ALEPH VERSION 18.01
Upgrade Express Methodology
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1 Preface

1.1 Why Do I Need to Upgrade?

The ALEPH® 500 (ALEPH) upgrade process is the process of replacing an older version of ALEPH with a newer version of ALEPH.

The ALEPH integrated library system is constantly under development in order to accommodate ongoing changes in the automated library market’s requirements; to respond to ALEPH customers’ development requests; and to adopt and integrate new hardware and software technologies. Ex Libr is releases annually a new version of ALEPH that includes new features, enhancements to existing features and one that is compliant with new hardware and software technologies.

ALEPH customers must upgrade their ALEPH system from time to time in order to comply with these ongoing changes in technologies and to benefit from the new and enhanced functionality. Typically, customers upgrade their ALEPH system every two years, that is, every second new version release.

1.2 Upgrade Express

New ALEPH developments often require changes in the structure of the ALEPH data and the structure and content of the configuration tables and files (setup hereinafter). The upgrade process is, therefore, not just a process of installing the new ALEPH system, but also a process of upgrading the ALEPH data and setup.

Upgrade Express is both a methodology and a set of programs with related documentation for a smoother and faster upgrade of ALEPH systems.

Upgrade Express is available from ALEPH Version 14.1. It is important to note that Upgrade Express itself has undergone development and there are in fact two Upgrade Express methodologies and programs.

The first Upgrade Express methodology has been developed for the upgrade of ALEPH Versions 14.1, 14.2, 15.2 and 15.5 to Version 16.02. This Upgrade Express includes menu-driven tools for the automatic upgrade of ALEPH data and most of the ALEPH setup. Although it is a major improvement over previous upgrade methodologies, it cannot be considered an “in place” upgrade.

The second Upgrade Express methodology is available from Version 16.02 to 17.01, and from Version 17.01 to 18.01. From Version 16.02, Upgrade Express is developed with the version and a kit (set of programs) is produced for upgrading from the previous version. Version development avoids, as much as possible, elements that can complicate the upgrade process. The upgrade process has been simplified and system downtime has been reduced to a minimum. Even in very large libraries, the upgrade can be run over a weekend.

This document describes both Upgrade Express methodologies. It will also describe the methodology for upgrading to version 18.01 from 14.1, 14.2, 15.2 or 15.5. In this case the upgrade is done in three steps, using the two Upgrade Express methodologies
and three kits. The first step is upgrading to version 16.02 as a temporary interim version. The second step, which is performed after 16.02 has been checked and is functional, is to run the upgrade kit from 16.02 to 17.01. The third step is to run the upgrade kit from 17.01 to 18.01, and then to check that 18.01 is functional. Note that installations of both 16.02 and 18.01 are required in this case.

Section 2 of this document describes steps in the upgrade process that are common to all methodologies.

1.3 What is not included in Upgrade Express

As mentioned above, every new ALEPH version includes new features and functionality enhancements.

Upgrade Express upgrades the customer’s ALEPH system with the aim of maintaining current setup and functionality. The upgrade process is not the time for implementing new functionality, as this will interfere with the upgrade itself. New functionality should be implemented after the switch to production with the new version. Upgrade Express does not include automatic setup for implementing new and enhanced functionality, unless it must be implemented to maintain current functionality. Upgrade Express from 16.02 to 17.01 / 17.01 to 18.01 will not even add new setup files or make changes in setup files unless they are mandatory.

It should be noted that in ALEPH version 16 and later, it is possible to perform full or partial new indexing of the ALEPH system in parallel to production with the “old” existing indexing. Hence, even if the implementation of new or enhanced features requires full or partial ALEPH indexing, the customer can switch to production with the old indexes and run the new indexing in parallel. When the new indexes are ready, the old indexes can be overwritten by the new ones. The only effect on ALEPH system performance will be some reduction in performance while the parallel indexing is running, and brief system downtime when the old indexes are replaced.

1.4 Upgrade Express Versions: Source and Target

In Upgrade Express documents, we refer to the “source” and “target” versions or environments.

- **The source version** is the current production platform and ALEPH version environment that the customer would like to upgrade.

- **The target version** is the new production platform and ALEPH version environment that is the target of the upgrade process.

In addition to this general definition, the specific Upgrade Express methodologies have more specialized definitions for source and target.

The source and target versions can be on the same or different servers. The hardware and operating system requirements of the new version as well as any requirements of the upgrade itself must be taken into account. If the versions are on different servers, the customer must ensure that there is a good FTP connection between the servers for the data transfer.
2 Main Upgrade Express Steps

This section describes the main Upgrade Express steps in general terms. These steps are common to all Upgrade Express methodologies.

2.1 New Version Announcement

Ex Libris announces the new ALEPH version about six months prior to its planned release date. The announcement includes:

- Planned release date
- A general description of the differences, enhancement and new functionality of the new version
- A general description of the main technical changes and new hardware and software requirements

This announcement provides the customer with the information required to decide whether and when to upgrade and gives him at least six months to make all the necessary preparations.

2.2 Initiating the Upgrade - Upgrade Preparation

The customer should examine the new functionality and the main differences between the ALEPH versions to ensure that his expectations and requirements from the new version are fulfilled. In addition the customer should assess the hardware and system requirements of the new version as well as the requirements of the upgrade process to ensure that he can fulfill them on time.

Read Upgrade-related Documentation

It is important to learn about the new version and the Upgrade Express process. Refer to sections 6 Update Express: 14.1, 14.2, 15.2 and 15.5 to 17.01; 5 Upgrade Express – Version 16.02 to 17.01; and 4 Upgrade Express – Version 17.01 to 18.01 for a list of related documents.

Budget and Operational Considerations

The customer should pay special attention to the new version hardware requirements, and any extra hardware requirements for the upgrade process.

