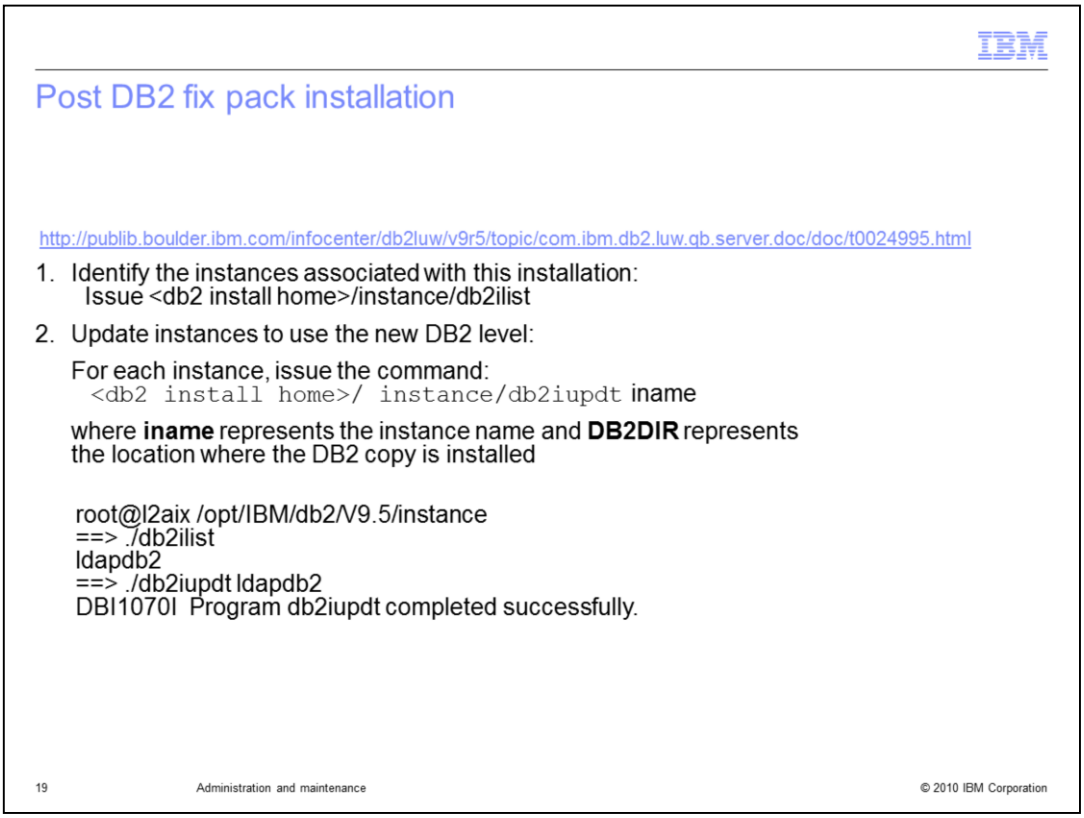
If you are unsure of your current DB2v9 installation path, issue the /usr/local/bin/db2ls command on UNIX® platforms to confirm. The db2ls command is not available on Windows®.



When you issue the installFixpack command, several messages similar to the ones in the DB2 installation are displayed, such as tasks solicited and estimated time to completion.

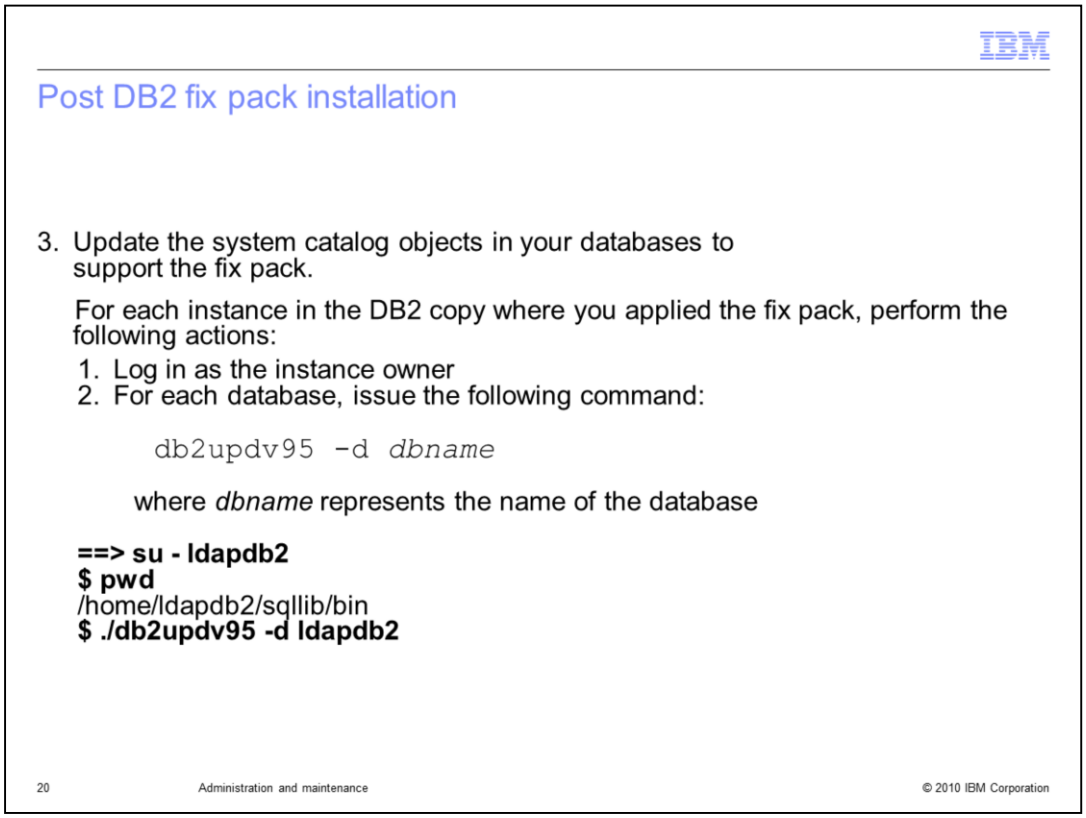


When the installation is complete, review the installation log to check for any errors.



