



Installing an operating system on z Systems Development and Test Environment

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Installing an operating system on z Systems Development and Test Environment

Learn how to install supported operating systems on the z Systems™ Development and Test Environment machine emulator.

Installing z/OS volume images

Learn how to install and configure z/OS® volume images for z Systems Development and Test Environment. You can install and customize a z/OS distribution, whether it is a migrated customer z/OS system, a z/OS Application Developers Controlled Distribution (ADCD) for z Systems Development and Test Environment, or a z/OS distribution from a previous release of z Systems Development and Test Environment.

Note: Any z/OS distribution that is supplied with z Systems Development and Test Environment is a unique distribution that was created specifically for installations that are entitled to z Systems Development and Test Environment, based on the Application Developers Controlled Distribution (ADCD). They are referred to in this IBM® Knowledge Center as the z/OS ADCD.

The customizations in this IBM Knowledge Center provide insight into the configuration process and security considerations and result in some additional working subsystems. While you can use any z/OS distribution without implementing these customizations, connectivity to your z/OS system might be limited.

Obtaining a z/OS distribution

You can obtain a z/OS distribution to run with z Systems Development and Test Environment from three sources.

- If you currently have a z/OS license, you can migrate the z/OS volumes from your z/OS system to your z Systems Development and Test Environment instance.
- You can download from Passport Advantage® the z/OS ADCD volumes made available with z Systems Development and Test Environment
- You can use a previous z/OS distribution that runs with an older version of Rational® Development and Test Environment for z Systems.

z Systems Development and Test Environment requires every z/OS volume in a z/OS distribution be a Linux file in an emulated 3390 format compatible with zPDT®. The z/OS volumes in the z/OS ADCD for z Systems Development and Test Environment and in previous releases of z Systems Development and Test Environment are in the Linux file format. If you migrate volumes from your own z/OS distribution, migration tools are provided for the conversion.

Each method of obtaining the z/OS distribution is described. After it is obtained, any z/OS volume image in the emulated 3390 format can then be transmitted between Linux systems by any available file transfer protocol, such as FTP.

Migrating z/OS volumes from a z/OS system

You can use several methods to migrate z/OS volumes from your z/OS system to your z Systems Development and Test Environment instance.

One method is to use the migration utility that is supplied in the `/usr/z1090/bin` directory after installation of z Systems Development and Test Environment. This utility uses a client/server approach in which the server transmits the requested z/OS volumes from the z/OS system to the Linux image. The client formats each volume to the emulated 3390 format that is used by zPDT. For information on how to use this migration utility to migrate z/OS volumes, see Chapter 15, DASD Volume Migration, in the zPDT Guide and Reference.

If you already have a running z/OS distribution with z Systems Development and Test Environment, another method of moving z/OS volumes between systems is using the ADRDSSU utility. This method is described in section 12.12, "Moving 3390 Volumes." In this scenario, you can move z/OS volumes to a z/OS system that is running on z Systems Development and Test Environment. After the volumes are moved, they are in the proper emulated format. Chapter 12, "Minor z/OS notes," has other helpful information on how to use a z/OS distribution.

Installing December 2016 Edition z/OS 2.2 ADCD for z Systems Development and Test Environment

Learn how to download and install the z/OS 2.2 Application Developers Controlled Distribution for z Systems Development and Test Environment December 2016 edition.

This z/OS 2.2 distribution is a unique distribution that was created specifically for sites that are entitled to z Systems Development and Test Environment, based on the Application Developers Controlled Distribution (ADCD). It is referred to as the z/OS 2.2 ADCD. It contains many of the products and subsystems you expect in a z/OS system. For a list of the products, volumes, and information about the system itself, see z/OS 2.2 ADCD for z Systems Development and Test Environment.

Before you install this z/OS 2.2 ADCD, you must first install z Systems Development and Test Environment. For instructions, see Installing z Systems Development and Test Environment. Then do these steps to download and install the z/OS 2.2 ADCD for IBM z Systems Development and Test Environment.