The customer should decide which server, or servers, will be used for the upgrade and make all necessary preparations for upgrading the current ALEPH server and staff PCs and/or for acquiring new hardware. The main preparations are budget allocation and issuing the appropriate purchasing and installations orders on time.

If necessary, the customer should also use the preparation period to coordinate arrangements with Ex Libris, and to allocate a budget for extra Ex Libris services. These include having Ex Libris perform the entire upgrade, assistance in some of the upgrade process activities, and training sessions by Ex Libris. Note that the Upgrade
Express methodology from version 16.02 is considerably simpler and most customers should be able to manage the upgrade with little or no assistance.

Scheduling Considerations – The Project Plan
The customer should also consider the following factors when planning the upgrade process:

- **Staff availability and workload** – During the upgrade process the workload of the staff will be increased. Most of the staff members must be trained and familiarized with the new system in parallel to their regular tasks. Many system librarians will also be involved in the evaluation, testing and the final and fine tuning of the new setup.

- **System availability** - There will be short periods of system downtime. Refer to the sections on the specific methodologies for more information. Note that system downtime has been reduced to a minimum in Upgrade Express from version 16.02.

Ex Libris will provide all the technical information and consultation to assist the customer in planning the upgrade process.

2.3 Source and Target Version Preparation
The first step in the actual upgrade process is the preparation of the source and target environments. Refer to the relevant sections of the specific methodologies for more information since the preparation is different in each case. The main tasks are to ensure that hardware and operating system requirements for the new version have been complied with as well as the installation of the new (target) ALEPH version.

2.4 Test Upgrade
The upgrade is run first as a test so that the customer can check the upgrade process and its results. This stage is also used to familiarize staff with the new version and to fine tune the setup of Web OPAC pages and other setup files that affect the look and the functionality of the system. Since the source continues production during this phase an additional, final upgrade must be run with up-to-date data at a later stage.

Note that it is possible to use representative test data during the test upgrade run. If only a subset of the data is used the data must be consistent. For example, if only a subset of the item records is included, their bibliographic records must be included as well. On the other hand, only production files should be used for the upgrade of the setup. In Upgrade Express 14.1, 14.2, 15.2 and 15.5 to 16.02 the conversion of the setup files is done only once. In Upgrade Express 16.02 to 17.01 / 18.01, the methodology is different but here too some files are modified on the target during the test upgrade stage for re-use in the final upgrade.

It is the customer’s decision how much time should be spent during this phase; some sites may take several months.
2.4.1 Training
The most productive way to start these training activities is to present short introductory training sessions to the system librarians.

In parallel to testing the upgrade and the new version, the customer should receive more intensive training of the new features of the new ALEPH version, and provide internal training for the staff, in order to familiarize all librarians and other staff members with the new environment.

Ex Libris offers, for an additional fee, Interwise sessions, lectures, seminars and onsite training for customers upgrading to the new ALEPH version. In order to schedule training events, the customer should contact the local Ex Libris Sales Manager.

To gain maximum benefit from this training, Ex Libris recommend that this training be conducted once staff has familiarized themselves with the new system.

2.4.2 Testing the Upgrade
After the test upgrade, the customer should test the functionality and conversion results of the upgraded system by performing the library’s regular daily work procedures. All standard daily workflows undertaken in the old (current production) version should be performed in the new version.

If the customer encounters problems or has queries, or needs assistance from Ex Libris during this testing and customization period, they should forward them to Ex Libris using the standard reporting procedure via the CRM interface.

2.5 Confirmation of the Test Upgrade
When the library is satisfied with the conversion, operability and setup of the upgraded system, a confirmation should be sent to Ex Libris and the library can plan for the final upgrade.

2.6 Final Upgrade and STP
This is the last stage in upgrade process. The upgrade is run once again and after a brief test the library can switch to production.
3 Upgrade Express – Version 14.1, 14.2, 15.2 and 15.5 to 16.02

This section describes the Upgrade Express process from version 14.1, 14.2, 15.2 and 15.5 to 16.02.

3.1 Upgrade Express Environments - Source, Test Target and Production Target

Upgrade Express developed for the upgrade of versions 14.1, 14.2, 15.2 and 15.5 to 16.02 works with three distinct environments. The Upgrade Express package must be installed in all three environments and in each environment it functions differently.

The Source
The source is the current production environment in which the old ALEPH version is installed and used.

The customer must ensure that the source server has sufficient disk space to perform downloading and packing of the production data in order to transfer it to the test target environment and later to the production target environment. The required additional disk space is at least twice the size of the database.

The Test Target
The test target is the environment in which the test upgrade is run.

As noted above, the target (test or production) version may be constructed on the same server as the source version. However in this case, the customer will have to prepare disk space for the conversion process in addition to the disk space for the download. The customer should also be aware that the test conversion process and indexing might affect the performance of the production version.

Alternatively, the test environment may be constructed on a separate server, either a dedicated test server or a (new) server that will be later used as the (new) production server.

In both cases, the server must comply with the hardware and software requirements of 16.02. In addition to the version requirements, it and must have sufficient disk space for the upgrade process - at least three times the size of the database.

The Production Target
The production target is the environment in which the final upgrade is run.

As noted above, the test target environment can become the production target environment or, if the user has a dedicated test version. It can be created as a new environment (including an additional installation of 16.02).
3.2 The Upgrade Process

3.2.1 Source and Test Environment Preparation
The first step in the actual upgrade process is the preparation of the source and test target environments. For details refer to section 3.1 above.

3.2.2 Installing and Configuring Upgrade Express
The customer should download (from the FTP server) and install the Upgrade Express package in both source and test target environments.

The Upgrade Express package includes a brief questionnaire that should be filled in by the customer. The questionnaire refers to some basic characteristics of the library that affect the automatic upgrade process (for example which MARC format is used by the library.)

