How to Copy Aleph

Version 20
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1 Introduction

Note:
Copying Aleph should be performed by a local System Administrator. The copy process might take a few hours depending on the server and on the copy method.
Ex Libris offers copying services for a fee to interested customers. Contact your local office to obtain a quote.

This document provides instructions for two methods for copying Aleph:
- Using the export/import routine and manual data copy.
- Using the image/snapshot copy routine. This option is much faster than the first one.

For the Aleph 20.0.x copy process using the export/import routine, perform the initial installation with the Aleph Installation Kit (AIK) and only then proceed with the data copy.

Limitations:
- Aleph copy must be done between servers with the same OS including OS level.
- If Aleph 20 is already installed on the target server (data/setup replace only), both the source and target Aleph versions must be at the same service pack level.
- Aleph copy procedure using export/import is appropriate only for installations with a DB size up to 250GB.

For all other cases, copying Aleph must be performed by Ex Libris Installation Team only.

For more details and mandatory requirements, refer to Requirements for Aleph Installation and Aleph Installation Kit.

The Aleph installation is performed in the following standard directories:
- Aleph software under the directory: `/exlibris/aleph/a20_<slot>`
- Oracle software under the directory: `/exlibris/app/oracle/product/11`

Note:
Install additional copies of Aleph 20.0.x on a different slot than other Aleph instances existing on the same server.

For all questions about non-standard installations, contact your local Ex Libris Support representative via CRM.

Note:
To receive a license for Aleph, contact your local Ex Libris representative.
2 Preparing to Copy Aleph

2.1 Checking System Requirements on the Target Server
Before installing Aleph, verify that all operating system components comply with the Aleph requirements as outlined in Requirements for Aleph Installation.

2.2 Installing Aleph 20 on the Target Server
For copying using the image/snapshot copy routine, besides copying the application and DB files, place the following system files on /exlibris:

- /etc/shadow
- /etc/nsswitch.conf
- /etc/group
- /etc/passwd
- /etc/crontab
- /etc/services

Place the following startup scripts on /exlibris:
- /etc/init.d/exlibris
- /etc/rc*.d

Perform the image/snapshot copying when both the application and database are down.

The rest of this chapter is relevant only for copying Aleph using export/import routines. Skip this section if you copy Aleph using the image/snapshot copy routine and continue with Chapter 3.

Perform the Aleph 20 installation and the run post-installation checks on the target server using the Aleph Installation Kit document.

2.3 Determining the Source Database Size
On the source server, check available space and the total space of the main Aleph DB tablespaces (TS0, TS1, TS1D, TS1X, TS2D, TS2X, TS3D, TS3X, etc.)

As aleph user, type the following:

```
dlib usm01
util o - 14 - 8 (sequential menus)
```

If the dataset size is insufficient, increase the size of the database. For more information, see Increasing Target DB size on page 10.

2.4 Exporting Aleph Libraries
To export the Aleph libraries, perform the following as an aleph user:

1. Type the following:

```
cd /exlibris/ftp_from_exlibris
mkdir export
chown oracle:dba export
```
2. Create the directory in the database (or replace it if it already exists) and give it the necessary grants:

```sql
sqlplus aleph_dba/aleph_dba as sysdba
CREATE OR REPLACE DIRECTORY dumpdir AS '/exlibris/ftp_from_exlibris/export';
GRANT SELECT ANY TABLE TO ALEPH_ADMIN;
GRANT READ,WRITE ON DIRECTORY dumpdir TO ALEPH_ADMIN;
exit
```

3. Export the libraries (Type the following on one command line):

```bash
expdp $ALEPH_ADMIN dumpfile=aleph20_exp.dmp directory=dumpdir
logfile=exp20.log schemas=`echo $aleph_libs | sed 's/ /,/g'`
```

Note that the actual export is running as an Oracle job so it will keep running even if the terminal is closed or the connection is lost.

