# Simplified z/OS Installation Method

This chapter describes a simplified installation method for EntireX under z/OS. It is an alternative to the installation method described in subsequent sections. This chapter covers the following topics:

- Overview
- Delivered Members
- Installation Parameters
- Installation Jobs
- Installation Verification
- Administration Tasks

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## Overview

The simplified installation requires the following steps:

1. Set the installation keyword parameters in a parameter member.
2. Execute a REXX script that updates the delivered installation jobs with the values of that parameter member.
3. Auto-submit the updated jobs if requested in the parameter file, or make them ready for a manual submission.

## Delivered Members

The delivered members in the original `EXX970.JOBS` data set are:

**`#IPARMS`**

The installation parameters.

**`#RX#CMD`**

The REXX update script.

**`#RX#JOB`**

A job to execute `#RX#CMD` in batch.

**`#INSTALL`**

Generated on first submission: Documents the installation jobs required as a result of the components selected.

**Note:**
Only the `#INSTALL` job will be copied to the target *.JOBS* data set. The first three members remain in the original *EXX970.JOBS* data set.

## #IPARMS - The Parameters

This member keeps all parameters relevant for installation and is located and maintained in the delivered data set *EXX970.JOBS* only, which was copied directly from the installation medium. To avoid a complete setup, you can select an already maintained #IPARMS. See *`#RX#JOB` - A REXX Batch Job*.

### Member Layout

The parameter member contains the following sections:

1. global installation parameters
2. job card related parameters
3. installable unit subproduct selection parameters
4. installable unit installation parameters
5. data set names / high-level qualifiers
6. VSAM file characteristics

### Parameter Line Layout

A parameter member line has the following layout:

```
* ------------------------------------------------------------- *
* JOBCARD
* ------------------------------------------------------------- *
  keyword   = value           * comment
```

| | | |
|---|---|---|
| where | *`keyword`* | is a placeholder for a keyword |
| | = | is the value separator |
| | *`value`* | is the keyword value |
| | * | introduces a comment. A line that begins with an asterisk in column 0 is treated as a comment line. |

## #RX#CMD - The REXX Script

This script copies all the necessary jobs from the original *EXX970.JOBS* data set of the delivered installation medium to a selected installation *target.JOBS* data set. All placeholders in the original jobs will be replaced with the values set in the parameter member. An existing *target.JOBS* data set of a previous generation will be saved in a GDG data set first.

A `#INSTALL` member will be created for documentation and to distinguish between the jobs required as a result of the selected components and the optional installation jobs. All required installation jobs can be submitted directly with this member.

# #RX#JOB - A REXX Batch Job

Calls the #RX#CMD REXX script from batch.

The #RX#CMD script expects six KEYWORD parameters that need to be maintained and set to suitable values in the #RX#JOB first. There are two groups of keyword parameters: mandatory and optional.

- **Mandatory Keyword Parameters**
  - ORIG - The name of the EXX970.JOBS data set copied from the installation medium
  - INST - The name of the target.JOBS data set that will contain the generated installation jobs
- **Optional Keyword Parameters**
  - PARM - The name of a data set containing an already maintained #IPARMS member. If a #IPARMS member is found here it will be selected for the installation jobs generation process.
  - MSGS - Switch IEBCOPY sysout messages on or off. Possible values are:
    Y - Show IEBCOPY sysout (default)
    N - Hide IEBCOPY sysout
  - INST_SMS - Switch SMS control on or off for the target.JOBS data set named with the mandatory INST keyword parameter. Possible values:
    Y - Switch ON the SMS controlled allocation of the installation jobs data set
    N - Switch OFF the SMS controlled allocation of the installation jobs data set
  - INST_VOL - Contains the SMS class name or the VOLSER name depending on the value of keyword parameter INST_SMS
    INST_SMS=Y - The SMS class name
    INST_SMS=N - The DASD VOLSER name

**Important:**
It is mandatory to edit this job *manually* before submission to define at least the mandatory keywords naming the input (*EXX970.JOBS*) and output (*target.JOBS*) data sets.

