IBM Tivoli Software

Introduction to IBM Tivoli Directory Server 6.0 - Server Administration and Maintenance

An overview of IBM Tivoli Directory Server Administration and Maintenance
Excerpt taken from presentation given on April 10, 2007

Support Technical Exchange Web site
http://www-306.ibm.com/software/sysmgmt/products/support/supp_tech_exch.html

8/14/2007

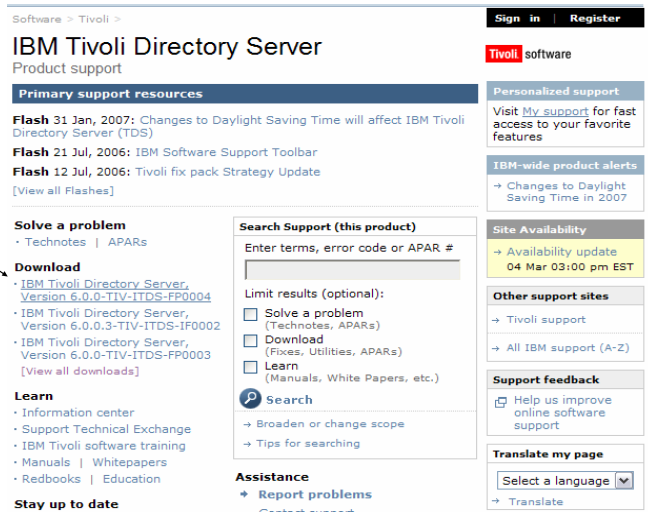
Section 3

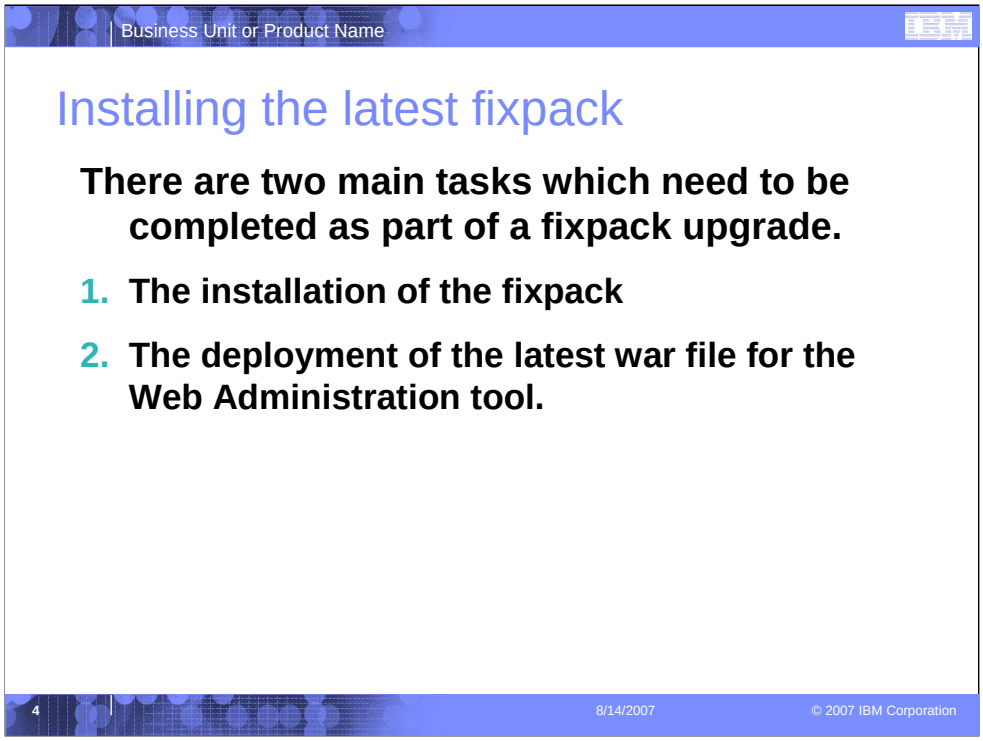
Server Administration and Maintenance Tasks

- Keep your server level up to date with the latest fixpack level
- Resource Considerations
- Performance Maintenance
- Perform Periodic Backups

Downloading the latest available fixpack

1. Visit the ITDS support page to see the latest available fixpacks. (http://www-306.ibm.com/software/sysmgmt/products/support/IBMDirectoryServer.html)
2. Select the fixpack link and download the latest fixpack and fixpack readme.
3. The fixpack readme will provide an explanation of each fix included and the installation instructions.