Next are the post installation steps for the DB2 fix pack.
These steps are critical. If you do not perform them, your server cannot start or connect to the database.
First, identify the instances associated with the installation. Go into the DB2 install home, CD to the instance directory, and issue a db2ilist command.
Second, update the instances to use the new DB2 level. For each instance, issue the command db2iupdt and then the instance name.
An example is shown. In this installation of DB2, you have only one instance associated with this installation, which is ldapdb2.

By issuing the db2iupdt command, you can specify that instance, which completed successfully. You can see the successful completion message as shown at the bottom of the slide.



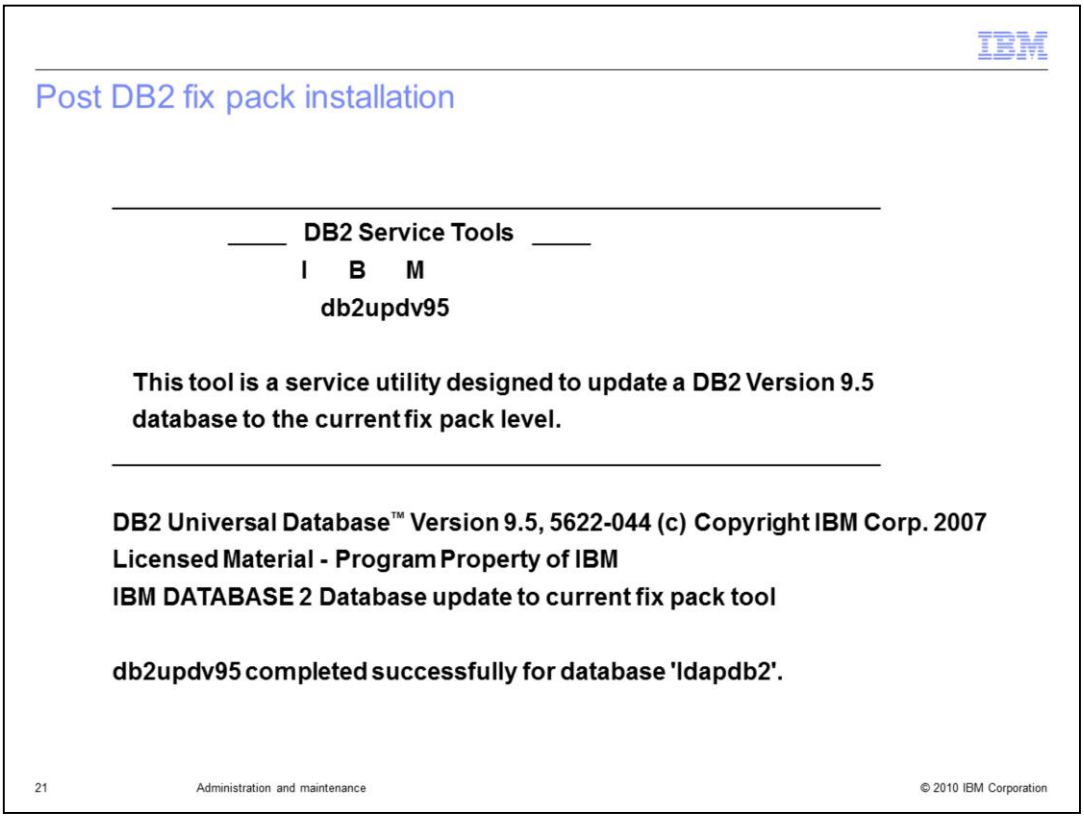
Update the system catalog objects in your databases to support the fix pack.

For each instance in the DB2 copy where you applied the fix pack, perform the following actions:

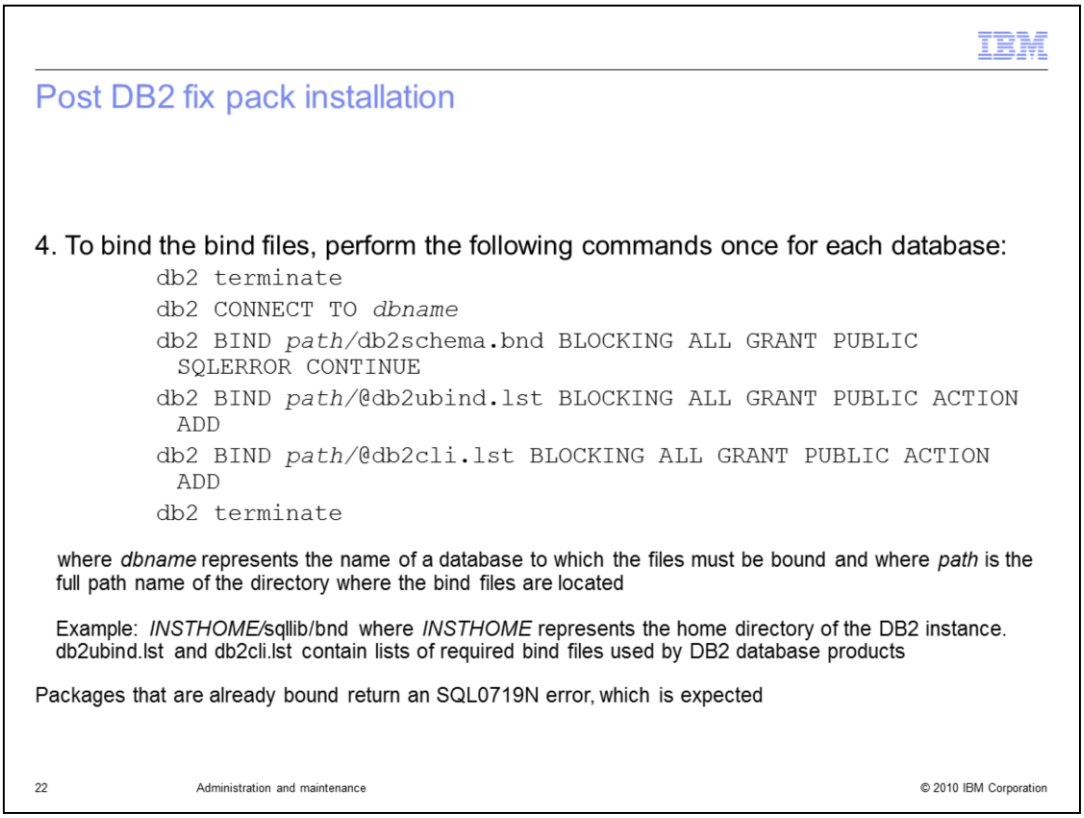
Log in as the instance owner.