4. Check the log file:

```bash
tail -f /exlibris/ftp_from_exlibris/exp20.log
```

Transfer the export to the target server. If possible, copy it to a different partition than where the database is located in order to have better hardware performance and save time. Remember this location for the import process (at the end of the copy and install procedures), for example:

```bash
scp /exlibris/ftp_from_exlibris/aleph20_exp.dmp <user>@<machine>:<path>
```

## 2.5 Backing Up the Aleph Source Instance

In order to backup `/exlibris/aleph/a20_<source_slot>`, prepare tar files of the sub-directories on the source server. On Solaris/AIX system, use gnu tar to create tar files. Using `/exlibris/product/bin/bin/tar` is recommended.

```bash
cd /exlibris/aleph
/a20_<source_slot>/exlibris/product/bin/bin/tar cvf a20_<source_slot>.tar
gzip a20_<source_slot>.tar
/u20_<source_slot>/exlibris/product/bin/bin/tar cvf u20_<source_slot>.tar
gzip u20_<source_slot>.tar
```

Note:
The UTREE (`u20_<slot>`) might be spread among several different mount points.

## 2.6 Preparing the Target Server

To prepare the target server:
1. Copy this Aleph package to the target server, and extract it.
2. If there is another Aleph version on the target server, extract it under 
/exlibris/ftp_from_exlibris, then rename it with the appropriate slot number 
and move it to /exlibris/aleph.
3. Transfer this Aleph package to the target server (with FTP scp, for example) and 
extract manually the tar file under the /exlibris/aleph directory.

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<tr>
<th><strong>Note:</strong></th>
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| On a Solaris system, use gnu.tar instead of the standard tar command. It is available in 
the AIK installation in /exlibris/ftp_from_exlibris/aik/bin/ |

4. Remove the tar file on the source server.

# 3 Copying the Aleph Instance

## 3.1 Checking the Aleph Parameters and Modifying the Configuration Files

The steps described below are relevant for both copy scenarios.

### 1. Log on to target server as an aleph user.

<table>
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<tr>
<th><strong>Note:</strong></th>
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</table>
| The following steps replace the source server details with the target server details in the 
relevant files: |
| • long (fully qualified) hostname including the domain name |
| • short hostname |
| • external IP address |
| • internal IP address |
| • HTTP_PORT |

<table>
<thead>
<tr>
<th><strong>Caution:</strong></th>
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<tbody>
<tr>
<td>• Sometimes several hostnames are defined and used for the same server (see for example /etc/hosts definitions)</td>
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</table>
| • Perform the following steps to check for the presence of an old hostname value. Do 
not automatically replace this value before checking that every change is relevant. |
| • In the following modification steps, proceed first with full hostname replacement and 
then with short hostname replacement. |

Note that all the required changes in the configuration must be done on both ATREE and 
UTREE.

**UTREE:**
```bash
cd /exlibris/aleph/u20_<target_slot>
```

**ATREE:**
```bash
cd /exlibris/aleph/a20_<target_slot>
```

### 2. Check for necessary tml files:
```bash
find . -name "*.tml" -print -name ".*.tml" | sed 's/\.	ml//g'
```
```bash
set DD=`date +%Y%m%d`
```
3. Change the full hostname of `<source_server_name>` to `<target_server_name>`.

4. Check the configuration files to be modified. (Type this command on one command line.)

```
find . -name ".*.tml" -print -o -name ".*.tml" -print | sed 's/\.	ml//g' | xargs grep <source_server_name>
```

5. Change the necessary files. (Type this command on one command line.)

```
find . -name "*.tml" -print -o -name "*.tml" -print | sed 's/\.	ml//g' | xargs perl -pi.$DD -e 's/a20_<source_slot>/a20_<target_slot>/g'
```

6. Type the same command again to replace the following:
   - Other potential long hostnames of the source server
   - The short hostname of the source server
   - The internal IP of the source server (if required)
   - The external IP of the source server (if required)
   - The HTTPD_PORT number of the source server (if required)

7. For each case, use the appropriate value instead of `<source_server_name>` and `<target_server_name>`.

   **Note:**
   The two following two steps (are relevant ONLY for version copying between different slots.

### 3.2 Fixing the Configuration Files

1. Type the following to check which files need to be changed. (Type this command on one command line.)

```
find . -name "*.tml" -print -o -name "*.tml" -print | sed 's/\.	ml//g' | xargs grep a20_<source_slot>
```

2. Type the following to change the necessary files. (Type this command on one command line.)

```
find . -name "*.tml" -print -o -name "*.tml" -print | sed 's/\.	ml//g' | xargs perl -pi.$DD -e 's/a20_<source_slot>/a20_<target_slot>/g'
```

3. Check ALEPH_COPY and ALEPH_SUB_PORT in `.alephe_root/aleph_start`

   Check the ServerPort in `.apache/conf/httpd.conf`. The default value is 499<target_slot>.