# #INSTALL - Document the Required Installation Jobs (Depending on Selected Components)

This member will be generated in both, the *EXX970.JOBS* and the *target.JOBS* data sets. It has two functions:

1. **Documentation of the Installation Jobs Required as a Result of the Selected Installable Units**
   Each required installation job is represented here with a separate line headed by its member name in the *EXX970.JOBS*.
2. **Submission of the Required Installation Jobs**
   As this member is a job itself, it can be submitted to submit all the required installation jobs. You can also select a subset of jobs for submission by (un)commenting their execution lines.

# Installation Parameters

This section lists the parameters available with the simplified installation procedure:

- Installable Unit Selection Parameters
- Job Replacement Parameters

## Installable Unit Selection Parameters

Use these parameters to determine the scope of the installation.

| Installable Unit | Description |
|---|---|
| InstBroker | Subproduct installation: Select the Broker (Y/N). |
| InstRpcBatch | Subproduct installation: Select the Batch RPC server (Y/N). |
| InstRpcCics | Subproduct installation: Select the CICS RPC Server (Y/N). |
| InstRpcIms | Subproduct installation: Select the IMS RPC server (Y/N). |
| InstSSL | Subproduct installation: Select the SSL libraries (Y/N). |

## Job Replacement Parameters

| Parameter Type | Parameter Name | Job Replacement Tag | Description |
|---|---|---|---|
| Global Parameters | WorkingStorUnit | <unit> | Temporary storage unit. |
| | MaxBackups | <MaxBackups> | Upper limit of GDG data set. |
| | HLQ-TapeKit | <Tape> | High-level qualifier of the JOBS data sets copied to DASD from the delivered installation medium. |
| | HLQ-InstallKit | <Inst> | High-level qualifier of the data set containing the generated installation jobs. |
| | Submit | <,> | Autosubmit (Y/N) the mandatory installation jobs for the selected units to the HOLD queue. |

| Parameter Type | Parameter Name | Job Replacement Tag | Description |
|---|---|---|---|
| Job Card Related | JobName | <jobname> | Job name. |
| | Accounting | <account> | Accounting information. |
| | Programmer | <name> | Programmer information. |
| | Notify | <notify> | Notification user ID. |
| | Region | <region> | Storage amount. |
| | Priority | <prio> | Selection priority. |
| | Time | <time> | Max. CPU time. |
| | MsgLevel | <msglvl> | Job output level. |
| | JobClass | <class> | Run class. |
| | MsgClass | <msgclass> | Message class. |
| | Special | <special> | Special job info (e.g. for JES exits). |

| Parameter Type | Parameter Name | Job Replacement Tag | Description |
|---|---|---|---|
| High-level Qualifiers | HLQ-Adabas | <ADAvrs> | High-level qualifier of the installed Adabas. |
| | HLQ-AdabasIndi | <WALvrs> | High-level qualifier of the installed Independent Adabas. |
| | HLQ-AdabasDB | <ADAdb> | High-level qualifier of the target Adabas database for the ADA/NAT update jobs. |
| | HLQ-Natural | <NATvrs> | High-level qualifier of the installed Natural. |
| | HLQ-EntireX | <EXXvrs> | High-level qualifier of the installed EntireX Global. |
| | HLQ-Broker | <EXBvrs> | High-level qualifier of the installed EntireX Broker. |
| | HLQ-RpcServer | <EXPvrs> | High-level qualifier of the installed EntireX RPC Servers. |
| | HLQ-SSX | <SSXvrs> | High-level qualifier of the installed EntireX SSX. |
| | HLQ-Cics | <CICS> | High-level qualifier of the CICS to be used for installation. |
| | HLQ-CicsCSD | <CICSCSD> | High-level qualifier of the CICS CSD to be used for installation. |
| | HLQ-IMS | <IMS> | High-level qualifier of the IMS to be used for installation. |
| | HLQ-MQM | <MQM> | High-level qualifier of the MQSeries data sets. |
| | HLQ-COB | <COB> | High-level qualifier of the COBOL compiler data sets. |
| | HLQ-PLI | <PLI> | High-level qualifier of the PL/I compiler data sets. |
| | HLQ-CEE | <CEE> | High-level qualifier of the CEE language environment data sets. |