For each database, issue the db2updv95 command with the –d flag and database name.

If you have a change log database configured, that database will need these steps performed as well.

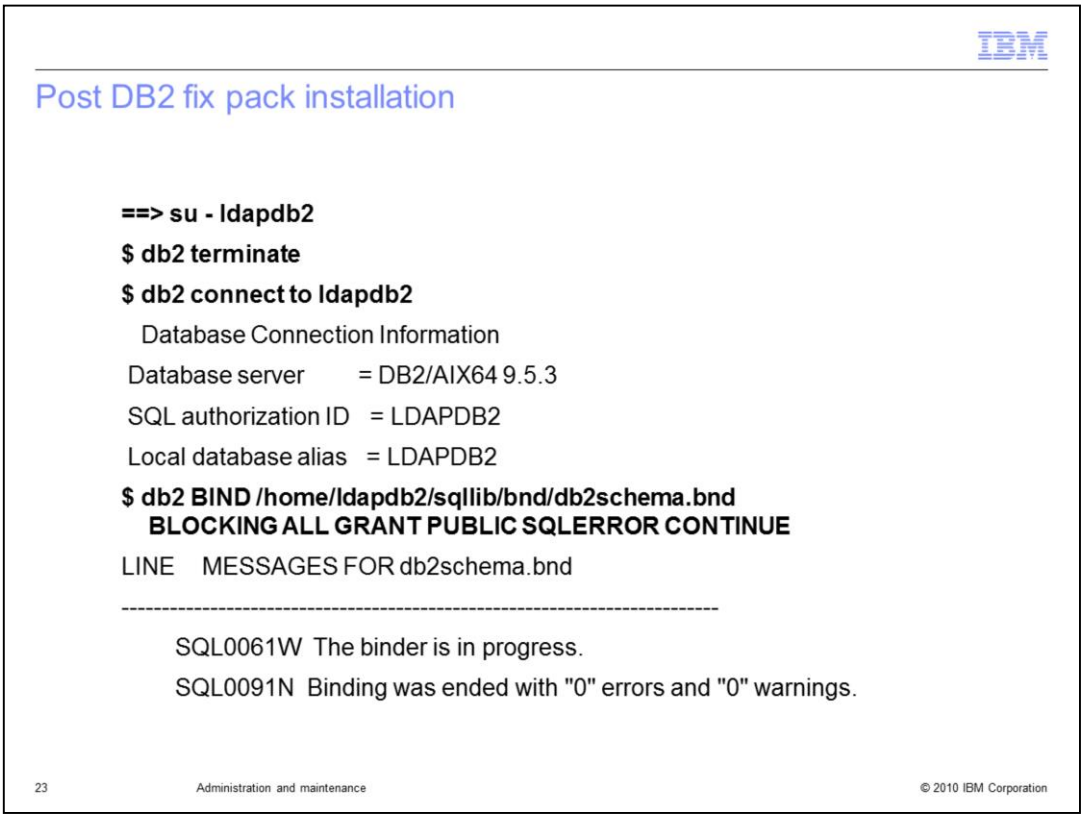


The tool displays some messages. When the installation of the fix pack is complete, the completed successfully message is displayed.



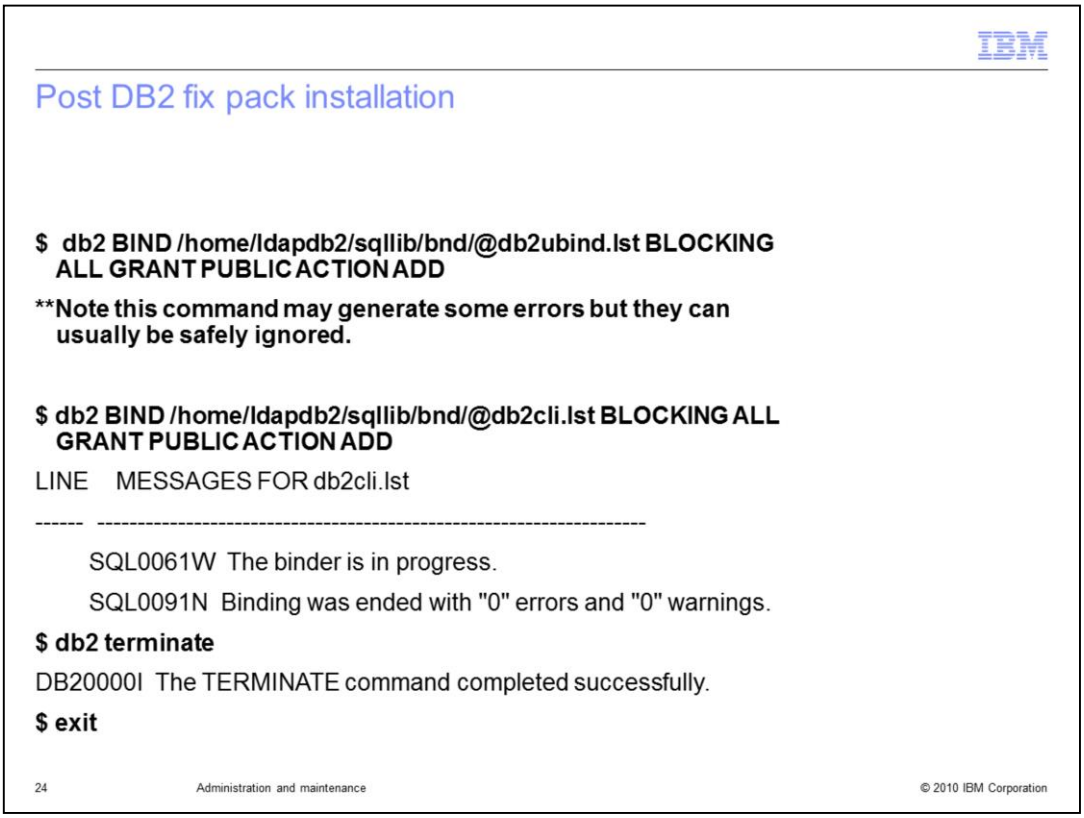
The fourth step is to bind the bind files, which requires performing a series of commands. Enter a DB2 terminate command, and a db2 CONNECT TO database name command. It is necessary to bind to the schema files and to bind to the bind files, then to terminate.