Important: Any z/OS ADCD for IBM z Systems Development and Test Environment, and any related software, are supplied as a convenience. IBM does not support the operating system distributions that are made available with z Systems Development and Test Environment. You can apply fixes to any z/OS distribution through normal SMP/E facilities.

Downloading a z/OS 2.2 ADCD:

For the steps to download, install, and customize your z/OS ADCD for z Systems Development and Test Environment, select the appropriate version tab and follow the instructions in the z Systems Development and Test Environment download information technote.

The download information technote is available at <http://www.ibm.com/support/docview.wss?uid=swg21682519>.

z/OS 2.2 ADCD for z Systems Development and Test Environment describes what volumes can be downloaded with this distribution and their general contents. To reduce the amount of disk space you use, you can download and install only the volumes that are required and the subsystems you use. In particular, the volume images for CICS®, IMS™, DB2®, and WebSphere® Application Server products can

be selectively installed as required, choosing which products and which releases are appropriate for your needs. To determine the subsystems that are contained on each volume, see the description of each volume. Download and install the volumes on the instance that runs z Systems Development and Test Environment.

At a minimum, install all the base z/OS products, which are all the volume images that are not associated with the following products:

- CICS 5.3, 5.2, and 5.1
- IMS versions 14, 13, and the IMS Utility pack
- DB2 version 11
- WebSphere Application Server versions 9.0, 8.5 and 8.0

This set of volumes includes the base z/OS products:

- SARES1, C2RES1, C2RES2, C2CFG1, C2SYS1, C2USS1, C2USS2, C2PRD1, C2PRD2
- C2PRD3, C2DIS1, C2DIS2, C2PAGA, C2PAGB, C2PAGC, C2KAN1, C2BLZ1

Most of the z Systems Development and Test Environment related files that are mentioned in the customization scenario are stored within the `ibmsys1` home directory. This IBM Knowledge Center assumes that the 2 MVS™ IPL volume images, with file extension `ZPD`, are downloaded into the directory structure `/home/ibmsys1/z1090`. The remaining virtual 3390 volumes, with file extension `gz`, are downloaded into the directory structure `/home/ibmsys1/z1090/disks`. Any z Systems Development and Test Environment scripts are assumed in `/home/ibmsys1/z`. The directory structure `home/ibmsys1/z1090/disks` was used because that directory structure complies with the structure created when you start the z Systems Development and Test Environment, as described in *Configuring the base Linux system*.

Installing the z/OS volume images:

The downloaded z/OS volume images are in the `ZPD` and `gz` file extension formats. `ZPD` files require installation by using the **Z1091_ADCD_install** command, and are stored with a name `volser.ZPD`. All other z/OS volume images are compressed files that are stored with a name `volser.gz`, requiring only the **gunzip** command for installation. In both cases, `volser` is a six character volume serial of the z/OS volume. In z/OS Version 2 Release 2, only 2 IPL volume images require installation by using the **Z1091_ADCD_install** command: `C2RES1.ZPD` and `SARES1.ZPD`.

The process of installing the z/OS volume images is to use the **Z1091_ADCD_install** command to install `ZPD` volume images, and use the **gunzip** command to decompress any other z/OS volumes needed. When installed or decompressed, most volumes are in emulated 3390-9 format, which are approximately 8.5 GB. Run all commands as the user that runs z Systems Development and Test Environment, in this example `ibmsys1`.

Perform the following two commands to install the `ZPD` volume images into the `/home/ibmsys1/z1090/disks` directory:

```
$ Z1091_ADCD_install /home/ibmsys1/z1090/C2RES1.ZPD /home/ibmsys1/z1090/disks/C2RES1
$ Z1091_ADCD_install /home/ibmsys1/z1090/SARES1.ZPD /home/ibmsys1/z1090/disks/SARES1
```

Perform these three commands to decompress all other z/OS volume images in that directory, and give the correct permissions for all z/OS volume image files.

Note: For some images, the **gunzip** command might produce a message about an unexpected end of file. If the *.gz files were correctly downloaded, that message can be safely ignored. Also, the **gunzip** command as shown here deletes the original .gz files. To keep the original file, enter **gunzip -k *.gz**. The **-k** parameter is available on later versions of **gunzip**.

```
$ cd /home/ibmsys1/z1090/disks  
$ gunzip *.gz  
$ chmod 755 *
```

All MVS volume images are in /home/ibmsys1/z1090/disks.

