



# Data Express 4.0

Installation Guide

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# Installation Guide

## Who Should Read This Guide

This guide is for all users who are installing Data Express for z/OS or Data Express for Distributed Systems.

After installing, you need to install the latest updates from the [Micro Focus SupportLine](#) web site.

## z/OS System Procedures

This chapter describes the installation media and procedures needed to successfully install Data Express for z/OS. If you are installing Data Express for Distributed Systems, you can skip this chapter.

After installing, you need to install the latest updates from the Micro Focus SupportLine web site. See the topic *Install Updates* for more information.

## Installation Media

Data Express for z/OS is typically installed from a CD that contains:

- IEBUPDTE - A JCL in ASCII format used to restore INSTLIB from a sequential data set.
- All of the partitioned data set members, unloaded in a sequential (IEBUPDTE) format.



**Note:** If you downloaded Data Express from the web site or received it as an e-mail attachment, it is stored in a compressed ZIP file that contains the CD image. For the installation, assume the folder where the ZIP file has been uncompressed is the CD drive.

## Installation Phases

The installation of the Data Express for z/OS module includes six main phases.

### Software Setup

This phase creates and populates the libraries containing the installation procedure.

### Parameters Selection

This phase allows the editing of the installation procedure parameters. In particular, the alias of the PDSs and sequential files (for example, CLIST, JCL, or DDL) where the product modules will reside is required.

In addition, the following DB2 related information is required:

- DSN on which the database must be created.
- Name of the storage group (already existing or to be created).
- Name of the DB2 database to be created.
- Name of the owner for the DB2 tables that will be created.
- Name of the plan and collection to be created.
- Names of the buffer pools for data and indexes.
- Plan of the DB2 system DSNTIAD.

- Plan of the DB2 system DSNTIAUL.
- Names of the DB2 system libraries (RUNLIB and SDSNLOAD).

### Data Set Libraries installation

This phase creates and populates the product libraries. The following requirements must be met:


- RACF authorizations at the TSO level (create, update, delete) need to be provided to the product PDSs and sequential files.
- The TCP/IP address of the mainframe must be specified where required.
- The specified user must be authorized to transfer data from the PC to the mainframe.


### User Profile Update

This phase updates the MVS user profile in order to properly work with the product.

### Database Creation

This phase creates the product DB2 database.

 **Note:** Skeleton names IURBNDPK and SINCR TAB needed for the bind phase, which can be changed to use an authorization policy different from the standard.


 **Note:** The specified user must be authorized to create the product DB2 database (storage group and database), to create tablespaces, views, indexes, and to execute package and plan binds.

### Database Population

This phase populates the product DB2 database.

## New Software Installation Procedures

This section contains information regarding z/OS system installation procedures. Perform the procedures in this section if you are installing Data Express for z/OS for the first time.

 **Important:** Before installing Data Express, create an empty directory on your local machine, and extract the files contained in zOS.zip, located on your installation media, into that directory. For the installation procedure, we refer to this newly created directory as your *installation directory*.

Follow the steps in the subsequent sections.

### Allocate the Installation Sequential Data Set

To allocate the installation sequential data set:

1. On the mainframe, from the **ISPF Primary Option Menu** panel, select option **Utilities**.
2. From the **Utility Selection** panel, select the option **Data Set**.
3. In the **Name** field, type the name of an installation sequential data set (for example, MFDATA.INST.LIB.SEQ) to load the installation JCLs in IEBUPDTE format from your installation directory's `**\HostSide\Installation Procedure` subdirectory.
4. Specify option **A** to allocate the data set.
5. On the **Allocate New Set** panel, enter the appropriate parameters.

 **Note:** The default **Space units** parameter is **CYLS** (cylinders).

The **Allocate New Data Set** menu showing the current allocation parameters is displayed.

Once allocated, a `Data set allocated` message displays in the right corner.

## Copy JCL Files to the Mainframe

Here you copy the `iebupdte.jcl` and `iebupdtp.jcl` files from your installation directory's `\**\HostSide\Installation Procedure` subdirectory, in ASCII mode, into a member of a partitioned data set on the mainframe. To help you do this, we provide both FTP and Personal Communications (PC3270) assistance in the form of the following files, located in the same directory:

- `FTPINST.BAT` - A batch command that executes the `ftpinst.txt` FTP script
- `ftpinst.txt` - An FTP script executed by `FTPINST.BAT`
- `INST.SRL` - A PC3270 transfer file list

Before using the provided FTP script or PC3270 transfer file list to transfer the files, you must customize them to include the correct values. See *Customization Reference* for specific customization details.

Use this procedure to transfer the files to the mainframe using the `ftpinst.txt` script:

1. On your local machine, customize `ftpinst.txt`, located in your installation directory's `\**\HostSide\Installation Procedure` subdirectory, as specified in the *FTP Script Customization* topic.
2. From a Windows command prompt, change to the installation directory's `\**\HostSide\Installation Procedure` subdirectory, and execute the following command:

```
ftp -s:ftpinst.txt
```



**Note:** Optionally, you can run the `FTPINST.BAT` file to execute the command. For details on customizing this file, see *FTP BAT File (ftput.bat) Customization*.

## Copy the Installation Data Set to the Mainframe

1. On your local machine, customize `ftpputinstlib.txt`, located in your installation directory's `\**\HostSide\Installation Procedure` subdirectory, as specified in the *FTP Script Customization* topic.
2. Copy the customized `ftpputinstlib.txt` file into your *installation directory\bin* directory.
3. From a Windows command prompt, change to the *installation directory\bin* directory and execute the following command:

```
ftp -s:ftpputinstlib.txt
```

## Allocate and Load the Installation PDS

Define the installation PDS where the sequential data set is loaded.

1. Using the ISPF editor, customize the `IEBUPDTE` member as specified in the *JCL File (iebupdte.jcl) Customization* topic.
2. Submit `IEBUPDTE` to allocate and load the installation PDS.
3. Browse the `INST.LIB` PDS.
4. Select the member `INSTLIB` (not `INST.LIB`) using the `Edit` option.
5. Change the first parameter in the `CLIST INST.LIB (INSTLIB)` to use the name of the installation PDS `INST.LIB`, and then execute the `CLIST` command file.