| Parameter Type | Parameter Name | Job Replacement Tag | Description |
|---|---|---|---|
| Broker-related | BrokerID | <BrokerID> | EntireX Broker name for TCP/IP or Entire Net-Work access. |
| | BrokerNode | <BrokerNode> | EntireX Broker node number for Entire Net-Work access. |
| | MigDsnBrokerV72 | <EXBmig> | Broker source data set for automated parameter migration. |
| | MigDsnEntireXV72 | <EXXmig> | EntireX source data set for automated parameter migration. |
| | MigOldAttrMember | <OldAttrMember> | Migration: Member name of old attributes (EXBATTR). |
| | MigOldCommMember | <OldCommMember> | Migration: Member name of old TCP/IP parameters (EXBCOMM). |
| | MigOldStorMember | <OldStorMember> | Migration: Member name of old persistent storage parameters (PSFFP). |
| | MigOldParmMember | <OldParmMember> | Migration: Member name of old parameters (EXBPARM). |
| | MigNewAttrMember | <NewAttrMember> | Migration: Member name of new consolidated attributes. |

| Parameter Type | Parameter Name | Job Replacement Tag | Description |
|---|---|---|---|
| RPC Server-related | IMS-PsbName | <ImsPsbName> | IMS RPC: PSB name. |
| | DSN-ImsLoad3GL | <DSNImsLoad3GL> | IMS RPC: COBOL and PL/I server load modules data set. |
| | DSN-BatLoad3GL | <DSNBatLoad3GL> | Batch RPC: COBOL and PL/I server load modules data set. |
| | DSN-DfhLoad3GL | <DSNDfhLoad3GL> | CICS RPC: COBOL and PLI/I server load modules data set. |
| | DSN-ImsStub3GL | <DSNImsStub3GL> | IMS RPC: COBOL and PL/I stub load modules data set. |
| | DSN-BatStub3GL | <DSNBatStub3GL> | Batch RPC: COBOL and PL/I stub load modules data set. |
| | DSN-DfhStub3GL | <DSNDfhStub3GL> | CICS RPC: COBOL and PL/I stub load modules data set. |
| | HLQ-RpcCicsSVM | <HlqDfhSvmFile> | High-level qualifier of the EntireX CICS RPC Server server-side mapping container (VSAM file). |
| | HLQ-RpcSVM | <HlqSvmFile> | High-level qualifier of the EntireX Batch/IMS RPC Server server-side mapping container (VSAM file). |
| | RPC-ImsClass | <ImsClass> | IMS RPC: Class name of service triplet. |
| | RPC-ImsServer | <ImsServer> | IMS RPC: Server name of service triplet. |
| | RPC-ImsService | <ImsService> | IMS RPC: Service name of service triplet. |

| Parameter Type | Parameter Name | Job Replacement Tag | Description |
|---|---|---|---|
| Adabas / Natural-related Parameters | AdaSvcNo | <AdaSvcNo> | Adabas router SVC number. |
| | AdaDeviceType | <AdaDeviceType> | Adabas database device type. |
| | AdaDBID | <AdaDBID> | Adabas database ID in the router SVC. |
| | NatBatch | <NatBatch> | Name of the Natural batch nucleus. |
| | Fnat | <Fnat> | Adabas file number of the Natural FNAT. |
| | Fuser | <Fuser> | Adabas file number of the Natural FUSER. |
| | Fdic | <Fdic> | Adabas file number of the Natural FDIC. |
| | AdaFileNoExbDiv | <DivFileNo> | Adabas file number of the Broker persistent store. |
| VSAM file allocation characteristics for server-side mapping container | RLS-SVM | <rls> | Record Level Sharing (Yes or No). |
| | SMS-SVM | | SMS managed (Yes or No). |
| | VolSer-SVM | <sms> | SMS storage class name or VOLSER name (depending on SMS-SVM). |
| Broker VSAM file allocation characteristics for persistent store linear cluster | LLQ-EXB | <llq-exb> | Last-level qualifier of the Broker VSAM cluster. |
| | SMS-EXB | | SVM managed (Yes or No). |
| | VolSer-EXB | <sms-exb> | SMS storage class name or VOLSER name (depending on SMS-SVM). |