Most of these products and subsystems run without any customization, and some need some customization or initialization to make them work. The customizations to establish TCP/IP connectivity and update the infrastructure to allow z/OS 2.2 to properly run on z Systems Development and Test Environment are described in Customizing the December 2016 Edition z/OS 2.2 ADCD for z Systems Development and Test Environment.

Installing July 2016 Edition z/OS 2.2 ADCD for z Systems Development and Test Environment

Learn how to download and install the z/OS 2.2 Application Developers Controlled Distribution for z Systems Development and Test Environment July 2016 edition.

This z/OS 2.2 distribution is a unique distribution that was created specifically for sites that are entitled to z Systems Development and Test Environment, based on the Application Developers Controlled Distribution (ADCD). It is referred to as the z/OS 2.2 ADCD. It contains many of the products and subsystems you expect in a z/OS system. For a list of the products, volumes, and information about the system itself, see z/OS 2.2 ADCD for z Systems Development and Test Environment.

Before you install this z/OS 2.2 ADCD, you must first install z Systems Development and Test Environment. For instructions, see Installing z Systems Development and Test Environment. Then do these steps to download and install the z/OS 2.2 ADCD for IBM z Systems Development and Test Environment.

Important: Any z/OS ADCD for IBM z Systems Development and Test Environment, and any related software, are supplied as a convenience. IBM does not support the operating system distributions that are made available with z Systems Development and Test Environment. You can apply fixes to any z/OS distribution through normal SMP/E facilities.

Downloading a z/OS 2.2 ADCD:

For the steps to download, install, and customize your z/OS ADCD for z Systems Development and Test Environment, select the appropriate version tab and follow the instructions in the z Systems Development and Test Environment download information technote.

The download information technote is available at <http://www.ibm.com/support/docview.wss?uid=swg21682519>.

z/OS 2.2 ADCD for z Systems Development and Test Environment describes what volumes can be downloaded with this distribution and their general contents. To reduce the amount of disk space you use, you can download and install only the

volumes that are required and the subsystems you use. In particular, the volume images for CICS, IMS, DB2, and WebSphere Application Server products can be selectively installed as required, choosing which products and which releases are appropriate for your needs. To determine the subsystems that are contained on each volume, see the description of each volume. Download and install the volumes on the instance that runs z Systems Development and Test Environment.

At a minimum, install all the base z/OS products, which are all the volume images that are not associated with the following products:

- CICS 5.1, 5.2, and 5.3
- IMS versions 13, 14, and the IMS Utility pack
- DB2 versions 10 and 11
- WebSphere Application Server versions 8.0 and 8.5

This set of volumes includes the base z/OS products:

- B2RES1, B2RES2, SARES1, B2SYS1, B2CFG1, B2USS1, B2USS2
- B2PRD1, B2PRD2, B2PRD3, B2DIS1, B2DIS2, B2PAGA, B2PAGB, B2PAGC
- B2KAN1, B2BLZ1

Most of the z Systems Development and Test Environment related files that are mentioned in the customization scenario are stored within the `ibmsys1` home directory. This IBM Knowledge Center assumes that the 2 MVS IPL volume images, with file extension `ZPD`, are downloaded into the directory structure `/home/ibmsys1/z1090`. The remaining virtual 3390 volumes, with file extension `gz`, are downloaded into the directory structure `/home/ibmsys1/z1090/disks`. Any z Systems Development and Test Environment scripts are assumed in `/home/ibmsys1/z`. The directory structure `home/ibmsys1/z1090/disks` was used because that directory structure complies with the structure created when you start the z Systems Development and Test Environment, as described in Configuring the base Linux system.