For example, execute the TSO command:

```
TSO EX '**.INST.LIB(INSTLIB)'
```



**Note:** You can also execute the `CLIST` by typing `ex` on the line for the member `INSTLIB`.

The **Product Installation Menu** panel is displayed.

## Set Installation Parameters

1. Select the `Edit Product Installation Parameters` option to display the **Product Installation Parameters** panel, where you can choose the name of the installation PDS and the parameter data set (that contains all of this information).



### Important:

- The name of the library containing all the jobs to be submitted is created by putting together the Submitted Job Library Prefix (if it exists, this is an optional field), the user ID and the Submitted Job Library Suffix, all separated by a period (.).
  - The `Parameter Data Set` is a sequential file containing the environment parameters. The prefix of the name of this file must be different from the product library prefix. This file is also referred to as the `KBPARM` file. Be sure the file qualifier is one that you have authority to allocate.
  - At the end of the edit session, the **Product Installation Menu** panel displays again. Press `F3` to exit the menu without submitting the jobs.
2. On the **Product Installation Menu** panel, select option `Edit CD Installation Parameters` to display the **CD Installation Parameter** panel so that you can choose the sequential files (SEQ) prefix for file transfer.

You must customize the `Unit` and `Volume` name, although the latter can be left blank for SMS managed DASD. The parameter `Override PDS Prefix existence (N)` prevents data set allocation if a data set exists with the same prefix. If you need to use an existing prefix, specify `Y`.



**Note:** Press `Enter` to display the **Product Installation Menu** panel again.

3. On the **Product Installation Menu** panel, select option **Edit Knowledge Base Parameters** to display the **Knowledge Base Parameters** panel so that you can insert name parameters such as `DB2` and `Language Environment PDS`, `DB2 storage group`, `database plan` and `collection`, `owner`, and `buffer pool`.
4. Insert parameter names into all fields as all parameters are mandatory:
  - `Name of DB2 Subsystem (Dsn)` – Name of the DB2 subsystem where the product tables will be created.
  - `Name of Current SQLID` – Name of the DB2 user who will perform the product tables creation.
  - `Name of Micro Focus Data Plan` – Name of the plan for the product.
  - `Name of Micro Focus Data Collection` – Name of the collection containing the product package.
  - `Name of Micro Focus Data Storage Group` – Name of the DB2 storage group where the product tables will be created.
  - `Name of Micro Focus Data Database` – Name of the DB2 database where the product tables will be created.
  - `Name of Micro Focus Data Database Owner` – Name of the DB2 creator that will be used in order to create all the product tables.
  - `Name of Bufferpool for data and index` – Names of the two buffer pools containing the data and the indexes of the product tables. They can contain the same value.
  - `Name of DSNTIAD Program` – Name of DSNTIAD program or equivalent.
  - `Name of DSNTIAD Plan` – Plan associated with DSNTIAD program or equivalent.
  - `Name of DSNTIAUL Program` – Name of DSNTIAUL program or equivalent.
  - `Name of DSNTIAUL Plan` – Plan associated with DSNTIAUL program or equivalent.
  - `Dsname of DB2 Sdsnload` – DB2 SDSNLOAD library.
  - `Dsname of DB2 Runlib` – DB2 RUNLIB library.

 **Note:** Press `Enter` to display the **Product Installation Menu** panel again.

5. On the **Product Installation Menu** panel, select option `Edit Knowledge Base Size Parameters` to display the **Knowledge Base Size Parameters** panel so that you can customize size parameters such as the number of files, the number of fields for a single file, and the number of copies.

Customize the following size parameters:

- `Files Number` – Total estimated number of files that will be cataloged in the environment to be created. By files, we mean single DB2 or Oracle or SQL Server tables, single record formats of a flat file, single formats of a DL/I segment, or single Adabas files.
  - `Fields Numbers (For File)` – Average number of fields for each file.
  - `Copy Number` – Total estimated number of different copybooks I/O areas that will be cataloged in the environment to be created.
  - `Fields Numbers (For Copy)` – Average number of fields for copybook I/O areas.
  - `Data Changer Files Number` – Total estimated number of files that will be reduced or masked.
  - `Data Changer Fields Numbers (For File)` – Average number of fields for each file that will be reduced or masked.
6. On the **Product Installation Menu** panel, select option `Edit Job Card for Installation Jobs` so that you can change the JOB cards of Data Express jobs.

 **Note:**

- If you have line limits set in JES, then you should add `/*JOBPARM LINES=999` or `/*JOBPARM LINES = (999999,WARNING)` to the JOBCARD.
- To preview the job before submitting it, set `TYPRUN=HOLD`.

## Install the Data Set Libraries

This procedure describes how to install the data set libraries. After allocating PDS and SEQ files and the sequential file for FTP, transfer the Data Express sequential data sets to the mainframe so they can be used to populate the product installation PDS libraries. Once completed, you can then load Data Express.

To help you transfer the sequential data sets, we provide both FTP and Personal Communications (PC3270) assistance in the form of the following files. All reside in your installation directory's `\**\HostSide\Installation Procedure` subdirectory:

- `kbd.srl` - A PC3270 transfer file list
- `ftpput.bat` - A batch file that executes the `ftpput.txt` script
- `ftpput.txt` - An FTP script that copies the sequential data sets to the mainframe

Before using the provided FTP script or PC3270 transfer file list to transfer the files, you must customize them to include the correct values. See *Customization Reference* for specific customization details.