# Installation Jobs

All existing jobs remain unchanged in the original *EXX970.JOBS* data set. Only the jobs necessary for the installation of the selected installable units will be copied to and updated within the designated *target.JOBS* data set by the `#RX#CMD` REXX script.

**Note:**
This update process is not mandatory. All jobs can still be manually adapted as before. But to be able to successfully execute the installation script afterwards, the original *EXX970.JOBS* data set should be kept unchanged.

This section covers the following topics:

- Generation Data Sets
- Preparation and Execution
- Generation Process
- Submission

## Generation Data Sets

After a successful generation, the following data sets are in the system:

- ***EXX970.JOBS***
  The delivered product data set. The members of this data set will remain unchanged with the exception of the `#IPARMS` parameters and possibly the `#RX#JOB`.
- ***target.JOBS***
  The target data set which will contain the selected and updated jobs from the *EXX970.JOBS* data set.
- ***target.JOBS.BAK***
  A VSAM GDG base catalog entry for the GDG data sets.
- ***target.JOBS.GnnnnVnn***
  With any subsequent generation, all jobs of the previous generation in the *target.JOBS* data set are kept here until the maximum value set in the `MAXBACKUPS` parameter (to be found in `#IPARMS`) is reached.

## Preparation and Execution

**To prepare and install the installation jobs**

1. Update the *EXX970.JOBS* (`#IPARMS`) parameter member.
2. Submit the job EXX970.JOBS(#RX#JOB) to execute the REXX script `#RX#CMD`.

## Generation Process

Every keyword parameter has a well defined default value. This default will be replaced only if requested by the parameter member, that is, if a `KEYWORD=VALUE` entry is successfully identified. When a keyword is deleted from the parameter member (or commented out), this default will always be in place.

## Submission

**To submit the installation jobs**

- In the `#IPARMS` member select the switch `SUBMIT`.
  - If set to "Y":

Any job is submitted with a TYPRUN=HOLD job card parameter.

**Note:**
This allows a final check to ensure a correct generation. Any job can then be released manually one after the other in the numbered order or can be cancelled if an error was encountered.

If you cannot issue the JES release command for security reasons, you can submit using the generated #INSTALL job in the target.JOBS instead.

- If set to "N":

  The TYPRUN=HOLD job card parameter is set to comment and no job is submitted at all.

**Note:**
The #INSTALL member will be generated regardless of the SUBMIT parameter value.

# Installation Verification

Installation verification is the same for both installation methods. See *Verifying the z/OS Installation*.

# Administration Tasks

After installation has been completed, various administration tasks may be necessary.

- Modify Broker Attribute File
- Set up Broker Stubs
- Define the Persistent Store
- Setting up the EntireX RPC Servers

## Modify Broker Attribute File

Customize the attribute settings to suit your needs. See *Broker Attributes*.

## Set up Broker Stubs

See *Administering Broker Stubs*.

## Define the Persistent Store

A persistent store can be optionally used for storing unit of work messages and message status information to disk. For z/OS, you can use an Adabas persistent store (recommended) or a DIV persistent store that uses a VSAM linear data set.

### Adabas Persistent Store

See *Implementing an Adabas Database as Persistent Store* and *Adabas-specific Attributes* in the Broker attribute file documentation for more information.

### DIV Persistent Store

See *Implementing a DIV Persistent Store* under *Managing the Broker Persistent Store* and *DIV-specific Attributes* under *Broker Attributes* for more information.

## Setting up the EntireX RPC Servers

See *CICS RPC Server*, *Batch RPC Server* or *IMS RPC Server* for more information.