A pot file is a Design Template file, which provides you the "look" of the presentation

- You apply a pot file by opening the Task Pane with View > Task Pane and select Slide Design – Design Templates.
- Click on the word Browse… at bottom of Task Pane and navigate to where you stored BlueOnyx Deluxe.pot (black background) or BluePearl Deluxe.pot (white background) and click on Apply.
- You can switch between black and white background by navigating to that pot file and click on Apply.
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Start with Blank Presentation, then switch to the desired Design Template

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- Click on the word Browse… at bottom of Task Pane and navigate to where you stored BlueOnyx Deluxe.pot (black background) and click on Apply.
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You should add your Business Unit or Product Name by modifying it on the Slide Master

- You switch to the Slide Master view by View > Master > Slide Master.
- Click on the Title Page thumbnail icon on the left, and click on the Business Unit or Product Name field to modify it.
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- Slide number field can be turned on as well. It appears to the left of the footer.

Installing the latest fixpack

Download and extract the latest fixpack from the ITDS support site.

```
==> ls
6.0.0-TIV-ITDS-AIX-FP0004.tar
[ root:/tmp/FP4 ]
==> tar -xf 6.0.0-TIV-ITDS-AIX-FP0004.tar
[ root:/tmp/FP4 ]
==> ls
6.0.0-TIV-ITDS-AIX-FP0004       6.0.0-TIV-ITDS-AIX-FP0004.tar
[ root@ldapaixc1:/tmp/FP4 ]
==> cd 6.0.0-TIV-ITDS-AIX-FP0004
[ root:/tmp/FP4/6.0.0-TIV-ITDS-AIX-FP0004 ]
==> ls
idsinstall  images      tools
```

Installing the latest fixpack

```
[ root:/tmp/FP4/6.0.0-TIV-ITDS-AIX-FP0004 ]
==> ./idsinstall -u

  Updating package=idsldap.cltbase60 to version=06.00.0000.0033

  Updating package=idsldap.msg60.en_US to version=06.00.0000.0033

  Updating package=idsldap.clt32bit60 to version=06.00.0000.0033

  Updating package=idsldap.clt_max_crypto32bit60 to version=06.00.0000.0033

  Updating package=idsldap.clt64bit60 to version=06.00.0000.0033

  Updating package=idsldap.clt_max_crypto64bit60 to version=06.00.0000.0033

  Updating package=idsldap.cltjava60 to version=06.00.0000.0033

  Updating package=idsldap.cltjava_max_crypto60 to version=06.00.0000.0033

  Updating package=idsldap.srvproxy64bit60 to version=06.00.0000.0033

  Updating package=idsldap.srv_max_cryptoproxy64bit60 to version=06.00.0000.0033

  Updating package=idsldap.srv64bit60 to version=06.00.0000.0033

  Updating package=idsldap.webadmin60 to version=06.00.0000.0033

  Updating package=idsldap.webadmin_max_crypto60 to version=06.00.0000.0033

All packages were installed successfully!
See the log file: /tmp/idsinstall_04-03-07_23-28-34.log for more details
[ root:/tmp/FP4/6.0.0-TIV-ITDS-AIX-FP0004 ]
==>
```


Run the “idsinstall” script with the –u flag to update all of the installed ITDS packages.

When the “idsinstall” script completes you will see the “All packages were installed successfully!” message.

Installing the latest fixpack

The second task in upgrading to the latest fixpack is to deploy the latest war file for the Web Admin.

1. **cd /opt/IBM/ldap/V6.0/idstools**
2. **run the deploy script using the following syntax:**

 # ./deploy_IDSWebApp.sh –w <full path to the war file> -p <location of the Websphere Application server>

For Example:

 # ./ deploy_IDSWebApp.sh –w "/opt/IBM/ldap/V6.0/idstools/IDSWebApp.war" –p "/opt/IBM/ldap/V6.0/appsrv"

Installing the latest fixpack

The “deploy_IDSWebApp.sh” will generate several messages.

When the command completes, you will see the following output indicating that the Web Admin has been updated.

```
/opt/IBM/ldap/V6.0/appsrv/installedApps/DefaultNode/IDSWebApp.war.ear/IDSWebApp.
war:
    <app-version>3.0011</app-version>
    <build-date>Wed 03/21/2007</build-date>
[ root@ldapaixc1:/opt/IBM/ldap/V6.0/idstools ]
==>
```


Fixpack Installation Success!

Resource Considerations

There are several resource limits that might need to be adjusted for IBM Tivoli Directory Server. By default on AIX the ulimits are set way too low. If these limits are not corrected you run the risk of a variety of limitation issues.