The DB2 instance home is represented by /home/ldapdb2 in these examples.



To terminate, issue the DB2 terminate command, then connect to the database. Next, issue the db2 BIND commands.

Specify the path to the db2schema.bnd, which is located in the DB2 instance home/sqllib/bnd directory. Binding to the schema files should complete successfully.



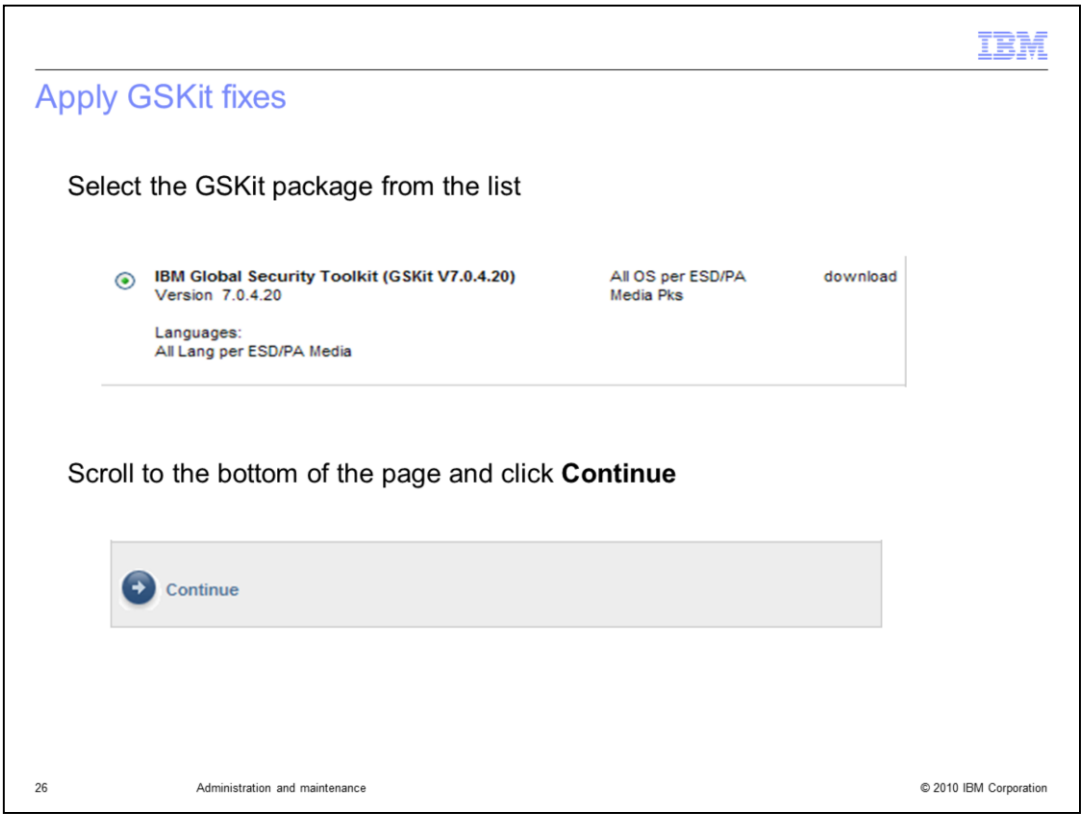
The second DB2 BIND is to bind to the bind files.

This command might generate some errors that can be safely ignored. The next command, db2 BIND to the db2cli.lst, completes as well.