1. On the **Product Installation Menu** panel, select option `Load Product from CD` to display the **Load Product from CD** panel.
2. Select **PDS and SEQ product allocation** to submit jobs to allocate the PDS and SEQ files that make up Data Express.
3. Select **Allocation of sequential file for FTP** to submit a job to allocate a sequential file for file transfer.
4. Customize the file `ftpput.txt`, located in your installation directory's `\**\HostSide\Installation Procedure` subdirectory, as specified in *FTP Script (ftpput.txt) Customization*.
5. Copy the customized `ftpput.txt` file into your *installation directory*\bin directory.
6. From a command prompt, change to the *installation directory*\bin directory and execute the following command:

```
ftp -s:ftpput.txt
```



7. Select `Load Product` from sequential files to submit a job to load Data Express from sequential files.
8. From the **ISPF Primary Option Menu** panel, specify option **3.4** to manage data sets and to obtain a member list of the sequential files for the data set.
9. Press `PF11` and check the data set allocations to make sure all allocations are in less than 15 extents to be sure none failed to completely load.
10. Press `F3` to return to the **Product Installation Menu** panel.
11. Select option `Edit Job Cards for Micro Focus Data Jobs` on the **Product Installation Menu** panel.
12. Select option `Actualize Parameter` on the **Product Installation Menu** panel.

## Update the User Profile

When updating your user profiles, you must allocate Data Express PDSs to ISPF. For example: if your data set library prefix is `PPP.GGG` and the keylists of Data Express panels are contained in member `URDPROF` of `PPP.GGG.JCL`, you need to copy member `URDPROF` to `ISP.SISPTENU` or to `UserPrefix.ISPF.ISPPROF`.

To update user profiles:

1. From the **ISPF Primary Option Menu** panel, specify option `3.4` to manage data sets, and then browse the installation JCL library.
2. Next to the `URDPROF` member, type `c`.
3. In the `Name` field of the `To Other Data Set Name` section, specify the library where your ISPF profile can be found.
4. Exit your TSO session and start a new session.
5. Execute the TSO command:
 

```
TSO EXEC 'PPP.GGG.CLIST(MFDATA)'
```
6. Invoke the `PFSHOW TAILOR` command and ensure the parameters are set to 2, 2, 1, and 1 respectively.
7. Save your changes.

## Create the Database

1. On the **Micro Focus Data - Main Menu** panel, select option `Environment Creation` to display the **Environment Creation** panel.

The **Environment Creation** panel contains the following options:

- `Linkedit All Modules` - Do not execute this option in a standard installation where you have installed the loaded PDS from a sequential load data set. Submits jobs to linkedit all Data Express object modules.
- `Insert Environment Information` - Inserts information about the environment and submits a job that results in the source member: `PPP.GGG.DDL (DB2NREC)`.
- **Calculate Tables Information** - Execute this option only if you are installing for the first time. Submits a job to calculate the values of parameters `PRIQTY`, `SECQTY`, `FREEPAGE`, `PCTFREE`, and `COMPRESS` for all tables used by Data Express.
- `Actualize All Tables` - Execute this option only if you are installing for the first time. Submits a job to actualize the DB2 table sources used by Data Express.
- `Create All Tables` - Execute this option only if you are installing for the first time. Creates the DB2 tables used by Data Express.
- `Create all Bind Packages and Plan JCL` - Creates Data Express DB2 and JCL to create packages and plan.

- Submit all Bind Packages and Plan JCL - Submits the JCL. The binding of all packages and plans is performed.
  - Load Message and Business Protection std tables - Submits a job to load messages and Business Protection standard tables. This process is part of Database Population.
  - Load Process Ids and Classes Tables - Submits a job to load the process IDs and classes tables. This process is part of Database Population.
2. If you have installed the loaded PDS from a sequential load data set, do not execute this option. Only if instructed to do so by Micro Focus, select option `Linkedit All Modules` to linkedit all Data Express object modules. If you do linkedit all modules, exit your TSO session and start a new session before proceeding.
  3. Verify that the DB2 administrator has created a storage group and database, and has granted all the necessary authorizations to the database owner. A set of DDL samples creating those entities is provided with the product. The DDL to do this is `IURDDSG` and `IURDDDB` in the PDS `PPP.GGG.DDL`.
  4. On the **Environment Creation** panel, select the option `Insert Environment Information` to insert information about the environment and to submit job `CALCREC` that displays the source member: `PPP.GGG.DDL (DB2NREC)`.



**Note:** The source member contains the estimated number of records for each table and index.

5. Note the estimated number of records for each table and index, and evaluate the size of the environment values.



**Note:**

- You must make your evaluation of the environment values as accurate as possible. `DB2NREC` is used in the following steps as a starting point in order to calculate the size of the tables. If the value in `DB2NREC` is too large, a space problem can result when creating tables later.
  - If the estimated number of records for a table or index is greater than 999,999, the batch job ends with return code "4," and a message containing the object name is issued in the job **SYSOUT**. If necessary, edit `PPP.GGG.DDL (DB2NREC)` to change the number of records before proceeding.
  - When you sample tables, the rules used to calculate the number of records assume that the sampling phase will be executed for all files. This is true if the environment is small, but if the environment contains thousands of files, the sampling could be executed only for some of the files, and the calculation criteria can change, so the actual number of records could be lower than the calculated one. This argument holds true for the following tables: `ANURDLOG`, `ANURDSPE`, and `ANURDSPN` (with their indices `ANURDLOGX1`, `ANURDLOGX2`, `ANURDLOGX3`, `ANURDLOGX4`, `ANURDSPEX1`, `ANURDSPEX2`, `ANURDSPEX3`, `ANURDSPNX1`, and `ANURDSPNX2`). A rule could be that all these files have the same number of records as `ANURDFLF`.
  - Execute this option only if you are installing Data Express for the first time. If you are installing it to upgrade a previous release, see the topic *Install Data Manager Updates*
6. On the **Environment Creation** panel, select the option `Calculate Tables Information` to submit the job `IURCQTY`.
  7. On the **Environment Creation** panel, select the option `Actualize All Tables` to submit the job `SINACTAT`.
  8. On the **Environment Creation** panel, select the option `Create All Tables` to submit the job `SINCRAT`.
  9. On the **Environment Creation** panel, select the option `Create all Bind Packages and Plan JCL` to submit the job `SINACTAB`.



