Rational. Developer for System z

IBM

Version 7.6

RSE Server Installation Guide
AIX and Intel Linux

SC23-7679-03

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Fourth edition (September 2009)

This edition applies to IBM Rational Developer for System z Version 7.6 (program number 5724-T07) and to all subsequent releases and modifications until otherwise indicated in new editions.

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Chapter 1. AIX, and Intel Linux host requisites

The products listed in this section are all available at the time of publication for this manual. See the IBM® Software Support Lifecycle Web site (http://www.ibm.com/software/support/lifecycle/), to see whether a selected IBM product is still available at the time that you want to use the related Developer for System z function.

The most current listing of prerequisites and corequisites is available in the *Developer for System z Prerequisites Guide* (SC23-7659). This document is available on the IBM Rational Developer for System z Web site library page (http://www-01.ibm.com/software/awdtools/rdz/library/) and supersedes the requirements listed in this document.

AIX host prerequisites

AIX

One of the following levels must be installed:

Program Number	Product Name
5765-G62	AIX® 6.1 Standard Edition
5765-G03	AIX 5L™ version 5.3

The related product Web site is:

http://www-03.ibm.com/systems/power/software/aix/

SDK for AIX, Java 2 Technology Edition

To use Remote Systems Explorer (RSE) on AIX, one of the following levels must be installed:

Program Number	Product Name
6207-001	IBM 32 bit Runtime Environment for AIX, Java™ 2 Technology Edition, Version 6
6205-001	IBM 32 bit Runtime Environment for AIX, Java 2 Technology Edition, Version 5

The related product Web site is:

http://www.ibm.com/developerworks/java/jdk/aix/

Attention: The 64 bit version is not supported.

Intel Linux host prerequisites

Intel Linux

One of the following levels must be installed:

Product Name
Red Hat Linux® Enterprise 5
Red Hat Linux Enterprise 4
SUSE Linux Enterprise Server 10
SUSE Linux Enterprise Server 9

SDK for Linux on Intel, Java 2 Technology Edition

To use Remote Systems Explorer (RSE) on Intel® Linux, one of the following levels must be installed:

Program Number	Product Name
6207-001	IBM 32 bit Runtime Environment for Linux on Intel architecture, Java 2 Technology Edition, Version 6
6205-001	IBM 32 bit Runtime Environment for Linux on Intel architecture, Java 2 Technology Edition, Version 5

The related product Web site is:

http://www.ibm.com/developerworks/java/jdk/linux/

Attention: The 64 bit version is not supported.

Chapter 2. RSE Server installation and configuration

The supported functions on UNIX® using IBM Rational Developer for System z are the following:

- RSE access to UNIX including SSL connections.
- Command shell use in RSE except vi or similar programs.
- Connection by the Host Emulator with full shell access.
- Remote debugging of COBOL programs running on UNIX.
- Compiling, linking, and running programs on UNIX.

There is currently no z/OS® Project for UNIX.

RSE Server installation, updates, and uninstall

Installing

RSE Server is a version of RSE that allows access to the file system and command shells on a UNIX system using Developer for System z.

The RSE Server install is simple and uses Installation Manager.

The following steps guide you through the RSE Server installation:

1. Copy the installation file, `rdzrse76.tar`, from the *IBM Rational Developer for System zRSE Server for AIX, Linux and Linux on System z® Installation CD RSE Server for AIX, Linux, and zLinux Installation CD* to a writable file system directory on the server (`/tmp` would be a good location). The CD has three directories, `AIX`, `Linux`, and `zLinux` that contain the `rdzrse76.tar` specific to the target OS. Pick the appropriate file from the directory that matches the OS on the intended installation system.
2. Extract the RSE Server install image.

   ```
   tar -xvf rdzrse76.tar
   ```
3. Use Installation Manager to install the RSE Server as well as installing updates and rolling back to the previous version of installed products. You can run Installation Manager as an X Window System program or from the command line in a silent install mode. If you run Installation Manager using X Windows®, a console must be connected to the UNIX system or an X Windows server running on another system to which the *DISPLAY* variable is redirected.
   - If your system does not have a console or the display needs to be redirected to another system, you must set the *DISPLAY* variable on the system running Installation Manager. For example, if you are in csh and the system that shows Installation Manager has a host name of `littlebox`, enter the following command on the system installing the Developer for System z RSE Server:

     ```
     setenv DISPLAY littlebox:0
     ```

     Start X Windows on the system installing the Developer for System z RSE Client. In a command-line window on `littlebox` allow X Windows to accept a display stream from **RDzAIXServer** by using the following command.