The customer should configure the Upgrade Express package based on the questionnaire and local requirements.

3.2.3 Test Upgrade
On the source environment, using the Upgrade Express menu driven automatic tools, the customer should download and pack ALEPH production data and production setup files. After completion of the download, the files are transferred to the test target environment using Upgrade Express utilities.

Except for a brief period of downtime during the download of the ALEPH production data, the library can continue to function as normal. To minimize downtime, depending on the size of the database, the download can be performed on a weekend or during the night.

On the test target environment, Upgrade Express menu-driven utilities will open the customer’s ALEPH libraries and then convert the source setup.

After the conversion of the setup, ALEPH production data is converted and indexed.

Note that if the test server is the same server as the (production) source version, then reduced performance can be expected during the data conversion and indexing. Depending on the size of the database, it is recommended to run these processes on a weekend or at overnight.

In parallel to the upgrade of the data and the setup stored on the ALEPH server, the customer also upgrades the ALEPH staff GUI client on the staff PCs. Starting with ALEPH version 16, the ALEPH installation wizard includes automatic upgrade of ALEPH GUI setup files that are stored on the PC.

Once these steps have been completed, there will be an operational upgraded system. The system should be used by the customer to become familiar with the new ALEPH version, train the staff and fine-tune the customization of the setup.
Important note:
Since additional manual fine-tuning is required after the automatic conversion of the setup, this step is done only once – from the source to the test target. Before the final upgrade is run, the setup of the test environment will be copied to the production target environment (if it is created in place of the test target). In the final upgrade, only data is transferred and converted from the source to the production target.

Hence, after this conversion of the source server setup to the test server, the setup of the source server must not be modified and must remain static. Alternatively, every modification of the source environment setup must also be done manually in the test environment to ensure full compatibility of the source environment with the test environment, and later with the target environment.

3.2.4 Production Target Environment Preparation
If the target production environment is not the same as the test target environment, the customer should prepare an additional environment for the Production Target. This includes installing the new ALEPH system, installing and setting up the Upgrade Express package and using it to open new ALEPH libraries.

Once the setup has been completed in the test target environment it should be copied/FTPed from the test to the production target version. Upgrade Express has an option for this transfer.

If the production and test target environments are the same, then it is necessary to change the version definition in the Upgrade Express configuration file from test to production.

3.2.5 Final Upgrade
The final upgrade can be run in two modes – with or without the “Indexing the Delta” workflow. This workflow minimizes downtime by indexing most records before the final conversion of the data is run. While this indexing takes place, the library can continue to have regular activity in the source. Upgrade Express will keep track of the “Delta” – i.e. all DOC records that were added, deleted or updated while the
main indexing is taking place. Downtime in this case is minimized to the time it takes to convert the data.

The “Indexing the Delta” workflow is recommended for sites with large databases that take many days to index. Smaller sites may prefer to upgrade without the “Indexing the Delta” workflow as it adds additional steps to the upgrade process as a whole.

3.2.5.1 Final Upgrade – Without Indexing the Delta

Once the production target environment is ready the customer is ready for the final upgrade step.

Using Upgrade Express tools, the customer should download production data from the source and transfer it to the production target version for conversion. Once this download is started, the customer must cease all activities that modify the ALEPH database in the source. Optionally the library can continue with circulation activity (refer to the Upgrade Express User Guide for more details on which circulation functions can continue to be used). In this case, there is an additional step for the final download and conversion of the circulation data before the switch to production.

In the production target the data is converted, loaded and indexed using Upgrade Express automated tools, similar to the process that was performed in the test environment.

If the library continued circulation activities in the source, these must be stopped when indexing is completed on the target. Circulation data is downloaded and transferred to the target (new production) environment for final conversion.

The average time in which the library’s normal activity, except for circulation, is stopped and the conversion and indexing of the data takes place is about four days for every million bibliographic records (depending mainly on server performance). The final conversion of the circulation data only lasts several hours.

3.2.5.2 Final Upgrade – Indexing the Delta

The final upgrade with the “Indexing the Delta” workflow is very similar to the above except that in this case there is an additional download and conversion before the final download and conversion of the data.

Download and Conversion for Indexing

Using Upgrade Express tools, the customer should download data from the source and transfer it to the production target version for conversion and indexing. While this is taking place the library can continue full production on the source. These indexes will be used as the production indexes in version 16.02.

Note that only bibliographic and authority data need to be indexed at this stage as administrative data will be indexed during the final download and conversion stage.
Final Download and Conversion

Once the indexing has been completed the customer can start the final data download, transfer and conversion from source to 16.02. Once the final download is stated, the customer must cease all activities that modify the ALEPH database in the source. Optionally the library can continue with circulation activity (refer to the Upgrade Express User Guide for more details on which circulation functions can continue to be used). In this case, there is an additional step for the final download and conversion of the circulation data before the switch to production.

In the production target the final data is converted and loaded, overwriting the data from the previous load, but is not indexed (with the exception of administrative data). The indexes from the previous download and conversion are retained. The data that is transferred includes a track of updates done to the DOC records (the “Delta”) and once the library switches to production with version 16.02, the “Delta” will be indexed using the standard ALEPH UE processes (ue_01, ue_08 and ue_11).

If the library continued circulation activities in the source, these must be stopped when the data has been converted and loaded. Final circulation data is then downloaded and transferred to the target (new production) environment for final conversion.

It is recommended to avoid major changes to the database in the period from the first full production download and the second final one (for example, an update of the authority libraries), so that the “Delta” will be small and the time required to index it will be short.

In the “Indexing the Delta” workflow downtime is limited to the time it takes to download, transfer and convert the data. How much time this takes depends on the size of the database and system resources.

3.2.6 Switch to Production
After completing the conversion and indexing of the data, the target version is ready for production and after a brief test the customer can switch to production.

