# Compuware Web Products

## Installation and Configuration Guide

*Includes Installation for*:
**Compuware Enterprise Services (CES)**
**Abend-AID Fault Analytics**
**iStrobe**
**ISPW Web**
**Topaz for Java Performance**

**Release 17.02**

Please direct questions about Compuware Enterprise Services, Fault Analytics, iStrobe,
Topaz for Java Performance, and ISPW Web
or comments on this document to:

**Compuware Customer Support**

**https://go.compuware.com/**

Outside the USA and Canada, please contact
your local Compuware office or agent.

January 18, 2017

# Contents

# Introduction

The installation of Compuware Web Products now includes the option to also install any combination of Compuware Web Products. Compuware Web Products consist of the following:

**Compuware Enterprise Services (CES)** is a set of commonly used and shared resources running on a web platform designed to be used with other Compuware products (iStrobe Fault Analytics, Topaz for Jave Performance, and ISPW) running on workstations. Based on the theme of Modernize, Simplify, and Automate (MSA), CES can be accessed by any Compuware resource choosing to use its services.

Installing Compuware Enterprise Services is required in order to install any of the other point products. In the case where cloud-based licensing has not been implemented, Compuware Enterprise Services would be required for plug-ins licensed through Topaz Workbench. It checks for valid LMS licensing through Compuware Enterprise Services' HCI Configuration as described in Chapter 4, "Configuring Compuware Enterprise Services".

**Abend-AID Fault Analytics** detects application faults on mainframe systems and immediately notifies individuals or work groups when a failure occurs. Comprehensive web-based management reporting delivers valuable information on troublesome applications and trends. Fault Analytics provides the tools to continually monitor, measure, control, and improve application quality to achieve promised service levels.

**iStrobe** is an interactive tool for viewing and interpreting Strobe Performance Profiles. With analytical aids and a familiar interface, iStrobe guides you through the performance analysis process and offers recommendations for improving performance.

**Topaz for Java Performance (TJP)** provides the information needed to tune a Java Virtual Machine (JVM) on z/OS accounting for different environments program load characteristics focusing on the sampling memory, threads, CPU, and class usages. The information available from Topaz for Java Performance can guide your JVM tuning approaches to improve JVM transaction throughput and reduce program execution times.

**ISPW** is an internet-based application designed to be used on workstations or smartphones. ISPW uses a web browser that enables you to remotely approve or reject ISPW actions as well as deploy software to both mainframe and distributed environments.

# Publications

To learn more about using Compuware Web Products:

- Refer to the online help within each of the products.
- Visit Compuware's FrontLine at **http://go.compuware.com** and select the web product for the latest technical information.

# Compuware Customer Support

Compuware provides a variety of support resources to make it easy for you to find the information you need.

# Compuware FrontLine Customer Support Website

You can access online information for Compuware products via our FrontLine customer support website at **https://go.compuware.com**

FrontLine provides access to critical information about your Compuware products. You can review frequently asked questions, read or download documentation, access product fixes, or e-mail your questions or comments. The first time you access FrontLine, you are required to register and obtain a password. Registration is free.

# Contacting Customer Support

### Phone

- USA and Canada: 1-800-538-7822 or 1-313-227-5444.
- All other countries: Contact your local Compuware office. Contact information is available at **https://go.compuware.com**.

### Web

You can report issues via the Quick Link **Create & View Support Cases** on the Compuware Go home page.

**Note:** Please report all high-priority issues by telephone.

### Mail

Compuware Customer Support
Compuware Corporation
One Campus Martius
Detroit, MI 48226-5099

# Corporate Website

To access Compuware's site on the Web, go to **http://www.compuware.com**.

The Compuware site provides a variety of product and support information.

# Chapter 1.
# Installing Compuware Web Products on Windows

This chapter guides you through the process for installing Compuware Web Products (Compuware Enterprise Services, Abend-AID Fault Analytics, iStrobe, ISPW Web, and Topaz for Java Performance) on Windows.

Compuware web products will all be installed at the same release level. If your site is using one Compuware Enterprise Services instance for all Compuware web products, installing a new release of Compuware Enterprise Services requires a complete installation of each Compuware web product being used. To avoid having to install and configure a new installation for each web product, your site could maintain multiple instances of Compuware Enterprise Services, one instance for each Compuware web product.