     ```
     xhost +RDzAIXServer
     ```

Note: Installation Manager cannot run as an X Windows program on AIX. Use silent install to install the Developer for System z RSE Server or, install VNC on AIX. Installation Manager displays correctly using VNC. See the white paper, Startup, and More info Issues with Installation Manager GUI on AIX systems for additional information about this problem.

After installing the VNC server on the AIX system and the VNC Client on the client system do the following steps:

- Server: Start the vncserver and note that it returns a name at start-up such as `RDzAIXServer:1`
- Client: Start the vncviewer on the client. When the program starts, enter the name returned by the vncserver, in this example, `RDzAIXServer:1`, in the VNC Server field in the vncviewer application.

- From the directory that contains the extracted tar file, run the **install** program to run the X Windows Installation Manager. If X Windows is not available, you can run a silent install -- launcher.ini

  ```
  install --launcher.ini silent-install.ini -input <installedpath>rdzrseinstall.xml
  ```

- Follow the steps in the program to install the RSE Server. By default the RSE Server is installed in `/opt/IBM/RDz76`. Installation Manager creates the following directories:
  - `/opt/IBM/RDz76` which hold the Developer for System z RSE server.
  - `/opt/IBM/InstallationManager` which is the directory for the program that installed the product.
  - `/var/ibm/InstallationManager` is a directory that contains various files used by Installation Manager such as logs, configuration, license, and so on.

Uninstalling

To uninstall the Developer for System z RSE Server start the IBM Installation Manager launcher in the `/opt/IBM/InstallationManager/eclipse` directory, click the **uninstall** button and follow the instructions on the panels. For a silent uninstall go to the `/opt/IBM/InstallationManager/eclipse` directory and run install --launcher.ini

```
silent-install.ini -input <installedpath>rdzrseuninstall.xml
```

where installed path is the directory where Developer for System z RSE Server is installed. The default installation directory is `/opt/IBM/RDz76`.

Updating

To update the Developer for System z RSE Server, start the IBM Installation Manager launcher in the `/opt/IBM/InstallationManager/eclipse` directory. Point to the location that contains the update by clicking **File**->**Preferences** and clicking the **Add Repository** button. After adding the repository, click the **Update** link on the main IBM Installation Manager screen and follow the instructions on the panels.

RSE directory configuration

After the RSE server has been installed, **only the root user can log in to the system using RSE**. To allow other users to access the UNIX system using RSE, the UNIX system administrator must open permissions for those users using the `chmod` command. Read and execute permission is required on the directory path to the RSE installation as well as the files in the RSE directory.

Assuming that the RSE server is the only product installed in the default directory /opt/IBM/RDz76, executing the following command allows the owning user, root, and any user in the root group, to connect to the RSE server:

```
chmod –R ug+xr /opt/IBM/RDz76
```

Using chmod –R ug+xr /opt/IBM/RDz76 gives every user on the system permission to use RSE.

Starting the RSE Server

In the default installation directory /opt/IBM/RDz76, use one of the following commands to start the RSE server:

perl ./daemon.pl
The RSE server starts and is listening on port 4075.

perl ./daemon.pl 4076
The RSE server starts and is listening on port 4076.

Note: Stay in ksh. Do not use any other shell, such as csh, bash, or sh.

Example: Server start

When the RSE server is successfully started on a system with a host name of RDzAIXServer, the screen looks like the following example:

```
# perl ./daemon.pl 4076

Daemon running on: RDzAIXServer.ibm.com, port: 4076
```

RSE Server SSL configuration

SSL can be used to secure communication between Developer for System z and the UNIX system by creating a Java keystore file and setting the RSE ssl.properties file to point to this JKS file. When the RSE server starts, the properties file is read and the connection with Developer for System z is secured with SSL.

Since RSE uses the ssl.properties file to enable SSL, the system administrator can secure communication, or not, with the installation. They cannot have both secured and non-secured from the same RSE directory. If secured and non-secured ports are needed, copy the installation directory to a new directory.

```
cp –r /opt/IBM/RDz76 /opt/IBM/RDz76SSL
```

Note: The copy command can only be performed by a user with system administrator authority.