### 3.3 Fixing the PDS Configuration

Type the following to fix the PDS configuration:

```
pdsroot
```
3.3.1 Activating Configuration Changes

To activate the configuration changes:
1. Log out and log in again as the aleph user.
2. Start the post installation script.

```bash
find . -name "*.pm" -print -o -name "*.pl" | xargs grep 20_<source_slot>
fnd . -name "*.pm" -print -o -name "*.pl" | xargs perl -pi."$DD" -e 's/20_<source_slot>/20_<target_slot>/g'
```

3.3.2 Updating the Aleph Prompt Menu File (optional)

To update the Aleph prompt menu file:
1. Connect as the aleph user:

   ```
   $ su - aleph
   ```

2. Edit the /exlibris/aleph/def_aleph.dat file.

   ```
   set def=1
   set list="1"
   setenv TERM vt220
   ## ---- ---- ----- ------- ---- -----------------------------
   #    #    #    #    #    #
   # 1 a20_1 3 10 8331
   #
   set login1="/exlibris/aleph/a20_1"
   ```

3. In order to add version 20 to the prompt menu, (in the example below, the directory path is /exlibris/aleph/a20_2 and the port is 8332), update the variable list to add the description line to the menu and add a login2 variable. All changes are marked in red:

   ```
   set def=1
   set list="1 2"
   setenv TERM vt220
   ## ---- ---- ----- ------- ---- -----------------------------
   #    #    #    #    #    #
   # 1 a20_1 3 10 8331
   #
   # 2 a20_2 4 15 8332
   #
   set login1="/exlibris/aleph/a20_1"
   set login2="/exlibris/aleph/a20_2"
   ```

4. Save the file and log on again as the aleph user.
5. Correct the file \~aleph\.cshrc according to the existing content of this file on the source server (if it is not standard).

3.3.3 COBOL Installation
This step is relevant only for copying done using the image/snapshot copy routine.

1. Download the COBOL package from Ex Libris FTP server:

```
cd /exlibris/ftp_from_exlibris/
ftp ftp.exlibrisgorup.com
user: produser password: //get password from Ex Libris Support
cd cobol/cobol5
bin
get install_cobol5.tar
quit
```

2. Install COBOL (root permissions required):

```
su - root
cd /exlibris/ftp_from_exlibris/
tar xvf install_cobol5.tar
cat cobol5.tar.gz_a* | tar xzf - ./install_cobol.sh aleph
```

4 Installing the Aleph Licenses
Before checking Aleph, make sure you have received the Web license from the Ex Libris office.

To install the license:
1. Type the following:

```
cd $alephe_tab
vi license
vi license.www_x
```

2. Erase all the existing licenses and enter the new licenses displayed.

5 Preparing the Oracle Database for Aleph

**Note:**
This step is relevant only for copying Aleph using export/import routines. Skip this section if you copy Aleph using image/snapshot copy routine and perform steps described in Appendix A

5.1 Increasing the Target Database Size
If the newly created database size is insufficient to contain all data exported from the source server, increase its size in order to fit the original database on the source server.

Increase the size of the main Aleph DB tables (TS0, TS1, TS1D, TS1X, TS2D, TS2X, TS3D, TS3X, etc. according to used or total space of the source DB, or to the size expected to be necessary in the future. See Determination of the Source Database size on page 5.
You can perform this as the oracle user (ask your DB administrator) or as the aleph user.

In order to increase tablespaces TS0 and TS1, type the following commands as the aleph user:

```
dlib usm01
    util o - 13 - 2 (sequential menus)
```

### 6 Importing Aleph Demo Libraries

**Note:**
This step is relevant only when copying Aleph using the export/import routines. Skip this section if you are copying Aleph using the image/snapshot routines and performing post-installation checks.