3.3 Summary

<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
<th>(Short) Description</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>New Version Announcement</td>
<td>Six months before version release the following information will be released:</td>
<td>Ex Libris</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• General description and highlights of new functionality</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• General description of main technical changes in hardware and software requirements</td>
<td></td>
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<tr>
<td>Step</td>
<td>Activity</td>
<td>(Short) Description</td>
<td>Responsibility</td>
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<td>-------------------------------------------------------------------------------------</td>
<td>------------------------------</td>
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<tr>
<td>2</td>
<td>Upgrade Preparation</td>
<td>Main preparation activities are:</td>
<td>Customer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Evaluation of the new version functions and upgrade requirements</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Budget and resource allocation</td>
<td></td>
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<td></td>
<td></td>
<td>• Setting a project plan and target dates for the upgrade and training</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Source and Test Server</td>
<td>• Disk space for download on current production server</td>
<td>Customer</td>
</tr>
<tr>
<td></td>
<td>Preparation</td>
<td>• Appropriate test server for new version with sufficient disk space for conversion</td>
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<td></td>
<td></td>
<td>(new server or the current production server)</td>
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<td></td>
<td></td>
<td>• Install new ALEPH version in the test environment.</td>
<td></td>
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<tr>
<td>4</td>
<td>Install Upgrade</td>
<td>• Install and configure the Upgrade Express kit on the source and test environments.</td>
<td>Customer</td>
</tr>
<tr>
<td></td>
<td>Express Kit</td>
<td></td>
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<tr>
<td>5</td>
<td>Test Upgrade</td>
<td>The first test upgrade creates a testing and training environment for the new version.</td>
<td>Customer with the Upgrade</td>
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<td></td>
<td></td>
<td>It includes:</td>
<td>Express Package</td>
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<tr>
<td></td>
<td></td>
<td>• Automated conversion of production data</td>
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<td></td>
<td></td>
<td>• Automated conversion of production setup</td>
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<tr>
<td></td>
<td></td>
<td>• Manual tuning of some configuration tables</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Automated localization of HTML files</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• ALEPH indexing of converted data</td>
<td></td>
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<tr>
<td>6</td>
<td>Training</td>
<td>Introducing the new ALEPH version to:</td>
<td>Customer</td>
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<tr>
<td></td>
<td></td>
<td>• System librarians and administrators</td>
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<td></td>
<td></td>
<td>• Internal trainers</td>
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<tr>
<td></td>
<td></td>
<td>• Entire staff</td>
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<tr>
<td>7</td>
<td>Testing the upgrade</td>
<td>• Testing the conversion of data and setup</td>
<td>Customer</td>
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<td></td>
<td></td>
<td>• Manual fine tuning of setup files</td>
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<td></td>
<td></td>
<td>• Customization of the HTML files, forms, and other files</td>
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<td>8</td>
<td>Confirmation of the Test</td>
<td></td>
<td>Customer</td>
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<tr>
<td></td>
<td>Phase</td>
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<td>Step</td>
<td>Activity</td>
<td>(Short) Description</td>
<td>Responsibility</td>
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</tbody>
</table>
| 9    | Production Target Preparation                | • Server for new version with sufficient disk space (new server or same server used for testing, or the same server as the old production server)  
• Copy setup from test environment to new production environment.  
• New installation or refresh of the new ALEPH version  
• Network, workstations, etc  
• Install and configure the Upgrade Express kit on the target environment. | Customer                      |
| 10   | Final Upgrade – without Indexing the Delta    | • **Stop all library activities on the source that update the ALEPH database except for circulation.**  
• Conversion of full production data set  
• ALEPH indexing of converted data  
• **Stop circulation**, download and convert circulation data  
• Briefly test the system | Customer with Upgrade Express Package |
| 11   | Final Upgrade - with Indexing the Delta       | • Download, conversion and indexing of full production data (Administrative data does not need to be indexed). The library can continue production on the source. Tracking of the “Delta” is started.  
• **Stop all library activities on the source that update the ALEPH database except for circulation.**  
• Download and conversion of full production data set, including the “Delta”. There is no indexing at this stage except for Administrative data.  
• **Stop circulation**, download and convert circulation data  
• Briefly test the system  
• Start ALEPH UE processes to index the “Delta” | Customer with Upgrade Express Package |
| 12   | Switch to Production                          |                                                                                                                                                    | Customer                      |

### 3.4 Relevant Documents

© Ex Libris Ltd., 2006  
Upgrade Express Methodology  
Last Update: November 14, 2006
The following documents should be read before the upgrade and used in the upgrade process. All the documents can be found on the Ex Libris Documentation Center (www.exlibrisgroup.com)

- What is New in Version 16.02
- ALEPH 16.02 Release Notes
- Requirements for ALEPH 500 Installation
- Request for ALEPH 500 Installation Form
- Operating System Requirements for the SUN/AIX/Linux Platform
- Upgrade Express Questionnaire for ALEPH version 14.1/14.2/15.2-15.5 Users
- Upgrade Express User Guide – 14.1, 14.2, 15.2 and 15.5 to 16.02
- Upgrade Express Implementation Notes from 14.1/14.2/15.2-15.5 to 16.02
- Upgrade Express Checklist After Upgrade
4 Upgrade Express – Version 17.01 to 18.01

This section describes Update Express from 17.01 to 18.01.

Upgrade Express from version 17.01 to 18.01 continues with the upgrade in place methodology of the Upgrade Express 16.02 to 17.01.

The Upgrade Express for version 18.01 is based on:

- Copying the database and the entire utree of version 17.01 to version 18.01
- Conversion of data and indexes within the database
- Conversion of the utree files

For large databases, a DBA should clone the database and for small databases use the Oracle import/export utilities.