A Windows Server Administrator should install Compuware Web Products for departmental or corporate use. End-users with administration authority on their workstations can do a standalone workstation installation for their own use.

**Note:** For iStrobe, export any user-defined help that was created *before* beginning the upgrade. Any user-defined help that is not exported will be lost. After exporting the help and completing the upgrade, you must then import the user-defined help.

# Before Beginning

Before beginning the installation, you should have the following:

- The Compuware Web Products electronic image downloaded from either the Compuware Web Products order or the Enterprise Common Components (ECC) DVD.

- Compatible version of Java installed on the Windows machine. Those versions include either 64-bit Oracle Java 1.7 or 64-bit Oracle Java 1.8.

- Enough allocated system *temporary space* during the installation. Compuware recommends 3 GB. When the installation is complete, the temporary installation files are removed.

- Enough system *installed space* after the installation. Compuware recommends 1 GB.

- Port numbers for each Compuware web product.

- A determined location for storing iStrobe Performance Profiles.

  - When storing Performance Profiles locally on the machine where you have installed iStrobe, you may use the "local system" for the iStrobe Manager service. This is usually the case for a standalone workstation install.

  - When storing Performance Profiles on a file server, you need a domain ID with authority to run the iStrobe service. The permissions on the Profile Directory must include create, read, update, and delete.

- An established user ID and password for the TJP Manager service (if required).

# Installation Procedure

1. Click the **Compuware Web Products** tab from the product image.
   Ex. `<network or hard drive>:\Disk1\setup.exe`

2. Click **Install Compuware Web Products for Windows**.

   The Compuware Web Products Introduction page appears.

3. Read the introduction content, and then click **Next** to proceed. The **License Agreement** page appears.

4. Accept the terms of the License Agreement and click **Next**. The **Oracle License Agreement** page appears.

5. Accept the terms of the Oracle Technology Network Development and Distribution License Agreement and click **Next**. The **Select Instance** page appears.

6. From the **Select Instance** page you can either upgrade an existing Compuware Enterprise Services instance or create a new instance.

   *To upgrade an existing instance:* Select the **Installed CES instances** checkbox and then choose the instance name from the active pull-down menu you wish to upgrade.

   *To create a new instance:* Select the **New CES Instance** checkbox and in the active field, type an instance name to use for the new instance of Compuware Enterprise Services. Choose an instance name that is different than any of the previously installed instance names to distinguish it. That which you enter here will be appended to the string "Compuware Enterprise Services$" and be used as the servicename parameter value in the `CES_service.ini` file. For example:

   `servicename = Compuware Enterprise Services$my_instance_name`

   Click **Next**. The **Select Products to Install** page appears.

   Select the Compuware web products to be installed along with Compuware Enterprise Services. Click **Next**. The **Choose Install Folder** page appears.

7. Specify an installation folder or accept the default installation folder for Compuware Enterprise Services (`C:\Program Files\Compuware\CES`).

   – Select **Restore Default** to use the default folder (`C:\Program Files\Compuware\CES`).

   – Select **Choose...** to specify a folder. The **Browse for Folder** dialog box appears to navigate to a desired folder.

   – Enter a path.

   **Note:** Compuware Enterprise Services 17.02 *cannot* be installed over an existing CES 05.00.0x release. You will be prompted with a warning and asked to supply a different path.

   Click **Next**. The **Configuration Settings** page appears.

8. Compuware Enterprise Services stores log and configuration data in a specific directory. Click **Choose...** to specify a folder path or click **Next** to accept the displayed location (default: `C:\ProgramData\Compuware\CES\data`).

**Note:** The **ProgramData** folder is a hidden folder in MS Windows. If you choose this default location, be sure that all hidden files and folders are displayed in MS Windows. Refer to MS Windows Help for instruction on revealing hidden files and folders.

9. Specify the port settings that Compuware Enterprise Services will use to access Compuware technology. Be sure that the ports you choose are open on your network's firewall.

    – **Strobe communication port** (default: 24354) Used to communicate between mainframe and client. This replaces the iStrobe Manager function that was previously used in iStrobe 5.x.
    – **Web server port** (default: 48226) Used to access the web application via a browser.
    – **Compuware Enterprise Services shutdown port** (default: 8465) Used to stop the web application.
    – **Infocenter port** (default: 10250) Used to access online help.
    – **Internal Messaging port** (default: 17667) Used to provide additional processing capacity.
    – **Derby port** (default: 1545) Used to start the embedded Derby database.