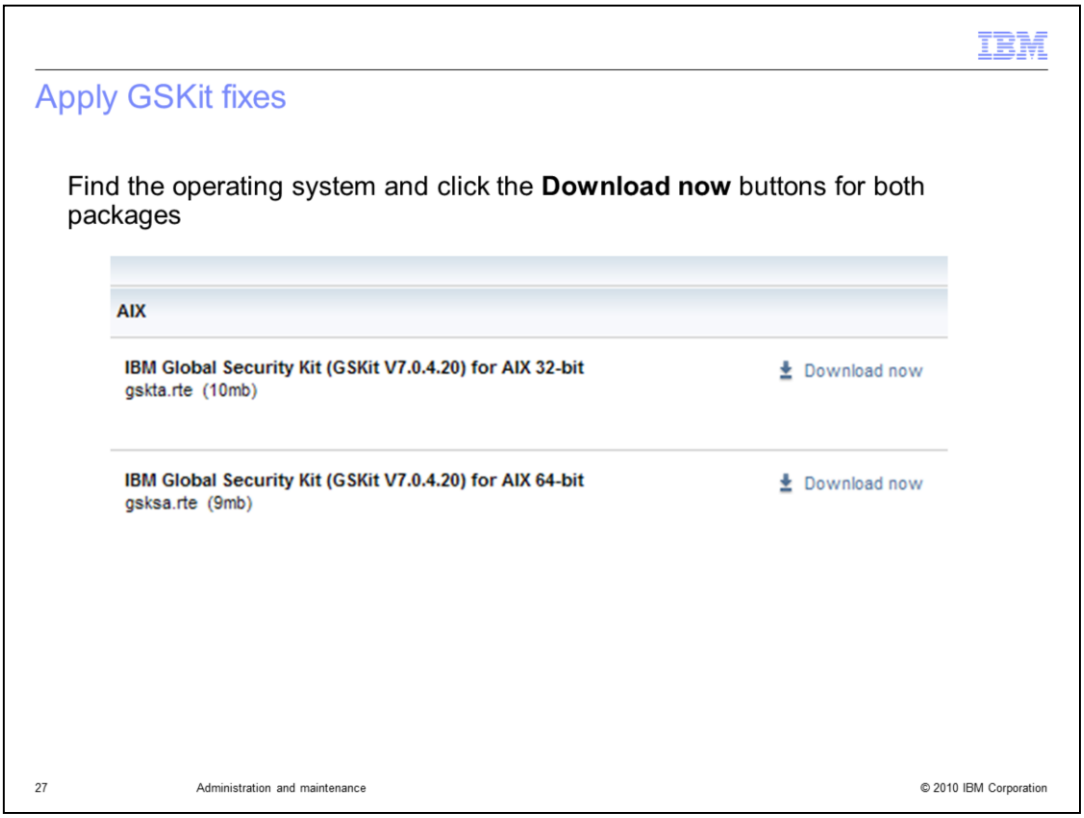
Messages similar to those on the slide are displayed. Look for a binding ending with “0” errors, “0” warnings. Then, issue a db2 terminate command and an exit command. This concludes the post installation steps.

Note that the DB2 instance home is represented by /home/ldapdb2 in these examples.

Next is the GSKit upgrade.
The link at the top of the slide shows where you can download GSKit patches. You must have an IBM ID to log in. If you do not have an IBM ID, you can register for one.



After you log in, scroll through the packages until you find the recommended level. In this example, the level is 7.0.4.20. Select the package level and click Continue.



Find the correct operating system and click the Download Now buttons for both packages. This updates gskta.rte and gsksa.rte.

IBM is working to provide Java™ packages for these updates. After they become available, you can find them on the site.

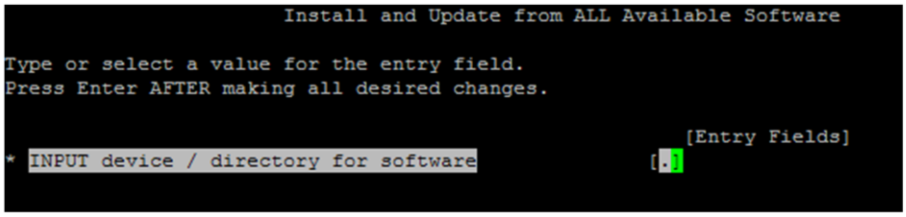
Apply GSKit fixes

==> ls

gsksa.rte gskta.rte

==> smitty install_all

Enter "." to indicate the current directory and hit Enter.



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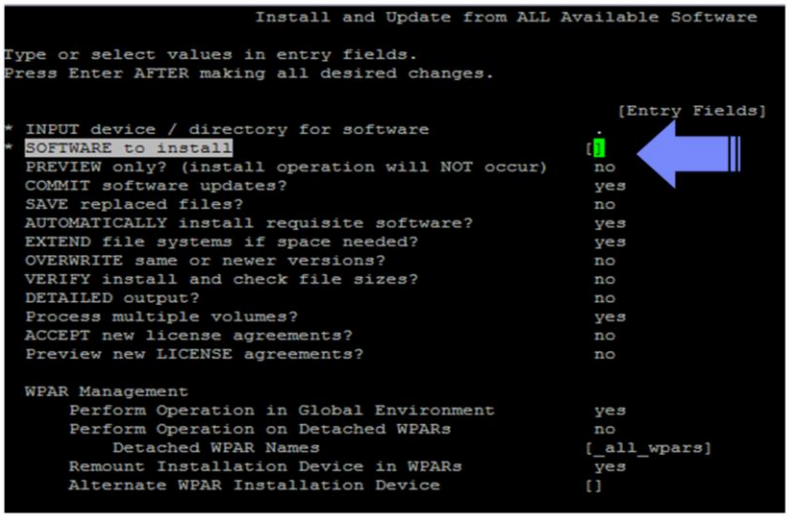
On this slide, you see that the gskta.rte and gsksa.rte files are copied to the system. Use the smitty install_all command to upgrade those packages.

Apply GSKit fixes



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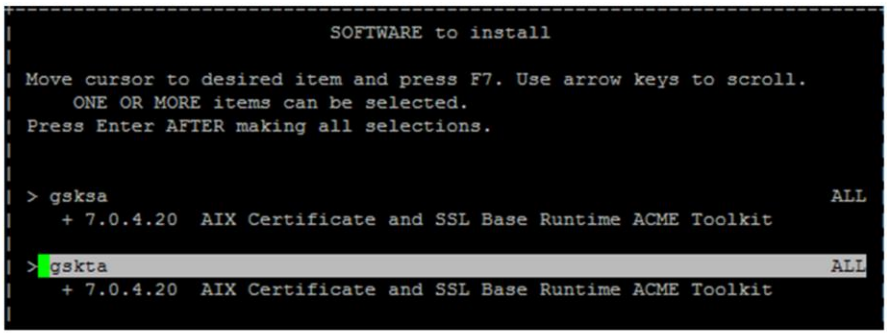
The menu is the same one that is used to natively install the Tivoli Directory Server packages.