Installing the z/OS volume images:

The downloaded z/OS volume images are in the `ZPD` and `gz` file extension formats. `ZPD` files require installation by using the **Z1091_AD CD_install** command, and are stored with a name *volser*.`ZPD`. All other z/OS volume images are compressed files that are stored with a name *volser*.`gz`, requiring only the **gunzip** command for installation. In both cases, *volser* is a six character volume serial of the z/OS volume. In z/OS Version 2 Release 2, only 2 IPL volume images require installation by using the **Z1091_AD CD_install** command: `B2RES1.ZPD` and `SARES1.ZPD`.

The process of installing the z/OS volume images is to use the **Z1091_AD CD_install** command to install `ZPD` volume images, and use the **gunzip** command to decompress any other z/OS volumes needed. When installed or decompressed, most volumes are in emulated 3390-9 format, which are approximately 8.5 GB. Run all commands as the user that runs z Systems Development and Test Environment, in this example `ibmsys1`.

Perform the following two commands to install the `ZPD` volume images into the `/home/ibmsys1/z1090/disks` directory:

```
$ Z1091_AD CD_install /home/ibmsys1/z1090/B2RES1.ZPD /home/ibmsys1/z1090/disks/B2RES1
$ Z1091_AD CD_install /home/ibmsys1/z1090/SARES1.ZPD /home/ibmsys1/z1090/disks/SARES1
```

Perform these three commands to decompress all other z/OS volume images in that directory, and give the correct permissions for all z/OS volume image files.

Note: For some images, the **gunzip** command might produce a message about an unexpected end of file. If the *.gz files were correctly downloaded, that message can be safely ignored. Also, the **gunzip** command as shown here deletes the original .gz files. To keep the original file, enter **gunzip -k *.gz**. The **-k** parameter is available on later versions of **gunzip**.

```
$ cd /home/ibmsys1/z1090/disks
$ gunzip *.gz
$ chmod 755 *
```

All MVS volume images are in /home/ibmsys1/z1090/disks.

Most of these products and subsystems run without any customization, and some need some customization or initialization to make them work. The customizations to establish TCP/IP connectivity and update the infrastructure to allow z/OS 2.2 to properly run on z Systems Development and Test Environment are described in Customizing the July 2016 Edition z/OS 2.2 ADCD for z Systems Development and Test Environment .

Using a previous z/OS distribution

Any existing z/OS distribution that runs with one level of z Systems Development and Test Environment and is a z/OS release that was tested with the level of zPDT contained in the newer version of z Systems Development and Test Environment runs with the newer version of the product.

See “zPDT Releases” in the zPDT Guide and Reference for information on which z/OS releases were tested with all zPDT releases. These z/OS volume images are already in the emulated 3390 format. The data and customizations are stored on those volumes from the last time z Systems Development and Test Environment was run. The DEVMAP developed for running with that z/OS distribution on the older version also runs unchanged with the newer version. For more information about device maps, see Defining the device map.

You can also install or reinstall a previous z/OS ADCD distribution. Use the installation instructions that are supplied with the release of Rational Development and Test Environment that has entitlement to that previous z/OS ADCD. Beginning with the z/OS 2.1 ADCD for Rational® Development and Test Environment for z Systems, access to a license key is required to install the system resident volumes of the z/OS ADCD by using the Z1091_ADCD_install command. Therefore, this command requires access to either an activated USB hardware device or an activated license manager.

Making the z/OS volume images available to z Systems Development and Test Environment

After all the z/OS volume images in your z/OS distribution are converted to the emulated 3390 format and decompressed, they must be made available to z Systems Development and Test Environment.

Put all of the images that compose your z/OS distribution in the \$HOME/z1090/disks directory. Then, enter these two commands that are run under the authority of ibmsys1:

```
cd /home/ibmsys1/z1090/disks      #change to destination directory
chmod 755 *
```

Installing z/VM

If you purchased z Systems Development and Test Environment with Parallel Sysplex, you have entitlement to z/VM® 6.3.

For the instructions to download and install z/VM 6.3, and enable the coupling facility, see Deploying z Systems Development and Test Environment for Parallel Sysplex® and the coupling facility.

After you finish installing z Systems Development and Test Environment, one of the final steps is to run the **z1090instcheck** command. This command verifies the proper Linux 32-bit runtime libraries are installed.

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