ALEPH has an Oracle import/export utility per library:

```
cd $aleph_proc
oracle_exp_current_library
oracle_imp_current_library
```

The kit is now multi-language. Upgrade Express for version 18.01 can be translated before the upgrade to support multiple languages. For more details on localization see the Upgrade Express User Guide.

4.1 Upgrading from 16.02 to 18.01

You can use Update Express to upgrade non-consecutive versions, for example, from 16.02 directly to 18.01. This is true as long as the source version is 16.02 or higher.

When upgrading from a source version to a target version, it is not necessary to install the intermediate version(s). The methodology is more or less the same as when upgrading consecutive versions.

Steps

1. Copy the source utree to the target version
2. Load the source database into the target version.
   
   Please note that if the source version and the target version are not on the same Oracle version, for example Oracle 9 and Oracle 10, then the Oracle upgrade must be run on the data first. This is also true when upgrading consecutive versions. For details, see the How to Upgrade Oracle Database from Version 9.2.0.7 to 10.2.0.1.0 document.
3. Run all the upgrade kits between the source and the target versions. Before running each kit, use the relevant kit menu option to back up the corresponding tables. It is important to give a unique directory name for the
backup directory in each kit, so that the second kit backup will not override the first backup.

4. After running the first kit, check the errors/warnings in the log to see if it is necessary to merge files manually from the kit to the utree. In this event, a warning message displays, "The file can not be upgraded automatically. Merge manually". In future, this message will contain the path in the kit where the upgrade kit output files are stored.

5. After the upgrade to the target version is completed, perform version checks.

4.2 Relevant Documents

The following documents should be read before the upgrade and used in the upgrade process. All the documents can be found on the Ex Libris Documentation Center (www.exlibrisgroup.com)

- What is New in Version 18.01
- ALEPH 18.01 Release Notes
- Requirements for ALEPH 500 Installation
- Request for ALEPH 500 Installation Form
- Operating System Requirements for the SUN/AIX/Linux Platform
- Upgrade Express User Guide 17.01 to 18.01
- Upgrade Express Implementation notes 17.01 to 18.01
- Upgrade Express Checklist After Upgrade

5 Upgrade Express – Version 16.02 to 17.01

This section describes Update Express from 16.02 to 17.01.

Upgrade Express from version 16.02 to 17.01 represents a major change as well as an improvement in upgrade methodology. There are several aspects to this change:

The Upgrade Express Concept: in place upgrade
The most significant change in the upgrade process is in its concept.

The Upgrade Express for versions 14.1, 14.2 15.2 and 15.5 to 16.02 was based on
- Data download
- Data and setup conversion,
- Upload and indexing of the converted data.

The Upgrade Express for version 16.02 is based on
- Copying the database and the entire utree of version 16.02 to version 17.01
• Conversion of data and indexes within the database
• Conversion of the utree files

There is no data download and upload, and no indexing. The required indexes are converted in the database like the data.

**The Upgrade Express Package**

The Upgrade Express package for versions 14.1, 14.2, 15.2 and 15.5 to 16.02 is a menu driven kit that needs to be installed and configured on both the source and the target. The kit has many options and is run in stages. It is accompanied by a User Guide of over one hundred pages.

The Upgrade Express package for version 16.02 to 17.01 is a single program that is run by a single command and requires almost no configuration. The package is installed and run only on the target.

The 16.02 to 17.01 upgrade process has fewer stages and its package is simpler to run.

**Automation of Setup Upgrade**

Upgrade Express 14.1, 14.2, 15.2 and 15.5 to 16.02 automatically upgrades most, but not all, setup tables and files.

Upgrade Express 16.02 to 17.01 is more fully automated in terms of setup conversion. As noted above, from version 16.02 Upgrade Express is developed alongside the version and version development precludes as much as possible elements that can complicate the upgrade process.

**The Upgrade Process – 16.02 to 17.01 is faster**

The 16.02 to 17.01 upgrade process is faster due to the fact that data can be Oracle copied from source to target (rather than downloaded and uploaded as ALEPH sequential files). Data is converted in the database and there is no need to re-index the data.

**Downtime**

Upgrade Express 14.1, 14.2, 15.2 and 15.5 to 16.02 tries to minimize downtime by adding the “Indexing the Delta” workflow and letting the library continue circulation to the very end of the process. Downtime, however, can still be a significant factor; especially in large databases where the download and upload processes can take a long time.

Upgrade Express 16.02 to 17.01 has minimized downtime and even in very large libraries the upgrade can be run over a single weekend.

**The Final Upgrade Process – Stopping Production on the Source**

In the upgrade from 16.02 to 17.01 there is a very clear cut-off point for stopping production on the source. As soon as the final upgrade process starts ALL update activities on the source. In the upgrade from 14.1, 14.2, 15.2 and 15.5 to 16.02 the cut-off point takes place in stages. Circulation activities, for example, can be continued almost to the very end.
5.1 The Upgrade Process: Version 16.02 to 17.01

This section describes the steps of the upgrade process once the library decides that it want to upgrade to 17.01.

5.1.1 Target Version Preparation

No preparation is required on the source for the running of Upgrade Express 16.02.

The target version (17.01) can be installed on the same server as 16.02 or on a separate server. In both cases hardware and operating system requirements for 17.01 and the size of the customer’s database must be taken into account. Unlike Upgrade Express 14.1, 14.2, 15.2 and 15.5 to 16.02, Upgrade Express 16.02 to 17.01 has no requirements for additional disk space.

5.1.2 First Test Upgrade

After 17.01 has been installed on the target, the customer needs to do the following:

- Copy the complete utree from source to target.
- Copy the full ALEPH database from source to target (using standard Oracle tools). The amount of time it takes to copy a database depends on the size of the database and system resources. A database with 10,000,000 bibliographic records takes about 5 hours to copy.

Note that these steps are not done by the upgrade package itself.