Use the AIX® system management interface tool (SMIT) to select and update the GSKit packages. Note that this is the same install method that is used when natively installing the Tivoli Directory Server on AIX.

Apply GSKit fixes

In the **Software to Install** field, select **F4** to list the packages. Select each package using the F7 key and press Enter.



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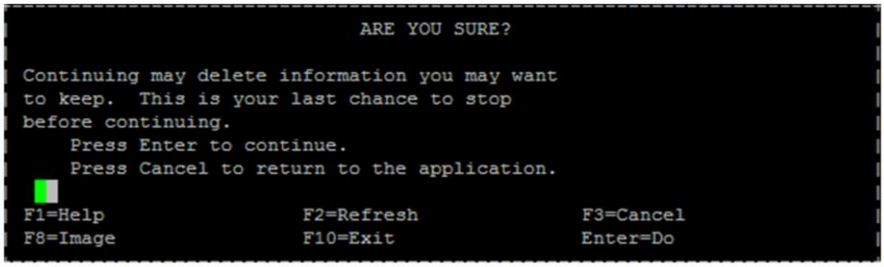
Use the F4 option to list the packages. Then use F7 to select the packages.

Apply GSKit fixes

Confirm your selection and press Enter to continue



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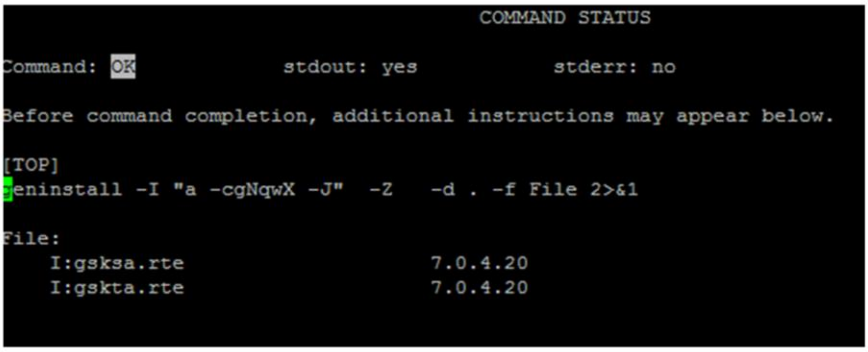
Confirm the installation of these packages by pressing Enter. When installation completes, the command message OK is displayed, showing that both packages have been installed successfully.

Apply GSKit fixes

When SMIT finishes, the Command Status window indicates **OK** to confirm that the packages were installed successfully



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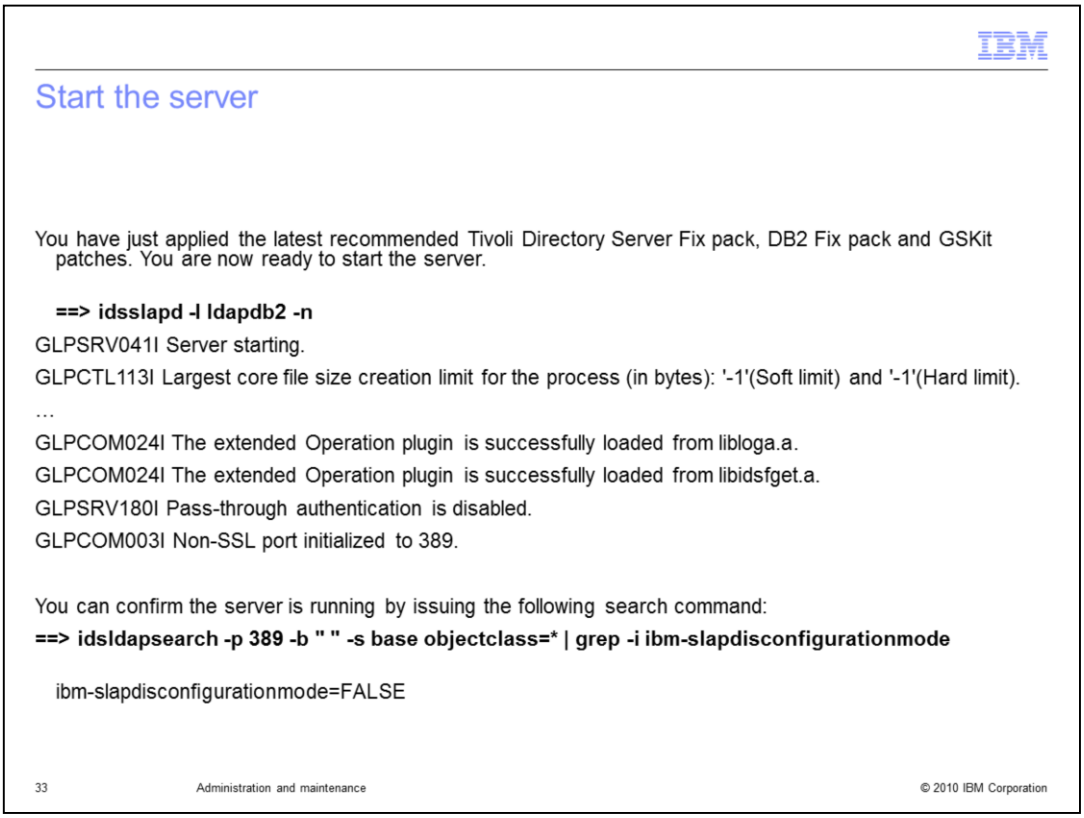
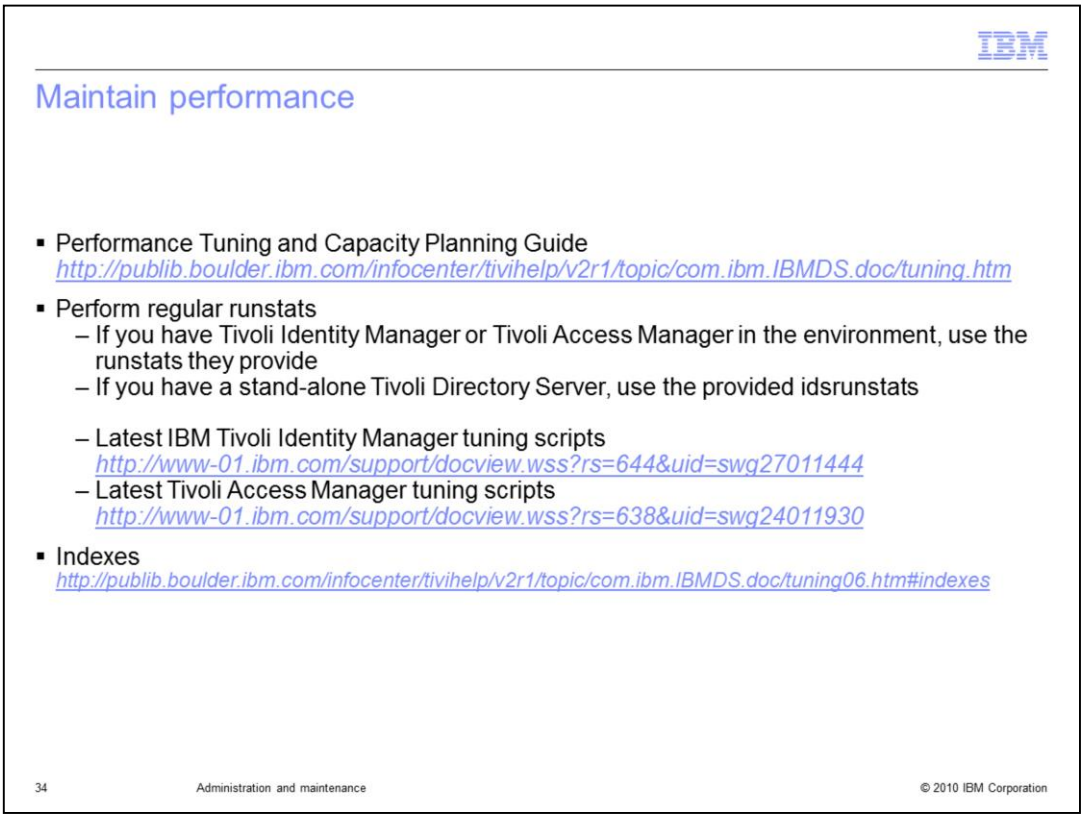
Now, the installed Tivoli Directory Server packages are updated, the latest WAR file is deployed, and DB2 has been successfully upgraded along with the GSKit packages. Start the server and make sure that it is functioning correctly.