10. (*Fault Analytics only*) Specify a port number between 1024 and 65535 as the Fault Analytics port used to transmit messages. Click **Next**.

11. (*iStrobe only*) iStrobe stores measurement data in profiles. When a profile cannot be read, it goes to a different location referred to as Quarantine. Choose the locations for the Profile and Quarantine folders.

    (default: ⟨*installation_directory*⟩/profile)

    (default: ⟨*installation_directory*⟩/quarantine)

12. (*Topaz for Java Performance only*) Topaz for Java Performance requires a port for communication between the mainframe agent and server. Enter the **Agent Communication** port number on which to listen for this communication, or press **Enter** to accept the default (48128).

13. Review the Pre-installation summary information. If anything is incorrect, click **Previous** and make revisions to the installation settings as necessary. If it is correct, click **Install** to start the Compuware Enterprise Services installation. The **Install Complete** page appears when the installation finishes.

**CAUTION:**
**Before exiting the installer, open the Compuware Enterprise Services URL in a browser and create a bookmark to the page so you can easily access Compuware Enterprise Services in the future.**

14. Click **Done**.

15. The Compuware Enterprise Services installation process is complete. Although the installation is complete, you still need to configure Compuware Enterprise Services. Continue with Chapter 4, "Configuring Compuware Enterprise Services".

16. (*Fault Analytics only*) To configure Abend-AID Fault Analytics web application (manager) and install the Fault Analytics Collector, refer to the *Abend-AID Fault Analytics Installation and Configuration Guide*.

17. (*iStrobe only*) To configure iStrobe, refer to the *iStrobe Configuration Guide*.

18. (*Topaz for Java Performance only*) At least one Topaz for Java Performance Agent per LPAR is required to be installed on z/OS UNIX in order initiate measurements. Refer to Chapter 5, "Installing the Topaz for Java Performance Agent on z/OS UNIX".

19. (*ISPW Web only*) To configure ISPW Web, refer to the ISPW Web online help accessed within Compuware Enterprise Services.

**Note:** Initialization may take several minutes. You may see a 404 page in your web browser during this time.

# Restarting Compuware Web Products on Windows

To restart Compuware Web Products on Windows:

1. Open the Services window and select Compuware Enterprise Services.

2. With Compuware Enterprise Services highlighted, right-click and select **Restart**. This action will first stop the service and then start it again. You may also select **Stop** and then select **Start**.

# Chapter 2.
# Installing Compuware Web Products on z/OS UNIX

This chapter guides you through the process for installing Compuware Web Products (Compuware Enterprise Services, Abend-AID Fault Analytics, iStrobe, ISPW Web, and Topaz for Java Performance) on z/OS UNIX.

Compuware web products will all be installed at the same release level. If your site is using one Compuware Enterprise Services instance for all Compuware web products, installing a new release of Compuware Enterprise Services requires a complete installation of each Compuware web product being used. To avoid having to install and configure a new installation for each web product, your site could maintain multiple instances of Compuware Enterprise Services, one instance for each Compuware web product.

A z/OS UNIX system administrator should install Compuware Web Products. You will need a database administrator to create the database (and tablespace for DB2). Depending on your site standards, you may also need an MVS systems programmer to set up the Compuware Enterprise Services Manager on JZOS. You may also need a security administrator.

If you are only running Strobe version 4.4, all profiles are transmitted directly to the CES Manager running on JZOS. Therefore, the ID used to run the CES Manager job is always the owner and is the only ID that needs write access to the profiles and quarantine directories.

# Before Beginning

Before beginning the installation, you should have the following:

- The Compuware Web Products electronic image downloaded from either the Compuware Web Products order or the Enterprise Common Components (ECC) DVD.

- A single user to install or upgrade CES and all web products into CES. This allows CES and those installed web products to run with a single set of permissions.

  If multiple users have already installed web products into an installed version of CES, then the permissions must be modified in the install directory of CES to grant read & write permissions to all users.

  To change the permissions for the CES install directory, execute the following command:

  ```
  chmod -R 777 /<path to CES>
  ```

  For example, if CES is installed in /opt/cpwr/ces, then you would execute this command:

  ```
  chmod -R 777 /opt/cpwr/ces
  ```

- Compatible version of Java on the z/OS machine. Those versions include either 64-bit IBM Java 1.7 or 64-bit IBM Java 1.8.