After the utree is copied to the target, the customer needs to manually update some parameters in $alephe_root/aleph_start of the 17.01 version. A list of what needs to be updated is available in the User Guide.

Once the target version is ready the Upgrade Express program can be started. The upgrade program runs a number of steps that include conversion of data and setup. Every step is listed in a log file that explains what action is included in the step and whether it was successful or not.

The upgrade program may take several hours to run, depending on the size of the database and server resources.

When the upgrade program finishes the customer must check the log file for failed steps. These steps need to be done manually and/or re-run after making necessary changes.
In addition to failed steps, which need to be handled manually, there are a number of setup files (mainly HTML files) that require manual upgrade. A list of these changes is included in the Implementation Notes.

All setup files that are modified manually in this stage must be saved to the side – otherwise they will be overridden by subsequent upgrade runs. The Upgrade Express package has a mechanism for “checking-in” files that we modified.

In parallel to the upgrade of the data and the setup files on the server, the customer should also upgrade the ALEPH staff GUI client on staff PCs using the GUI installation wizard.

After these steps are completed, there should be an operational system. This should be used by the customer to become familiar with the new ALEPH version, train the staff and fine-tune the customization of the setup.

Note that unlike the upgrade from 14.1, 14.2, 15.2 and 15.5 to 16.02 the setup is converted again with every run of the upgrade. As noted above any setup files that are modified manually should be saved aside. Setup files that are modified in 17.01 should not be updated in the source. To prevent confusion, Ex Libris recommends avoiding changes in setup files in the source during this period.

5.1.3 Second Test Upgrade

Once the library is satisfied with the upgraded system it can run the final upgrade. Before doing this, Ex Libris recommends running the upgrade again as a “dress rehearsal” before the final upgrade to ensure that the process is working smoothly and to have an accurate estimate of the time required. This is especially recommended if the customer used test data in the first test upgrade.

The upgrade process is almost the same as for the first test upgrade. Note that the utree from the source must be transferred again to the target and the database copied.

After running the upgrade, the customer should re-instate the setup files that were updated manually during the first test upgrade and saved aside.

The customer must check for failed steps. Some of the failed steps from the first upgrade run may re-appear and should be dealt with. However, if they were included in the files that were updated manually, saved aside and then re-instated (as outlined above), there is no need to re-do the manual update required. In principle there should not be new failed steps but if there are they must be analyzed and fixed.

Once the upgrade is run, updated files re-instated and failed steps checked; the system should be briefly checked.

It is possible to run additional test upgrades as often as the customer wants to feel comfortable with the process.
5.1.4 Final Upgrade

The final upgrade is run in the same way as the second test upgrade. The only difference is that once the final upgrade is begun ALL update activities must be stopped on the source.

To sum up the main steps:

1. Copy complete utree and data from source to target
2. Manually update basic system settings
3. Run the upgrade program
4. Reinstate setup files that were manually upgraded during tests and saved aside
5. Based on the upgrade program log files perform any additional necessary manual updates
6. Re-start servers and UE processes and briefly test the system

After a brief test to see that the system is functioning, the library can switch to production with version 17.01.

5.2 Summary

<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
<th>(Short) Description</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>New Version Announcement</td>
<td>Six months before version release the following information will be released:</td>
<td>Ex Libris</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• General description and highlights of new functionality</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• General description of main technical changes in hardware and software requirements</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Upgrade Preparation</td>
<td>Main preparation activities are:</td>
<td>Customer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Evaluation of the new version functions and upgrade requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Budget and resource allocation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Setting a project plan and target dates for the upgrade and training</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Target Version Preparation</td>
<td>• Appropriate server for new version with sufficient disk space.</td>
<td>Customer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Install new ALEPH version</td>
<td></td>
</tr>
<tr>
<td>Step</td>
<td>Activity</td>
<td>(Short) Description</td>
<td>Responsibility</td>
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<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>4</td>
<td>First test upgrade</td>
<td>The first test upgrade creates a testing and training environment for the new version. It includes:</td>
<td>Customer with the Upgrade Express Package</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Automated conversion of source data</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Automated conversion of source setup</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Manual fine-tuning of some setup based on upgrade program log files and implementation notes. These files should be saved.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Training</td>
<td>Introducing the new ALEPH version to:</td>
<td>Customer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• System librarians and administrators</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Internal trainers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Entire staff</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Testing the upgrade</td>
<td>• Testing the conversion of data and setup</td>
<td>Customer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Manual fine-tuning and final tuning of the setup. All updated files must be saved.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Confirmation of the Test Phase</td>
<td></td>
<td>Customer</td>
</tr>
<tr>
<td>8</td>
<td>Second test upgrade</td>
<td>• Automated conversion of source data</td>
<td>Customer with Upgrade Express Package</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Automated conversion of source setup</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Re-instate all save setup files</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Final Upgrade</td>
<td>• <strong>Stop all library activities on the source that update the ALEPH database.</strong></td>
<td>Customer with Upgrade Express Package</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Final automated conversion of source data</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Final automated conversion of source</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Re-instate all saved setup files that were updated manually</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Brief testing of system</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Switch to Production</td>
<td></td>
<td>Customer</td>
</tr>
</tbody>
</table>
5.3 Relevant Documents

The following documents should be read before the upgrade and used in the upgrade process. All the documents can be found on the Ex Libris Documentation Center (www.exlibrisgroup.com)

- What is New in Version 17.01
- ALEPH 17.01 Release Notes
- Requirements for ALEPH 500 Installation
- Request for ALEPH 500 Installation Form
- Operating System Requirements for the SUN/AIX/Linux Platform
- Upgrade Express User Guide 16.02 to 17.01
- Upgrade Express Implementation notes 16.02 to 17.01
- Upgrade Express Checklist After Upgrade
6 Update Express: 14.1, 14.2, 15.2 and 15.5 to 17.01

Note
This section is also relevant if you want to upgrade from 14.1, 14.2, 15.2 and 15.5 to 18.01 (in this case, substitute each occurrence of 17.01 with 18.01).