To start the Tivoli Directory Server server, issue the idsslapd command with the –I instance name and the –n flags. In this example, the Tivoli Directory Server instance name is ldapdb2. Messages are displayed as the server starts. Notice that the non-SSL port initialized to 389 and produced no errors. At this point, you can again confirm that the server is running by issuing an ldapsearch command.

Issue a base scope idsldapsearch command with a –b “ “ objectclass=* and grep for “is in configuration only”. That check returns false, confirming that the server is running in normal operation mode.

Note in this example that you specified –n with the startup command, which indicates to not start the server in configuration only mode if an error is encountered. If you had not specified a –n and an error had been encountered, the server would not have started and gone into configuration only mode. If this happens, the search would indicate true indicating that the server is running in configuration only mode.

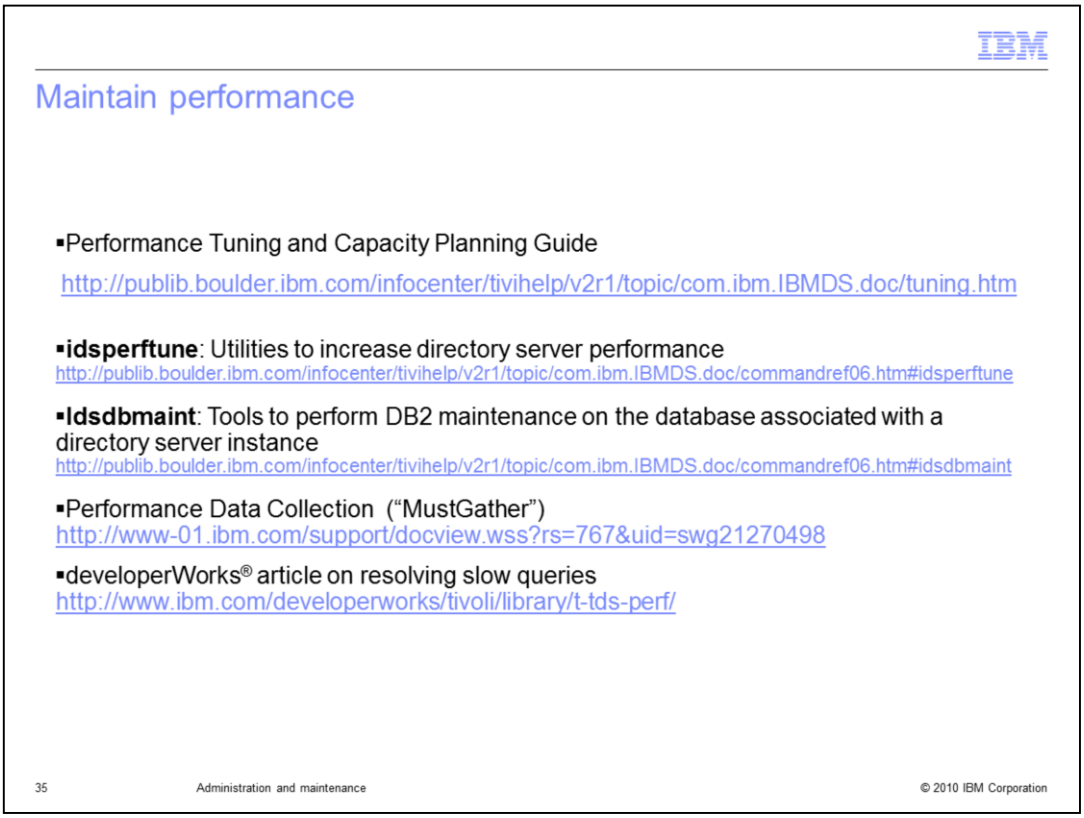


To maintain optimum performance in your environment, refer to “Performance, Tuning and Capacity Planning Guide” that is provided with the Tivoli Directory Server release.