Limit	Effect
Data Limit	Silent server abend, poor performance
File Descriptor limit	Clients may receive a DSA is unwilling to perform
Memory limit	Silent server abend, poor performance

Resource Considerations

To verify your ulimit settings issue the following command:

 # ulimit –a

This will return output similar to the following:

```
==> ulimit -a
time(seconds)        unlimited
file(blocks)         2097151
data(kbytes)         131072
stack(kbytes)        32768
memory(kbytes)       32768
coredump(blocks)     2097151
nofiles(descriptors) 2000
```

Resource Considerations

The are two options for updating these values:

1. **Set the ulimits from command line each time you start the server**

   OR

2. **On AIX, permanently update the values in the /etc/security/limits file**

****Note: You can always check to see what values were picked up by the ITDS server by reviewing the messages in the ibmslapd.log file, which is located in the following directory:**

/<ldap instance home>/idsslapd-<instance name>/logs

Resource Considerations

Option 1: Note that these values are set for this session only. If I log out and log back in, I will need to rerun these commands.

```
==> ulimit -m unlimited

==> ulimit -d unlimited

==> ulimit -a
time(seconds)        unlimited
file(blocks)         2097151
data(kbytes)         unlimited
stack(kbytes)        32768
memory(kbytes)       unlimited
coredump(blocks)     2097151
nofiles(descriptors) 2000
```

Resource Considerations

Option 2:

- cd /etc/security
- vi limits

Define the limits for the “root” user and any other user you might use to start the server.

**Note: you will need to restart your system for these changes to take effect.

```
* NOTE:  A value of -1 implies "unlimited"
*

default:
        fsize = 2097151
        core = 2097151
        cpu = -1
        data = 262144
        rss = 65536
        stack = 65536
        nofiles = 2000

root:
        fsize = -1
        core = -1
        data = -1
        rss = -1
        stack = 32767
        nofiles = 2000
```

Resource Considerations

For additional information regarding ulimits:

- http://www-1.ibm.com/support/docview.wss?uid=swg21206894
- http://www-1.ibm.com/support/docview.wss?uid=swg21206894
- http://publib.boulder.ibm.com/infocenter/tivihelp/v2r1/topic/com.ibm.IBMDS.doc/tuning07.htm

Performance Maintenance

For performance tuning recommendations please refer to the:
ITDS 6.0 Performance Tuning Guide

The most critical task that can be taken by the ITDS admin is to take steps to make db2 as efficient as possible. This can be achieved by following the recommendations specified in the Optimization and Organization section within the DB2 tuning and commands chapter of the Performance Tuning guide.

http://publib.boulder.ibm.com/infocenter/tivihelp/v2r1/topic/com.ibm.IBMDS.doc/tuning06.htm

Performance Maintenance

Optimization and organization (reorgchk and reorg)

- DB2 uses a sophisticated set of algorithms to optimize the access to data stored in a database. These algorithms depend upon many factors, including the organization of the data in the database, and the distribution of that data in each table. Distribution of data is represented by a set of statistics maintained by the database manager.
- In addition, IBM Tivoli Directory Server creates a number of indexes for tables in the database. These indexes are used to minimize the data accessed in order to locate a particular row in a table.
- In a read-only environment, the distribution of the data changes very little. However, with updates and additions to the database, it is not uncommon for the distribution of the data to change significantly. Similarly, it is quite possible for data in tables to become ordered in an inefficient manner.
- To remedy these situations, DB2 provides tools to help optimize the access to data by updating the statistics and to reorganize the data within the tables of the database.

Performance Maintenance

Optimization

Optimizing the database updates statistics related to the data tables, which improves performance and query speed. Optimize the database periodically or after heavy database updates (for example, after importing database entries). The Optimize database task in the IBM Tivoli Directory Server Configuration Tool uses the DB2 runstats command to update statistical information used by the query optimizer for all the LDAP tables.

Note:

The reorgchk command also updates statistics. If you are planning to do a reorgchk, optimizing the database is unnecessary. See Database organization (reorgchk and reorg) for more information about the reorgchk command.

Performance Maintenance

Optimization

- **To optimize the database using the Configuration Tool:**

1. Start the Configuration Tool by typing idsxcfg on the command line.
2. Click Optimize database on the left side of the window.
3. On the Optimize database window, click Optimize.

   After a message displays indicating the database was successfully optimized, you must restart the server for the changes to take effect.

- **To optimize the database using the command line, run the following command:**

  runstats -I *<instancename>* See "idsrunstats, runstats" in the *IBM Tivoli Directory Server Version 6.0 Administration Guide* for more information.

  Again, you must restart the server for the changes to take effect.

Performance Maintenance

Optimization

The frequency that you will need to run runstats or reorgchk depends on your workload.

We typically recommend that you perform these operations at least once per week.

If you have high write activity you may need to run runstats / reorgchk more frequently.

Performance Maintenance

One of the most significant performance improvements is typically seen when proper indexing is done. The ibmslapd.log will point out attributes which are frequently used but are not correctly indexed.

