

IBM Rational Developer for System z



AIX/RSE Installation and Configuration

Version 7.1.1

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Developer for System z AIX RSE Installation and Configuration

Supported functions on AIX® using Developer for System z

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

There is currently no z/OS® Project for AIX

Note: Code samples usually assume Linux® and reference scripts end in .linux. If you are running on a form of UNIX® such as AIX or Solaris, use the scripts ending with .unix.

AIX RSE Installation

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

The AIX RSE install is very simple and uses Install Shield.

There are four steps to install AIX RSE.

1. Copy the rdz_0001.gz file from the rseaix directory to a writeable file system directory on the AIX system (/tmp would be a good location).
The file can be FTP'ed from a Windows® system to the AIX system (remember to set the FTP mode to binary) or copied from the CD. If the directory /cdrom already exists the following mount command can be used to access the CD.
 - Mount -v 'cdrfs' -r /dev/cd0 /cdrom - The CD is mounted on the /cdrom directory.
2. Unzip the AIX RSE install image.
 - gzip -d rdz_0001.gz
3. Untar the AIX RSE install image.
 - tar -xvf rdz_0001.tar
 - The tar command creates a disk1 directory and place three files, media.inf, setup.bin, and setup.jar within.
 - If the rdz_0001.gz file was put into /tmp, after the **gzip** and **unzip** commands have been run, there will be a /tmp/disk1 directory.
4. Run the setup.bin program to install AIX RSE.
 - Change directory to disk1 and run the setup.bin file. Follow the steps in the program to install the AIX RSE server. By default RSE is installed in /opt/IBM/RDz710

AIX RSE Directory Configuration

After the AIX RSE server has been installed, **only the root user will be able to log into the system using RSE**. To allow other users to access the AIX system via RSE, the AIX system administrator will have to be open permissions for those users with 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 the AIX RSE server is the only product installed in the default directory/opt/IBM/RDz710, executing the following command allows the owning user, root, and any user in root's group, to connect to the AIX RSE server.

```
chmod -R ug+xr /opt/IBM
```

Using `chmod -R ugo+xr /opt/IBM` gives every user on the system permission to use RSE.

Starting the AIX RSE Server

In the default installation directory/opt/IBM/RDz710, use one of the following commands to start the RSE server:

```
perl ./daemon.linux
```

The RSE server starts and is listening on port 4035.

```
perl ./daemon.linux 4037
```

The RSE server starts and is listening on port 4037.

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

AIX RSE Server Start Screen Capture

Successfully starting the RSE server should look similar to the example below:

```
# perl ./daemon.linux 4037
```

Use of uninitialized value in concatenation (.) or string at ./daemon.linux line 42.

Daemon running on: RDzAIXServer.rtp.raleigh.ibm.com, port: 4037

AIX RSE SSL Configuration

SSL can be used to secure communication between Developer for System z and the AIX system by creating a Java™ Key Store 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 can't have both secured and non secured from the same RSE directory. If secured and nonsecured ports are needed, the installation directory will have to be copied to a new directory.

```
cp -r /opt/IBM/RDz710 /opt/IBM/RDz710SSL
```

This 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 Key Store file. Now the RSE server can be started on a different port, 4039, with SSL securing the communications.

```
perl ./daemon.linux 4039
```


With a Java Key Store file named RDZRSE.jks created in the /opt/IBM/RDz710SSL 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/rse710SSL/RDZRSE.jks
daemon_keystore_password=RDzisGreat
#
```

To enable SSL authentication change the 2 stanzas enable_ssl and disable_server_ssl in the ssl.properties file to:

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

AIX RSE Server Start using SSL Screen Capture

Successfully starting the RSE server using SSL should look similar to the example below:

```
# perl ./daemon.linux 4039
```

Use of uninitialized value in concatenation (.) or string at ./daemon.linux line 42.
SSL Settings

```
[daemon keystore: /opt/IBM/RDz710SSL/aixrse.jks]
[daemon keystore pw: RDzisGreat]
[server keystore: /opt/IBM/RDz710SSL/aixrse.jks]
[server keystore pw: RDzisGreat]
Daemon running on: RDzAIXServer.rtp.raleigh.ibm.com, port: 4039
```

AIX RSE Startup At System Boot

To start the RSE daemons every time the AIX 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/RDz710 directory for non SSL connections and the /opt/IBM/RDz710 path for SSL secured connections.

1. Create two script files that will be used when the system boots to start two RSE daemons. One file starts the RSE daemon on port 4037 and the other file starts a server to handle SSL connections on port 4039.
 - a. Create a file, /opt/IBM/RDz710/RDzRSE4037.sh and in it, place the following three lines

```
#!/bin/ksh
cd /opt/IBM/RDz710
perl /opt/IBM/RDz710/daemon.linux 4037 2> /tmp/RDzRSE4037.log &
```

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

```
chmod u+wrx /opt/IBM/RDz710/RDzRSE4037.sh
```
 - c. Create a file, /opt/IBM/RDz710SSL/RDzRSESSL4039.sh and in it place the following three lines.. The daemon will write startup text to /tmp/RDzRSESSL4039.log

```
#!/bin/ksh
cd /opt/IBM/RDz710SSL
perl /opt/IBM/RDz710SSL/daemon.linux 4039 2> /tmp/RDzRSESSL4039.log &
```

- This file starts the server to handle SSL secured connections on port 4039.
- d. Save the file and run the following command to make the file executable.
`chmod u+wx /opt/IBM/RDz710SSL/RDzRSESSL4039.sh`
 - e. Update the file `/etc/inittab` to start the two servers at boot time. From an AIX session execute the following two **mkitab** commands.
`mkitab "RDzRSE710:2:once:/opt/IBM/RDz710/RDzRSE4037.sh"`
`mkitab "RDzRSE710SSL:2:once:/opt/IBM/RDz710SSL/RDzRSESSL4039.sh"`
To check if the **mkitab** commands worked, type in `"lsitab -a"`. This will show 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 RDzRSE710` will remove 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 COBOL programs on AIX using Developer for System z

- Compile the source code into object files with debug enabled.
- Link the object files into a debuggable executable.
- Run the executable. Start the AIX debugger in the same directory with the program to debug.
`irmtdbgc -ghost=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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