Performing regular runstats is always recommended. If you are using either Tivoli Identity Manager or Tivoli Access Manager, use the runstats script provided with that product respectively. The latest tuning scripts for IBM Tivoli Identity Manager and Tivoli Access Manager are available at the links provided here.

If you are running a stand-alone IBM Tivoli Directory Server, perform runstats using the Tivoli Directory Server provided idsrunstats.

Indexing can also improve your performance. For additional information about indexing, please refer to the “Performance, Tuning and Capacity Planning Guide”.

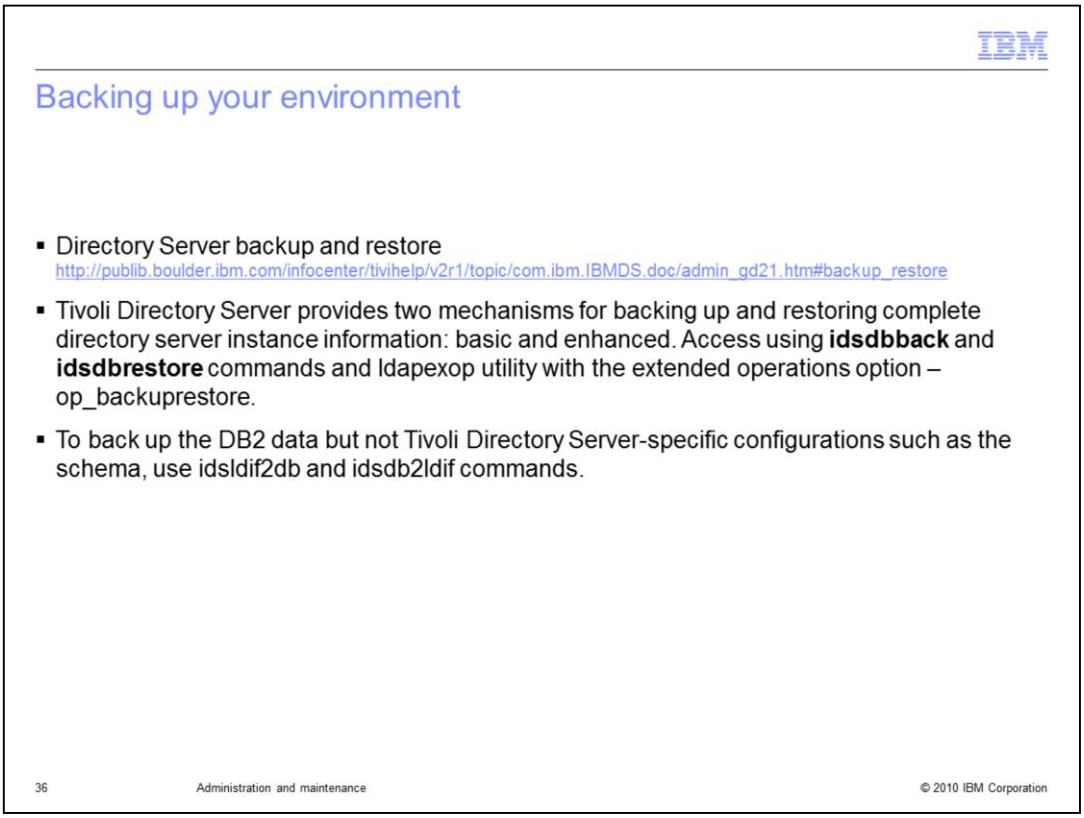


As new applications are introduced into the environment, you might need to set new indexes.

Use the idsperftune utility to help you maintain the performance of your environment by tuning various caches, DB2 buffer pools, and other DB2 parameters. Run this tool multiple times to get adequate settings based on your workload.
The idsdbmaint utility enables users to perform DB2 directory instance maintenance. It also allows users to do index reorganization and DB2 row compression on tables, and DB2 table space conversion. This saves space and increases performance.
A component-level MustGather document for performance issues by IBM can help you address performance problems. This document shows step-by-step items that need to be collected to diagnose performance issues.

In addition, Developer Works has produced an article that describes how to resolve slow queries. The article highlights many tools that are provided in the IBM Tivoli Identity Manager tuning guide that can be used with the Tivoli Directory Server Audit log to analyze and resolve performance issues.

Performance tuning is an ongoing and iterative process.



The Tivoli Directory Server provides two mechanisms, basic and enhanced, for backing up and restoring complete directory server instance information. These mechanisms back up not only the directory server instance data on the DB2 database, but also the associated configuration and schema files for the directory server instance.

You can access these mechanisms using the idsdbback and idsdbrestore commands and the ldapexop -op_backuprestore utility.

As an alternative to the Tivoli Directory Server backup and restore mechanisms, you can use two other methods to back up DB2 data without backing up Tivoli Directory Server-specific configurations such as schema. These two methods are the idsldif2db and idsdb2ldif commands. If you use the idsldif2db and idsdb2ldif commands be sure to manually copy off your schema, ibmslapddir.ksf and configuration files.

Remember that performing regular backups of your environment is critical.

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