**Note:** This job may return error messages at the end of the output JCL. If an error message is displayed at the end of the output JCL, note the Return Code.

10. On the **Environment Creation** panel, select the option `Submit all Bind Packages and Plan JCL` to submit a job to execute the binding for all packages and JCL plans to submit the job `SINCRAT`.



**Note:** This job may return error messages at the end of the output JCL. If you receive a Return Code of 0 after executing this JCL and the JCL in the previous step, the job was successful and the error messages can be ignored.

## Populate the Database

Perform this procedure only if you are installing for the first time. If you are installing it to upgrade a previous release, see *Upgrade Installation*.

To populate the database:

1. On the **Environment Creation** panel, select option `Load Message and Business Protection std tables` to submit job `SURLPTB`. (This is described in the previous section.)
2. On the **Environment Creation** panel, select option `Load Process Ids and Class Tables` to submit job `IURLOAST`. (This is described in the previous section.)

The installation is now complete. Before using the product, you must enable it.

## Enable Data Express for z/OS

To use the fully enabled version of Data Express for z/OS, you must retrieve and specify the software key. This key is used to activate all mainframe Data Express functions appropriate for your product license.

If Data Express for z/OS is not fully enabled, some of the main batch jobs might terminate incorrectly.

The following topics describe the panels displayed by selecting options in the **Product Enabling** section of the **Main Menu** panel. Perform the procedure in each topic in the order specified:

### Panels

This section describes the panels displayed by selecting options in the **Product Enabling** section of the **Main Menu** panel.



**Note:** If problems occur during product enabling, error messages might be displayed. For more information, see the *Error Messages* guide.

#### Get Request Key

The request key is the software key needed to activate Data Express for z/OS.

To get the request key:

1. From the **Main Menu** panel, select option `Get Request Key` to display the **Get Request Key (CEURGST)** panel.
2. Note the string listed in the `Request Key` field, and contact Micro Focus SupportLine to obtain the associated software key.
3. Press `F3` to return to the **Main Menu** panel.

#### Apply Response Key

After receiving the response key, you must apply it to activate Data Express for z/OS.

To apply the response key:

1. From the **Main Menu** panel, select option `Apply Response Key` to display the **Apply Response Key (CEURKEY)** panel.
2. Specify the software key you received from Micro Focus SupportLine.
3. Press `F3` to return to the **Main Menu** panel.

## Display Enabled Options

After activation, you can verify the license status at any time.

To display enabled options:

1. From the **Main Menu** panel, select option `Display Enabled Options` to display the **Display Enabled Options** panel.
2. Note the information as appropriate.
3. Press `F3` to return to the **Main Menu** panel.

## Install Updates

Data Express Updates can be found on the Micro Focus SupportLine web site as WebSyncs. Download the appropriate zip files and extract them into an installation directory so that they can be uploaded to the mainframe.

To install the Update:

1. On the **Micro Focus Data Express for z/OS - Main Menu** panel, select option 24 to display the **Installation New Modification Level - Main Menu** panel.
2. Select option **Allocate Temporary PDS** to submit the job `SEQALC` to create a temporary PDS to contain PTF objects. You must specify the first and second qualifier for the PDS and you must customize the **Unit** name and **Volume** name. However, the **Volume** name can be left blank for SMS managed DASD.
3. Press `Enter` to return to the **Installation New Modification Level - Main Menu** panel.
4. Select option **Allocate Sequential File for PTF** to submit the job `FTPALC` to create the working sequential files. You must specify the prefix to be used for the sequential files, and you must customize the Unit name and Volume name. However, the Volume name can be left blank for SMS managed DASDs.
5. Press `Enter` to return to the **Installation New Modification Level - Main Menu** panel.
6. Transfer the CD content into the previously created sequential files. First navigate to the installation directory containing the unzipped files and edit the file `ftpput.txt` so that each `SEQ` prefix is replaced with the fully qualified prefix for the data set name. Then from a command prompt, change to the installation directory and execute the following command:  

```
ftp -s:ftpput.txt
```
7. Select option **Load Temporary PDS from Sequential Files** to submit the job `LOAPTF` to load the temporary PDS with PTF objects from the working sequential files. You must specify the first and second qualifier used to allocate the temporary PDS and the prefix used to allocate the sequential files created previously. To ensure a large enough limit for output lines, add the following parameter in the JOB statement: `LINES=(999999,WARNING)`
8. Press `Enter` to return to the **Installation New Modification Level - Main Menu** panel.
9. Select option **Save old PDS of PTF** to submit the job `SAVPTF` to save the PDS containing the latest PTF into the previously created temporary PDS. You must specify the same parameters as you did when executing the **Allocate Temporary PDS** option.
10. Press `Enter` to return to the **Installation New Modification Level - Main Menu** panel.
11. Select option **Rename PDS** to create a JCL with a new PDS containing the last PTF and to rename the previously created temporary PDS. You must specify the name of the temporary PDS used previously as the first parameter, and the name of the PDS that will contain the latest PTF as the second parameter.
12. Exit Data Express.
13. Exit the TSO session to release holds on data sets, and start a new session.
14. Execute the JCL you created using the option **Rename PDS** (job `RENPDSD` from your JCL library).
15. Restart Data Express. On the **Micro Focus Data Express for z/OS - Main Menu** panel, select option 24 to display the **Installation New Modification Level - Main Menu** panel.

16. On the **Installation New Modification Level - Main Menu** panel, select option **Bind Package (PTF)** to submit the creation of bind jobs for PTF libraries.
17. On the **Installation New Modification Level - Main Menu** panel, select option **Linkedit Module** to submit the execution of bind jobs for PTF libraries.
18. If you have DB2 objects in your personalized libraries, on the **Installation New Modification Level - Main Menu** panel, select option **Bind Package (PTF)** to submit the creation of bind jobs for personalized libraries.
19. Select option 12 **Update Modification Level** to execute a command to update the modification level. The **RELEASE** field on the **Installation New Modification Level - Main Menu** panel is updated.