Run the following script for importing and indexing Aleph Demo Libraries as the aleph user:

1. Create the directory in the database. Be careful to create it in the location where the exported data has been transferred to and give it the necessary grants:

   ```
   sqlplus aleph_dba/aleph_dba as sysdba
   '/exlibris/ftp_from_exlibris';
   GRANT SELECT ANY TABLE TO ALEPH_ADMIN;
   GRANT READ, WRITE ON DIRECTORY dumpdir TO ALEPH_ADMIN;
   
   2. Fix Aleph_ora_users (Pre-creation):

   ```
   dlib usm01
   ap
   foreach lib ($aleph_libs)
   csh -f create_ora_user_b $lib
   end
   ```

3. Import the libraries. (Type this command on one command line.)

   ```
   impdp $ALEPH_ADMIN dumpfile=aleph20_exp.dmp directory=dumpdir
   logfile=imp20log
   ```

Note that the actual export is running as an Oracle job so it will keep running even if the terminal is closed or the connection is lost.

You can always check the log file:

```
tail -f /exlibris/ftp_from_exlibris/imp20.log
```

### 7 Post-Installation Tasks

#### 7.1 Post-Installation Checks

1. Log on as the aleph user.
2. Activate all Aleph services using following command:

```bash
  cd $alephe_root
  aleph_startup
```

3. Connect to OPAC and GUI and perform the short Aleph functionality tests.
8 Appendix A - Oracle Data Base and Listener Configuration Changes

The DB global name contains the server name and should be changed by transferring the DB between the source and production servers.

To change the DB global name:

1. Make secure all relevant scripts are the same on the source and the target servers:

```bash
/etc/shadow
/etc/nsswitch.conf
/etc/group
/etc/passwd
/etc/crontab
/etc/services

startup scripts:
/etc/init.d/exlibris
/etc/rc*.d
```

2. Type the following:

```sql
>> ALTER DATABASE RENAME GLOBAL_NAME TO database.domain;
For exemple:
>> SELECT * FROM GLOBAL_NAME;
>> ALTER DATABASE RENAME GLOBAL_NAME TO "ALEPH.IL-INST01.CORP.EXLIBRISGROUP.COM";
>> SELECT * FROM GLOBAL_NAME;
```

To change listener definitions

1. Log on to target server as an oracle user

2. Save existing listener configuration files:
   ```bash
   cd $ORACLE_HOME/network/admin
   cp -p tnsnames.ora tnsnames.ora.<date>
   cp -p listener.ora listener.ora.<date>
   ```

3. Edit tnsnames.ora and listener.ora: replace hostname of
   `<source_server_name>` to `<target_server_name>`

4. Restart the listener:
   ```bash
   lsnrctl stop
   lsnrctl start
   ```

5. Log on to target server as an aleph user and verify listener configuration:
   ```bash
   su - aleph
   sqlplus aleph/aleph@$aleph_db
   ```

6. If the connection fails, verify that the service_name section in the
   `$ORACLE_HOME/network/admin/tnsnames.ora` file and the global_dbname
   section in the `$ORACLE_HOME/network/admin/listener.ora` file are identical.
If, for example, the `tnsnames.ora` file looks like the following (see the highlighted text in red):

```
il-aleph01.aleph21=(description=
    (address=
        (protocol=ipc)
        (key=aleph21))
    (address=
        (protocol=tcp)
        (host=il-aleph01)
        (port=1521))
    (connect_data=(service_name=aleph21)(server=DEDICATED)))
```

And the `listener.ora` file looks like the following:

```
LISTENER =
    (DESCRIPTION_LIST =
        (DESCRIPTION =
            (ADDRESS = (PROTOCOL = TCP)(HOST = il-aleph01.corp.exlibrisgroup.com)(PORT = 1521))
            (ADDRESS = (PROTOCOL = IPC)(KEY = REGISTER))
        )
    )
sid_list_listener=(sid_list=
    (sid_desc=
        (global_dbname=aleph21.il-aleph01.corp.exlibrisgroup.com)
        (sid_name=prm4)
    )
    (sid_desc=
        (global_dbname=aleph20.il-aleph01.corp.exlibrisgroup.com)
        (sid_name=aleph20)
    )
    (oracle_home=/exlibris/app/oracle/product/11r2)
    )
startup_wait_time_listener=0
connect_timeout_listener=20
trace_level_listener=off
SECURE_REGISTER_LISTENER = (IPC)
```

Append the full `service_name` in the `tnsnames.ora` file. For example:

```
il-aleph01.aleph21=(description=
    (address=
        (protocol=ipc)
        (key=aleph21))
    (address=
        (protocol=tcp)
        (host=il-aleph01)
        (port=1521))
```
If problem still occurs, contact Ex Libris support.
## Document versions

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<th>Author</th>
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