This section describes Update Express from 14.1, 14.2, 15.2 and 15.5 to 17.01.

The upgrade from 14.1, 14.2, 15.2 and 15.5 to 17.01 requires an interim upgrade to 16.02 as a fully functional version, including installation and complete upgrade of data and setup. The upgrade to 16.02 will be done using the Upgrade Express methodology described in section 3. The upgrade from 16.02 to 17.01 will be done using the Upgrade Express methodology described in section 4.

6.1 Interim and Final Target Version

For the upgrade from 14.1, 14.2, 15.2 and 15.5 to 17.01 it is important to distinguish between two types of targets:

Interim target - version 16.02
Final target – version 17.01

The upgrade to the interim target still needs to distinguish between the test and “production” target versions as in a regular upgrade to 16.02 (see section 3.1 above).

6.2 The Upgrade Process

This section describes the steps of the upgrade process once the library decides that it want to upgrade to 17.01.

6.2.1 Source and Target Environment Preparation

The first step in the actual upgrade process is the preparation of the source and the two target environments (interim and final):

Source
The source server needs to be prepared in the same way as for a regular upgrade to 16.02. The required additional disk space is at least twice the size of the database.

Interim Target (16.02)
As in a regular upgrade to 16.02, the interim target environment can be on the same server as the source or a different server. Refer to section 3.1 for more information.
In any case the server must comply with the hardware and software requirements of 16.02. In addition to the version requirements, it must have sufficient disk space for the upgrade process - at least three times the size of the database.

The test environment will become an interim the production environment that will be upgraded to 17.01, as there is no need for a test and production 16.02 versions when the library switches to production in 17.01. It should also be noted that once the upgrade to 17.01 is complete, the interim 16.02 version can be deleted.

**Final Target (17.01)**
The target version (17.01) can be installed on the same server as the source or the interim target (16.02) version or on a separate server. In both case the hardware and operating system requirements for 17.01 and the size of the customer’s database must be taken into account.

### 6.2.2 Installing and Configuring Upgrade Express on the Interim Target

The Upgrade Express package should be downloaded and installed as described in section 3.2.2 above.

It is important to fill in the brief questionnaire and configure the Upgrade Express package based on the questionnaire and local requirements.

### 6.2.3 Test Upgrade to Interim Test Target - 16.02

A test upgrade to 16.02 should be run as described in section 3.2.3 above with the following differences.

Unlike a regular upgrade to 16.02 there is no need to extensively test the version and train staff. This will be done in the 17.01 version. However, it is necessary to make any mandatory changes in the setup, including the HTML files. It is also necessary to make sure that the system is basically functioning. The automatic upgrade to 17.01 will fail if setup files are not in the correct 16.02 format.

It is recommended to do the following:

For all versions:
- Based on the implementation notes perform necessary manual updates. Upgrade at least one staff PC to 16.02 for a basic test of the system.

**HTML Upgrade:**
- For 15.5, 15.2 and 14.2 (for 14.2 only of a non-frames Web OPAC was implemented):
  - Use the tools offered by the Upgrade Express package for the update of the HTML files (www_f and www_r). Use the implementation notes to make the necessary manual modifications.
- For 14.1 and 14.2 (frames Web OPAC)
  Since it is not possible to upgrade for a frames Web and there is no conversion for www_r for 14.1, it is recommended to customize the HTML files (www_f and www_r) from scratch in 17.01.

Forms Upgrade
- For 14.1 and 14.2
  The printing mechanism in version 16.02 is based on the XML (Extensible Markup Language) and XSL (Extensible Style Language) standards. As a result, the structure of the forms has changed entirely and it is not possible to convert them from 14. It is recommended to customize the forms from scratch in 17.01.

After manually updating the setup files and running a basic check of system functionality (use the Upgrade Express Checklist after Upgrade), there should be a working 16.02 version and it is possible to continue to the next step.

6.2.4 First Test Upgrade to Final Target - 17.01

The first test upgrade to the 17.01 is run as described in section 4.1.2 above. The 17.01 version should be tested and staff made familiar with the new version.

Note that ALEPH GUI clients can be upgraded directly from 14.1, 14.2, 15.2 and 15.5 to 17.01 using the ALEPH installation wizard.

6.2.5 Second Test Upgrade to Final Target - 17.01

Once the library is satisfied with the upgraded system it can run the final upgrade. Before doing this, as with a direct upgrade from 16.02 to 17.01, Ex Libris recommends running the 16.02 to 17.01 upgrade again as a “dress rehearsal” before the final upgrade to ensure that the process is working smoothly and to have an accurate estimate of the time required. This is especially recommended if the customer used test data in the first test upgrade.

Follow the steps in section 4.1.3 above.

6.2.6 Final Upgrade: from Source to Interim Target to Final Target

Once the library confirms the upgrade to 17.01 the final upgrade can be started. In the final upgrade the upgrade to 16.02 is immediately followed by the upgrade to 17.01.

Note that the final upgrade to 16.02 can include the “Indexing the Delta” workflow as well as the separate circulation download and upload to minimize the impact of downtime.
If the “Indexing the Delta” workflow is used, then the indexing of the Delta will take place in version 17.01, and there is no need to activate the ALEPH UE processes in the interim version and wait for its completion.

The main steps of the final upgrade are as follows:

A. Source to Interim Target

1. Prepare the interim “production” target environment. Since it will be based on the test environment this means changing the definition of the environment in the Upgrade Express package configuration file. Also make sure that the necessary disk space is available on the interim target server - at least three times the size of the database.