## Software Upgrade

Perform the following procedure only if you are installing Data Express for z/OS to upgrade a previous release.

A DB2 administrator must perform this procedure. To upgrade Data Express:

1. From the chapter *New Software Installation Procedures*, perform the procedures described in each topic through *Install Data Set Libraries*.
2. If you are migrating from a version earlier than 3.5, execute an Unload of the following tables: ANLICLOG, ANURDFLF, ANURDFXF, ANURDLOG, and ANURDSPE.
3. On the **Micro Focus Data - Main Menu** panel, select option `Environment Update` to display the **Environment Update** panel.
4. The **Environment Update** panel contains five options. You need to complete them in order:
  - `Update All Tables` - Submits a job for each changed or new table to create the DB2 tables used by the new release of Data Express, and to migrate the previous database instance. The release numbers for the tables you are updating are required. See the *Data Model Guide* for table information.
  - `Load Message Tables` - Submits a job to load the Data Express message tables.
  - `Load Data Changer Tables` - Submits a job to load the Data Changer Conversion tables. **Note:** Only execute the **Load Data Changer Tables** option if you are migrating a version older than V3R0.
  - `Bind All Packages and Plan` - Submits a job to execute the binding for all packages and JCL plans.
  - `Update Level Id` - Submits a job to update the Level ID for all sources. Before updating the Level ID, you have to delete the content of the HSLICLID table.
5. If you are migrating from a version earlier than 3.5, execute a Load of the following tables: ANLICLOG, ANURDFLF, ANURDFXF, ANURDLOG, and ANURDSPE.
6. On the **Environment Creation** panel, select option `Create all Bind Packages and Plan JCL` to create a job for a new DB2 package and JCL plan and then select option `Submit all Bind Packages and Plan JCL` to submit the job. 6.
7. If you are migrating from a version earlier than V3R4, recompile all user-developed exit routines.
8. If you are migrating from a version earlier than V3R5, use the `Data Subset Extraction` module to verify the numeric values for the filter types `FILTER BY RANGE` and `FILTER BY LIST VALUE`. These filters are now padded with 31 digits instead of 18 digits as in previous production versions. To correct the padding, open and reapply the filter.



**Note:** For more information, see the section *Filter Types* in the *Work with Method - Selection class/Filter properties* chapter in the *Data Subset Extraction Guide*.

## Toolkit Installation

To install the toolkit:

1. Select option **Toolkit Installation** from the **Main Menu** panel. The **Toolkit Installation - Main Menu** panel contains eight options.
2. Select option `Allocate Temporary PDS` to submit a job to create a temporary PDS to contain toolkit objects. You must specify the first and second qualifier for the PDS and you must customize the Unit name and Volume name. However, the Volume name can be left blank for SMS managed DASD.
3. Press `Enter` to return to the **Toolkit Installation - Main Menu** panel. A job will be submitted.
4. . Select option `Allocate Sequential File for PER` to submit a job to create the working sequential files. You must specify the prefix to be used for the sequential files, and you must customize the Unit name and Volume name. However, the Volume name can be left blank for SMS managed DASDs.
5. Press `Enter` to return to the **Toolkit Installation - Main Menu** panel. The job `FTPALC` will be submitted.
6. Transfer the CD content into the previously created sequential files. First navigate to the installation directory containing the unzipped files and edit the file `ftpput.txt`. Then from a command prompt, change to the installation directory and execute the following command:
 

```
ftp -s:ftpput.txt
```
7. Select option `Load Temporary PDS from Sequential Files` to submit the job `LOAPTF` to load the temporary PDS with toolkit objects from the working sequential files. You must specify the first and second qualifier used to allocate the tempory PDS and the prefix used to allocate the sequential files created previously.
8. Press `Enter` to return to the **Toolkit Installation - Main Menu** panel. A job will be submitted.
9. From the **ISPF Primary Option Menu** panel, browse a temporary library to ensure that PDS has been loaded.
10. Select option `Save old PDS of PER` to submit a job to save the PDS containing the latest PTF into the previously created temporary PDS. You must specify the same parameters as you did when executing the `Allocate Temporary PDS` option.
11. Press `Enter` to return to the **Toolkit Installation - Main Menu** panel.
12. Select option `Rename PDS` to create a JCL with a new PDS containing the last version of the toolkit, and to rename the previously created temporary PDS. You must specify the name of the temporary PDS used previously as the first parameter and the name of the PDS that will contain the latest toolkit as the second parameter.
13. Press `Enter` to return to the **Toolkit Installation - Main Menu** panel. The job `RENPER` will be stored in the Jobs data set for submission.
14. After the job `RENPER` has finished executing, exit Data Express.
15. Exit the TSO session to release holds on data sets, and start a new session.
16. Execute the JCL job `RENPER` from the install JCL library.
17. Restart Data Express, and select the option `Toolkit Installation` from **Main Menu** panel.
18. On the **Toolkit Installation - Main Menu** panel, select option `Bind Package (PER)` to submit bind jobs.
19. Select option `Linkedit Module` to submit linkedit jobs.
20. Select option `Create System Tables` to submit the creation of the view on systables.



**Caution:** Execute option `Create System Tables` only if you are installing Data Express for the first time. If you are installing it to upgrade a previous release, do not execute this option.

## Installing Data Express Into Multiple DB2 Subsystems

This information outlines the concepts and procedures needed to migrate an existing Data Express installation to multiple DB2 subsystems.

## Who Should Read This Information

This information is for all users who are cloning Data Express for z/OS.

Read this information only if you need to clone Data Express environment from a DB2 subsystem where you need to complete the installation procedure to an empty DB2 subsystem.

The information is valid only if a new license key request is performed after performing the actions required for cloning.

If you did not apply latest updates before cloning, install the latest updates from the [Micro Focus SupportLine](#) web site.