This command copies all files from the default install directory to the new directory. In the new directory, modify the ssl.properties file to reference the Java keystore file. Now the RSE server can be started on a different port, 4077, with SSL securing the communications.

```
perl ./daemon.pl 4077
```

With a Java keystore file named RDZRSE.jks, created in the /opt/IBM/RDz76SSL directory and using the password RDzisGreat, edit the ssl.properties file and change the following stanzas:

Note: The path to the JKS file MUST be given in the daemon_keystore_file parameter.

```
#
daemon_keystore_file=/opt/IBM/RDz750SSL/RDZRSE.jks
daemon_keystore_password=RDzisGreat
#
```

To enable SSL authentication change the two stanzas `enable_ssl` and `disable_server_ssl` in the `ssl.properties` file to:

```
enable_ssl=true
disable_server_ssl=false
```

Example: Server start using SSL

When the RSE server is successfully started, using SSL, on a system with a host name of RDzAIXServer, the screen looks like the following example:

```
# perl ./daemon.pl 4077
SSL Settings
[daemon keystore:               /opt/IBM/RDz76SSL/aixrse.jks]
[daemon keystore pw:    RDzisGreat]
[server keystore:               /opt/IBM/RDz76SSL/aixrse.jks]
[server keystore pw:    RDzisGreat]
Daemon running on:      RDzAIXServer.rtp.raleigh.ibm.com, port: 4077
```

RSE Server startup at system boot

To start the RSE daemons every time the UNIX system boots, the `/etc/inittab` file must be updated. The `chitab`, `mkitab`, and `rmitab` commands are used to update the `/etc/inittab` file.

Note: The following examples assume that the RSE code is in the `/opt/IBM/RDz76` directory for non-SSL connections and the `/opt/IBM/RDz76SSL` path for SSL-secured connections:

1. Create two script files to start two RSE daemons when the system boots. One file starts the RSE daemon on port 4076 and the other file starts a server to handle SSL connections on port 4077.
   a. Create a file, `/opt/IBM/RDz76/RDzRSE4076.sh` and place the following three lines in it:

      ```
      #!/bin/ksh
      cd /opt/IBM/RDz76
      perl /opt/IBM/RDz76/daemon.pl 4076 2> /tmp/RDzRSE4076.log &
      ```

      This file starts the non-SSL server.
   b. Save the file and run the following command to make the file executable:

      ```
      chmod u+wrx /opt/IBM/RDz76/RDzRSE4076.sh
      ```

   c. Create a file, `/opt/IBM/RDz76SSL/RDzRSESSL4077.sh` and place the following three lines in it. The daemon writes startup text to `/tmp/RDzRSESSL4077.log`.

      ```
      #!/bin/ksh
      cd /opt/IBM/RDz76SSL
      perl /opt/IBM/RDz76SSL/daemon.pl 4077 2> /tmp/RDzRSESSL4077.log &
      ```

      This file starts the server to handle SSL secured connections on port `4077`.
   d. Save the file and run the following command to make the file executable:

      ```
      chmod u+wrx /opt/IBM/RDz76SSL/RDzRSESSL4077.sh
      ```

   e. Update the file `/etc/inittab` to start the two servers at boot time. From a UNIX session, run the following two `mkitab` commands:

      ```
      mkitab "RDzRSE76:2:once:/opt/IBM/RDz76/RDzRSE4076.sh"
      mkitab "RDzRSE76SSL:2:once:/opt/IBM/RDz76SSL/RDzRSESSL4077.sh"
      ```

To check if the `mkitab` commands worked, type in `lsitab –a`. This command shows you a listing of the `/etc/inittab` file with the results of the last two `mkitab` commands.

To remove a line from `/etc/inittab` use the `rmitab Name` command. `rmitab RDzRSE76` removes the entry from the first `mkitab` command.

2. Change paths and port numbers to match the local environment.
3. Reboot the system with a `shutdown –r` command to start the RSE daemons from the `/etc/inittab` file.

Debugging AIX programs on UNIX using Developer for System z

- Compile the source code into object files with debug enabled.
- Link the object files into an executable that can be debugged.
- Run the executable. Start the UNIX debugger in the same directory with the program to debug.

  ```
  irmtdbgc -qhost=RDzSystem -quiport=8000 yourApp
  ```

- In the Developer for System z debug perspective, start the Debug UI daemon listening on the same port as `irmtdbgc`.

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Publication No. SC23-7679-03

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