For Example: Attribute <some_attribute> is not indexed but is used in search filters <Number> times

Use the directions in the ITDS 6.0 Performance and Tuning Guide to index this attribute; or use the following technote:

http://www-1.ibm.com/support/docview.wss?rs=767&context=SSVJJU&dc=DB520&uid=swg21256987&loc=en_US&cs=UTF-8&lang=en&rss=ct767tivoli

Perform Regular Back Ups

The most important element to a Directory is the data which is stored within its structure. Regularly backing up this data can be achieved through a couple of options:

Option 1: Full backup of the data can be achieved with the idsldif2db command. This command has two advantages:

- This command can be run while IBMSLAPD is running
- The file can be transferred to any other ITDS 6.0 server which is cryptographically synced to receive the data.

#idsdb2ldif –I inst_name –o /filesystem/full_backup.date.ldif

Depending on how often your data changes it's advised to do this form of backup often (for example: changes frequently – daily, or fairly static – monthly).

When the ldif completes it a good idea to view the data to make sure its valid. It's important to have a test system to test out the resulting backups.

An ITDS admin would regularly check the ldif files resulting from the idsdb2ldif:

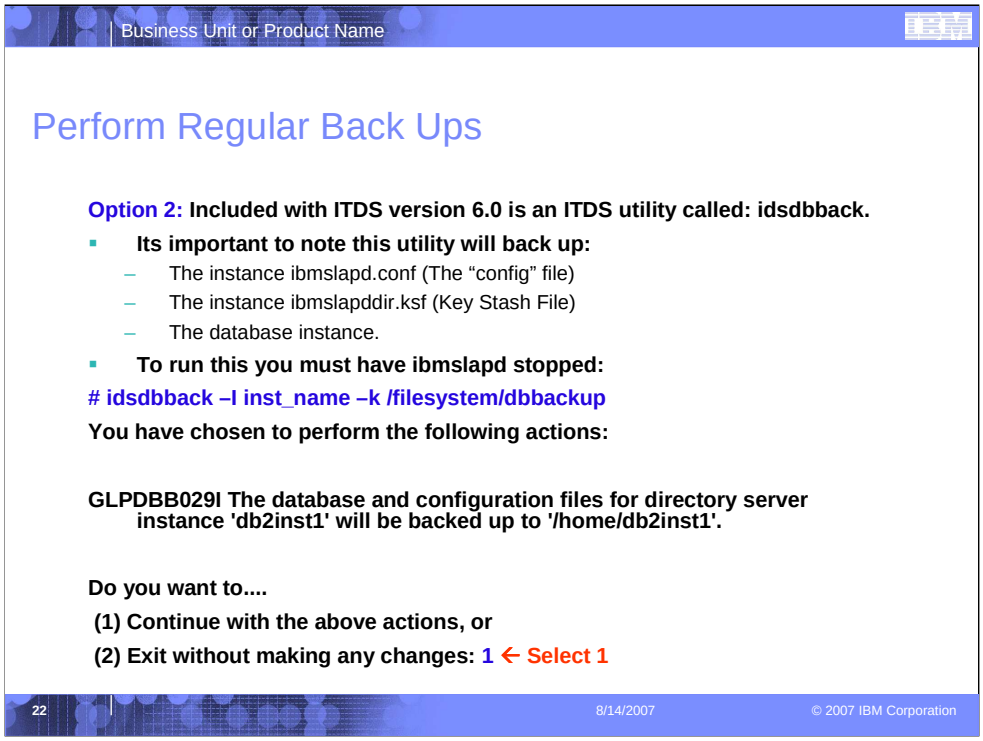
a) to make sure ldif files are valid (have the right format etc)

b) To make sure the ldif files have the complete data set.

It's important to have a test environment to test out the resulting backups.

Please note: you will still need to manually back up all files in

/<ldap instance home>/idsslapd-<instance name>/etc (ibmslapd.conf, ibmslapddir.ksf, schema files, etc)



If you try to run this with ibmslapd up it will give the error:

GLPCTL088E Unable to run the command on directory server instance ‘inst_name', while it is running.

GLPDBB004W The program did not complete successfully. View earlier error messages for information on the exact error.

When you issue the command you will see the following prompt:

idsdbback -I db2inst1 -k /home/db2inst1

You have chosen to perform the following actions:

GLPDBB029I The database and configuration files for directory server instance 'db2inst1' will be backed up to '/home/db2inst1'.

Do you want to....

(1) Continue with the above actions, or

(2) Exit without making any changes:1

Administrative Tasks and Server Maintenance

You should now understand the following:

- **Where to get the latest fixpacks for ITDS 6.0**
- **How to install a fixpack**
- **How to set the ulimits**
- **How to optimize the database**
- **The importance of setting indexes**
- **How to back up your data**

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