See *Installation Instructions* for instructions on how to apply the updates

## Installation Cloning

This section describes the procedures needed to successfully clone Data Express for z/OS from DB2 subsystem to another empty DB2 subsystem.

### Cloning Phases

Cloning Data Express for z/OS includes these main phases:

- Cloning databases
- Cloning environment libraries
- Enabling the new cloned environment.

### Cloning a Database



**Note:** This phase should be performed by the customer's DB Administrator.

This phase creates and populates the Knowledgebase tables containing only the structure of product environment already created.

To align with the existing environment, create all TABLESPACES, TABLE, VIEWS and INDEXES of the Data Express knowledge base in this phase.

To avoid further problems, DUPLICATE only the table structures, not the data already inserted.

You must copy these tables with their data.

HSURDMF  
HSURDMFD  
USDCHADD  
USDCHCOM  
USDCHNAM  
USDCHSUR  
HSURDCLA  
HSURDPID

### Cloning Environment Libraries

You can use and update the cloned environment either of the following methods depending on your need.

- **Multiple Set of Libraries** - Use this method when requiring a separate and independent product installation to manage environments. This solution requires maintenance to be applied for each set of libraries and DB2 subsystem Websync files and scripts.
- **Single Set of Libraries** - Use this method when you do not need to work in an independent manner and are using the same set of libraries for all the DB2 subsystem with the Data Express Knowledge

base installed. This solution requires maintenance to a single set of libraries but multiple applications of Websync scripts for each DB2 subsystem.

### Multiple Set of Libraries

To create different Data Express installations, you must copy the entire library set, change the names, and create a new PARAMETERs file.

1. Copy all the libraries created at the end of the installation procedure, changing the names after copying by adding the text NEW to the end of the copy file string.

For example, URADAR.DATA.\* should be changed to URADAR.DATANEW.\* when copied.

2. Create a new PARAMETER FILE describing the new DB2 subsystem parameters. You must copy the original PARAMETER FILE into new one with a different name, then include it into new CLIST created under the newly created libraries.

For example, URADAR.SEQ.KBPARAM should be copied to URADAR.SEQ.KBPARAM.NEW.

Once copied, change the following DB2 related information included in the new parameter file.

- DSN on which the cloned database was created
  - Name of the cloned storage group
  - Name of the cloned DB2 database
  - Name of the cloned owner of the cloned DB2 tables
  - Name of the cloned plan and cloned collection
  - Names of the cloned buffer pools for data and indexes
  - Plan of the cloned DB2 system DSNTIAD
  - Plan of the cloned DB2 system DSNTIAUL
  - Names of the DB2 system libraries (RUNLIB and SDSNLOAD)
  - Name of the new parameter file for the cloned environment.
3. Check and modify the CLIST(MFDATA) to contain the references to new libraries.

```
PROC 0 URPROJ (URADAR) +
URGROUP (SV41) +
URGRPTF (SV41WRK) +
URGRPER (SV41PER) +
URSEQPAR (URADAR.SV41.SEQ.KBPARAM)
```

4. Check and if needed modify the following skeletons containing job cards:

```
KURJBLIB
KURJBLPK
KURJBNAM
KURJBNPC
KURJBNPK
```

5. At the end of the copying process, create and execute BIND packages. See *Create the Database* for information on creating and executing BIND packages.

### Single Set of Libraries

To create a single Data Express installation managing different DB2 subsystems, you must create a new CLIST and PARAMETER FILE starting from the Data Express 4.0 existing libraries.

This phase allows the copying and the editing of the parameter's procedure file.

1. Copy the original CLIST MFDATA into a new CLIST with a different name.

For example: URADAR.DATA.CLIST(MFDATA)\* should be copied to URADAR.DATA.CLIST(MFDATA2)

2. Create a new PARAMETER FILE describing the new DB2 subsystem parameters. you must copy the original PARAMETER FILE into new one with different name, then include it into new CLIST created under the newly created libraries.



For example, URADAR . SEQ . KBPARAM should be copied to URADAR . SEQ . KBPARAM . NEW.

3. Once copied, change the following DB2 related information included in the new parameter file.
  - DSN on which the cloned database was created
  - Name of the cloned storage group
  - Name of the cloned DB2 database
  - Name of the cloned owner of the cloned DB2 tables
  - Name of the cloned plan and cloned collection
  - Names of the cloned buffer pools for data and indexes
  - Plan of the cloned DB2 system DSNTIAD
  - Names of the DB2 system libraries (RUNLIB and SDSNLOAD)
  - Name of the new parameter file for the cloned environment
4. At the end of the copying process, create and execute BIND packages. See *Create the Database* for information on creating and executing BIND packages.

### Enabling a New Cloned Environment

To use the fully enabled version of Data Express for z/OS, you must retrieve and specify the software key. This key is used to activate all mainframe Data Express functions appropriate for your product license. If Data Express for z/OS is not fully enabled, some of the main batch jobs might terminate incorrectly.

This section describes the panels displayed by selecting options in the **Product Enabling** section of the **Main Menu** panel.

#### *Panels*

This section describes the panels displayed by selecting options in the **Product Enabling** section of the **Main Menu** panel.



**Note:** Error messages may display if problems occur during product enabling. See the *Data Express Messages Guide* for specific error message information.

#### *Obtaining a Request Key*

The request key is the software key needed to activate Data Express for z/OS. Perform the following steps to get the request key.

1. From the **Main Menu** panel, select **Get Request Key**. The **Get Request Key (CEURGST)** panel appears.
2. Note the string listed in the **Request Key** field, and contact Micro Focus SupportLine to obtain the associated software key.
3. Press **F3** to return to the **Main Menu** panel.

#### *Applying the Response Key*

After receiving the response key, you must apply it to activate Data Express for z/OS. To apply the response key:

1. From the **Main Menu** panel, select **Apply Response Key**. The **Apply Response Key (CEURKEY)** panel appears.
2. Specify the software key you received from Micro Focus SupportLine.
3. Press **F3** to return to the **Main Menu** panel.