2. Run the final upgrade to Interim target. If the “Indexing the Delta” workflow is not used, the steps described in section 3.2.5.1 should be followed. If the “Indexing the Delta” workflow is used, the steps described in section 3.2.5.2 should be followed – including both download and upload. Do not start UE processes on 16.02. When the database is copied to 17.01 it will include the delta. Once UE processes are started on 17.01 the “Delta” will be indexed.

3. Briefly check 16.02 to make sure the system is functioning. Start servers but do not start the UE processes.

B. Interim Target to Final Target

Once the final upgrade to 16.02 is complete, the final upgrade to the final target – 17.01 can be started. If any update activities were started on 16.02 (in principle there is no reason for this) – they must be stopped at this point.

1. Run the final Upgrade to Final Target. Do this following the steps outlined in section 4.1.4 above.

2. Briefly test 17.01

3. Switch to Production.

6.3 Summary

<table>
<thead>
<tr>
<th>Step</th>
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<td>------</td>
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<td>----------------</td>
</tr>
</tbody>
</table>
| 1    | New Version Announcement | Six months before version release the following information will be released:  
  - General description and highlights of new functionality  
  - General description of main technical changes in hardware and software requirements | Ex Libris |
| 2    | Upgrade Preparation | Main preparation activities are:  
  - Evaluation of the new version functions and both upgrade requirements  
  - Budget and resource allocation  
  - Setting a project plan and target dates for the upgrade and training | Customer |
| 3    | Source and Interim and Final Target Server Preparation |  
  - Disk space for download on current production server  
  - Appropriate test server for the interim version (16.02) and the new version (17.01) with sufficient disk space for conversion (new server or the current production server)  
  - Install ALEPH versions 16.02 and 17.01. | Customer |
| 4    | Install Upgrade Express Kit |  
  - Install and configure the Upgrade Express kit on the source and interim test environments. | Customer |
| 5    | Test Upgrade to Interim Target – 14.1, 14.2, 15.2, 15.5 to 16.02 |  
  - Automated conversion of production data  
  - Automated conversion of production setup  
  - Automated localization and update of HTML files  
  - Manual update of some configuration tables  
  - ALEPH indexing of converted data | Customer with the Upgrade Express package |
| 6    | First Test Upgrade to Final Target – 16.02 to 17.01 |  
  - Automated conversion of source data  
  - Automated conversion of source setup  
  - Manual fine-tuning of some setup based on upgrade program log files and implementation notes. These files should be saved. | |
| 7    | Training | Introducing the new ALEPH version to:  
  - System librarians and administrators  
  - Internal trainers  
  - Entire staff | Customer |
<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
<th>(Short) Description</th>
<th>Responsibility</th>
</tr>
</thead>
</table>
| 8    | Testing the upgrade | • Testing the conversion of data and setup  
      • Manual fine tuning of setup files  
      • Customization of the HTML files, forms, and other files | Customer |
| 9    | Confirmation of the Test Phase | | Customer |
| 10   | Interim Production Target Preparation | • Update Express configuration file  
      • Ensure sufficient disk space | Customer |
| 11   | Second Test Upgrade from Interim Target to Final Target – 16.02 to 17.01 | • Automated conversion of source data  
      • Automated conversion of source setup  
      • Re-instate all saved setup files | Customer with Upgrade Express package |
| 12   | Final Upgrade - without Indexing the Delta | | Customer with Upgrade Express package |
|      | A. Source to Interim Target (14.1, 14.2, 15.2, 15.5 to 16.01) | • Stop all library activities on the source that update the ALEPH database except for circulation.  
      • Download and Conversion of full production data set  
      • Indexing of converted data  
      • Stop circulation, download and convert circulation data  
      • Briefly test the system | |
|      | B. Final Upgrade - Interim Target to Final Target (16.02 to 17.01) | • Final automated conversion of source data  
      • Final automated conversion of source setup  
      • Re-instate all saved setup files that were updated manually  
      • Brief testing of system | |
<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
<th>(Short) Description</th>
<th>Responsibility</th>
</tr>
</thead>
</table>
| 13   | Final Upgrade - with Indexing the Delta | • Download, conversion and indexing of full production data (Administrative data does not need to be indexed). The library can continue production on the source. Tracking of the “Delta” is started.  
• Stop all library activities on the source that update the ALEPH database except for circulation.  
• Download and conversion of full production data set, including the “Delta”. There is no indexing at this stage except for Administrative data.  
• Stop circulation, download and convert circulation data  
• Briefly test the system. Note – do NOT start ALEPH UE processes. The “Delta” will be indexed in 17.01.  
• Final automated conversion of source data  
• Final automated conversion of source  
• Re-instate all saved setup files that were updated manually  
• Brief testing of system and start UE processes to start indexing of the “Delta” | Customer with Upgrade Express package |
|      |          | B. Final Upgrade - Interim Target to Final Target (16.02 to 17.01) | |
| 14   | Switch to Production | | Customer |

### 6.4 Relevant Documents

The following documents should be read before the upgrade and used in the upgrade process. All the documents can be found on the [Ex Libris Documentation Center](www.exlibrisgroup.com)

- What is New in Version 16.02
• What is New in Version 17.01
• ALEPH 16.02 Release Notes
• ALEPH 17.01 Release Notes
• Requirements for ALEPH 500 Installation
• Request for ALEPH 500 Installation Form
• Operating System Requirements for the SUN/AIX/Linux Platform
• Upgrade Express Questionnaire for ALEPH version 14.1/14.2/15.2-15.5 Users
• Upgrade Express User Guide – 14.1, 14.2, 15.2 and 15.5 to 16.02
• Upgrade Express User Guide – 16.02 to 17.01
• Upgrade Express Implementation Notes from 14.1/14.2/15.2-15.5 to 16.02
• Upgrade Express Implementation Notes from 16.02 to 17.01
• Upgrade Express Checklist After Upgrade