#### *Displaying Enabled Options*

After activation, you can verify the license status at any time.

1. From the **Main Menu** panel, select **Display Enabled Options**. The **Display Enabled Options** panel appears.


- Note any license status information as appropriate and press **F3** to return to the **Main Menu** panel.

## Install PTFs


To install a PTF, use the installation instruction document for that PTF.

To begin your PTF installation:


- Restore the PTF objects in the PTF libraries.
- On the **Main Menu** panel, select option `Apply PTF` to display the **Apply PTF** panel. The **Apply PTF** panel contains 7 options.

 **Note:** Based on the instructions listed in your PTF installation document, the following options may or may not apply.


- `Linkedit Module` - Submits a job to linkedit the specified module. After specifying the module name, press `Enter` to submit the job.

 **Note:** Use the `Linkedit Module` option for each object specified in the PTF installation instruction.


- `Duplicate Program` - Submits a job to create a duplicate of objects for the specified module. After specifying the module name and number of objects to create, press **Enter** to submit the job. (For the number of objects to create, see the *ReadMe* of the HotFix you are installing.)

 **Note:** Use the **Duplicate Program** option for each object specified in the PTF installation instruction.


- `Create Table` - Submits a job to create a DB2 table for an object specified in the PTF installation instruction. After specifying the table name, press `Enter` to submit the job.

 **Note:** Use the **Create Table** option for each object specified in the PTF installation instruction.

- `Update Table` - Submits a job to update the new DB2 table specified in the PTF installation instruction. After specifying the table name, press `Enter` to submit the job.

 **Note:** Use the **Update Table** option for each object specified in the PTF installation instruction.

- `Load Message Tables` - Submits a job to load message tables if specified in the PTF installation instruction. After specifying the table name, press `Enter` to submit the job.
- `Load Data Changer Tables` - Submits a job to load data changer tables if specified in the PTF installation instruction. After specifying the table name, press `Enter` to submit the job.
- `Bind Package` - Submits a job to bind a package for an object specified in the PTF installation instruction. After specifying the table name, press `Enter` to submit the job.

 **Note:** Use the `Bind Package` option for each object specified in the PTF installation instruction.

- Perform the detailed PTF install procedure specified in the installation instruction document in addition to the `Linkedit Module` and `Bind Package` steps, if required.

## Customization Reference

### FTP Script Customization

Make the following changes:

Replace...	With your...
NNN.NNN.NNN.NNN	HOST IP ADDRESS
USER	TSO User ID

Replace...	With your...
PSWD	User ID password
USERLIB.PDS	HOST JCL library
ENVID	HOST sequential installation file prefix

Sample ftpinst.txt script:

```
open 123.123.123.123
YOURUSERID
YOURPASSWORD
cd ..
bin
put iebupdte.jcl 'HLQ.SLQ.USERLIB(IEBUPDTE) '
disconnect
quit
```

Sample ftpputinstlib.txt script:

```
open 123.123.123.123
YOURUSERID
YOURPASSWORD
cd ..
bin
put instlib.bin 'HLQ.SLQ.MFDATA.INSTJB.LIB.SEQ '
disconnect
quit
```

## FTP Script (ftpput.txt) Customization

Make the following changes:

Replace...	With your...
NNN.NNN.NNN.NNN	HOST IP ADDRESS
USER	TSO User ID
PSWD	User ID password
SEQ	HOST sequential product files prefix
PRODUCT	HOST product files prefix

Sample ftpput.txt script:

```
open 123.123.132.123
YOURUSERID
YOURPASSWORD
cd ..
bin
put bind.bin 'MFI01.DE.V3R5M0.SEQ.bind '
put cbl.bin 'MFI01.DE.V3R5M0.SEQ.cbl '
put clist.bin 'MFI01.DE.V3R5M0.SEQ.clist '
put copy.bin 'MFI01.DE.V3R5M0.SEQ.copy '
put dbrmlib.bin 'MFI01.DE.V3R5M0.SEQ.dbrmlib '
put ddl.bin 'MFI01.DE.V3R5M0.SEQ.ddl '
put ddlalter.bin 'MFI01.DE.V3R5M0.SEQ.ddlalter '
put jcl.bin 'MFI01.DE.V3R5M0.SEQ.jcl '
put load.bin 'MFI01.DE.V3R5M0.SEQ.load '
put obj.bin 'MFI01.DE.V3R5M0.SEQ.obj '
put package.bin 'MFI01.DE.V3R5M0.SEQ.package '
put panel.bin 'MFI01.DE.V3R5M0.SEQ.panel '
put skel.bin 'MFI01.DE.V3R5M0.SEQ.skel '
put syspunch.bin 'MFI01.DE.V3R5M0.SEQ.syspunch '
put hsurdmf.bin 'MFI01.DE.V3R5M0.hsurdmf '
```

```

put hsurdmfd.bin      'MFI01.DE.V3R5M0.hsurdmfd'
put usdchadd.bin     'MFI01.DE.V3R5M0.usdchadd'
put usdchnam.bin     'MFI01.DE.V3R5M0.usdchnam'
put usdchsur.bin     'MFI01.DE.V3R5M0.usdchsur'
put usdchcom.bin     'MFI01.DE.V3R5M0.usdchcom'
disconnect
quit

```

## FTP BAT File (ftpput.bat) Customization

Change the drive designation, d:, to the drive letter that represents the drive that contains your Data Express 4.0 installation directory.

Change cd\bin to cd\2.2 *installation directory*\bin.

## PC3270 Transfer File List (inst.srl) Customization

Replace a: with the drive letter and path to your 4.0 installation directory; then make the following additional changes:

Replace...	With your...
USERLIB.PDS	HOST JCL library
ENVID	HOST sequential installation file prefix



**Note:** Be sure to use a TRANSFER-FILE TYPE named TEXT.

## PC3270 Transfer File List (kbd.srl) Customization

Replace d: with the drive letter and path to your 4.0 installation directory; then make the following additional changes:

Replace...	With your...
SEQ	HOST sequential product files prefix
PRODUCT	HOST product files prefix

Create a TRANSFER-FILE TYPE named 'BINARYDEF', similar to 'BYNARY' TYPE, but with DEFAULT specified in a file allocation parameter, and without any LRECL value.

## JCL File (iebupdte.jcl) Customization

Make the following changes:

Replace...	With your...
\$PDSINST	Installation PDS name
\$SEQINST	Installation sequential data set name
\$UNIT	DASD unit name
\$VOLSER	VOLUME name
	<b>Note:</b> For SMS managed DASD you must delete VOL=SER=\$VOLSER from the JCL.

Sample iebupdte.jcl file:

```

//IEBUPDTE JOB (00001),MU,MSGCLASS=A,CLASS=A,NOTIFY=&SYSUID
//*****
//* THIS JOB CREATES THE PDS FOR THE INSTALLATION PROCEDURE AND
//* LOADS IT FROM THE SEQUENTIAL FILE.
//*

```

```

//* YOU HAVE TO SPECIFY SOME INFORMATION.
//* TO DO SO, YOU HAVE TO CHANGE THE FOLLOWING WORDS IN THIS JOB:
//*
//* 1) CHANGE '$PDSINST' TO THE NAME OF THE INSTALLATION PDS
//* 2) CHANGE '$SEQINST' TO THE NAME OF THE INSTALLATION SEQ. FILE
//* 3) CHANGE '$UNIT' TO THE NAME OF THE UNIT
//* 4) CHANGE '$VOLSER' TO THE NAME OF THE VOLUME
//*****
//STEP100 EXEC PGM=IEFBR14
//SYSPRINT DD SYSOUT=*
//PO DD DSN=MFDATA.INST.LIB,
// UNIT=SYSDA,DISP=(NEW,CATLG),
// VOL=SER=8349082,SPACE=(TRK,(15,15,30)),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=27920,DSORG=PO)
//*-----
//STEP200 EXEC PGM=IEBUPDTE,PARM=MOD
//SYSPRINT DD SYSOUT=*
//SYSUT1 DD DISP=OLD,DSN=MFDATA.INST.LIB
//SYSUT2 DD DISP=OLD,DSN=MFDATA.INST.LIB
//SYSIN DD DISP=OLD,DSN=MFDATA.INST.LIB

```

## Distributed Systems Procedures

This chapter describes the installation media and procedures needed to successfully install Data Express.

After installing, you need to install the latest updates, from the Micro Focus SupportLine web site. See the section [Updates and SupportLine](#) for more information.

## Windows Installation

To install, simply put the CD in your drive and follow the on-screen instructions that appear automatically after a few seconds. After installing, you can run Data Express from a button that appears at the end of the instructions and thereafter you can run it from your Windows **Start** menu.

### Installation Media

Data Express is typically installed from a CD that contains:

- Windows client setup
- XDB Knowledge Base
- BDE software
- ODBC and Oracle Extension software for UNIX and Windows
- z/OS installation software

For z/OS, install the Windows client only. For Distributed Systems, install all components.



#### Note:

- Your license determines which modules you are authorized to install and use.
  - Data Express for Distributed Systems
  - Data Express for z/OS
- You must have administrator privileges on the PC for which you are installing.

## Software Setup

To begin your installation, follow the steps in the subsequent sections.

To use Data Express, you must request and specify the serial number. The serial number is the request key needed in order to activate all Data Express functions appropriate for your product license.



**Note:** The client-side serial number requested during your Data Express installation can only be obtained from Micro Focus SupportLine. You must provide the Micro Focus SupportLine representative the serial number specified on the CD box which is used as a request key in the **Request Key (Serial Number)** field.

To install Data Express:

1. Before installing, contact Micro Focus SupportLine in order to get a Response Key by specifying the serial number you received from Micro Focus Distribution.

2. Run `Setup.exe` from the installation CD. The **InstallShield Wizard** appears.

The `autorun` starts. From the menu, install BDE if it is not installed already, or install Data Express directly.

If you start `DXP324000026.exe` then the **Windows Client installation Wizard** starts directly.

3. Click **Next**, accept the license agreement, and then click **Next**.

4. In the **User Name** field, specify the appropriate name of the user or group of users who will use Data Express.

5. In the **Request Key (Serial Number)** field, overwrite the text and specify your serial number



**Note:** This value must be the same value you sent to Micro Focus SupportLine during your client side Response key request.

6. In the **Response Key** field, enter the response key you received from Micro Focus SupportLine.

7. Click **Next** to proceed with the install.

8. If you are installing Data Express for z/OS, you must choose the product as appropriate (standard or client/server configuration). The architectural difference between the two configurations is explained in the *Front End User Guide*.

9. Follow the prompts to complete your installation.

## Software Update for Windows

Software updates (WebSyncs or Hotfixes) are available on the SupportLine website ( <http://supportline.microfocus.com> ) at the **Product Updates** page. A link, pointing to an update web page, will be available for each WebSync or Hotfix.

For the windows component, the installation requires you to execute a `.msp` file that can be found in the mentioned web page.

After executing the file, the product version currently installed will be updated to the appropriate level of the WebSync/Hotfix.

A software update may require specific instructions. In this case, the SupportLine web page will contain any additional instruction to be followed in order to properly install the software update

## UNIX Installation

The Data Express ODBC and Oracle Extensions are installed from a `.tar` file that is provided as an electronic download in an e-mail message. Contained in the `.tar` file is the file `install.txt`, which provides further installation instructions.

## Unix Software Updates

Software updates (WebSyncs or Hotfixes) are available on the SupportLine website ( <http://supportline.microfocus.com> ) at the **Product Updates** page. A link, pointing to an update web page, will be available for each WebSync or Hotfix.

For the Unix component, applying a software update means downloading and installing a `.tar` file containing the new product extension version and replacing the existing installation.

A software update may need specific instructions. In this case, the SupportLine web page will contain any additional instructions to be follow.

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