- Enough allocated system *temporary space* during the installation. Compuware recommends 1,125,000 1k blocks (1375 cylinders). When the installation is complete, the temporary installation files are removed.

- Enough system *installed space* after the installation. Compuware recommends 1,125,000 of USS 1k blocks (1375 cylinders of HFS/zFS).

- If you are performing an upgrade installation of Compuware Enterprise Services, be sure to stop the CES started task *before* beginning the upgrade.

# Installation Procedure

1. Click the **Compuware Web Products** tab from the product image.
   Ex. `<network or hard drive>:\Disk1\setup.exe`

2. Click **Install Compuware Web Products for z/OS UNIX**. The **Mainframe FTP Information** tab appears.

3. Specify a valid **Host**, **User ID**, **Password**, **Port** number (default = 21), and finally an existing **z/OS UNIX Path** in which to upload the `install.jar` and `install.sh` files from the Compuware Enterprise Services product image to the mainframe. The `install.jar` is uploaded as binary and the `install.sh` is uploaded as text.

   **Note:** The `install.sh` has Windows line endings. If you are manually uploading from Linux, you will need to run dos2unix on `install.sh` before uploading as text.

4. Click **Upload files to mainframe** to begin the upload.

5. Log on to the mainframe and navigate to an OMVS command prompt, or use any SSH shell, such as PuTTY.

6. Change the directory to the location where the `install.jar` and the `install.sh` files were transferred.
   `cd <directory containing the uploaded install.jar and install.sh files>`

7. Be sure that the `install.sh` file has execute authority and execute it. Perform a `chmod 777` to open up permissions, if necessary.

8. Execute the **install.sh** file. For example:

   `./install.sh`

   The Compuware Enterprise Services installer starts.

**Notes:**

   – You can cancel the installation at any time by typing `quit`.

   – You can go back in the installation panels at any time by typing `back`.

9. Enter the directory path to a supported installation of JAVA (64-bit Java 1.7 or Java 1.8).

   Ex. `usr/lpp/java/J8.0_64.bld041715`

   **Note:** If a valid version of JAVA is found, it may automatically be used, thereby skipping this step.

10. Specify Y (Yes) or N (No) for using the system's `/tmp` directory as the installation temporary space. If N, the installation launches. If Y, then you are prompted to enter an absolute directory path to a designated temporary directory space. Press **Enter**.

**Note:** The installer requires use of the system temporary directory and may require up to 1,125,000 1k blocks (1375 cylinders) of pre-allocated space.

11. The Installer launches. Read the Introduction panel and press **Enter**. The **License Agreement** panel appears.

12. Read the Compuware Web Products license agreement, pressing **Enter** until you have scrolled through and read the entire agreement. When prompted, type Y and press **Enter** to accept the terms of the license agreement. The **Oracle License Agreement** panel appears.

13. Read the Oracle Technology Network Development and Distribution License Agreement, continuing to press **Enter** until you have scrolled through and read the entire agreement.

14. Again, type Y and press **Enter** to accept the terms of the license agreement. The **Compuware Web Products** panel appears.

15. Choose products. Press **Enter**. The **Choose Install Folder** panel appears.

16. Specify the absolute directory path in which to install Compuware Enterprise Services, or press **Enter** to accept the default location (Default: `/opt/Compuware/CES`). The **Select Products to install** panel appears.

**Notes:**

– Compuware Enterprise Services 17.02 *cannot* be installed over an existing CES 05.00.0x release. You will be prompted with a warning and asked to supply a different path.

– If you choose an alternate installation directory instead of the default, the directory (and any parent directories) will be created with privileges of 775. To use Compuware Enterprise Services following installation, be sure that the Compuware Enterprise Services job has write permission to the CES directory created by the installation.

– The installer requires use of up to 1,125,000 USS 1k blocks (1375 cylinders HFS/zFS) of pre-allocated space to install properly. You may be prompted to create free space in the specified directory in order to continue with the installation.

17. Select the Compuware web products to be installed along with Compuware Enterprise Services by entering a comma delimited numbered list corresponding to the products and press **Enter**.

For example, to install Abend-AID Fault Analytics and iStrobe, type 1,2 and press **Enter**. In the panel, the products to be installed are displayed.

```
Compuware Web Products
--------------
The following products(s) will be installed:

Compuware Enterprise Services
Abend-AID Fault Analytics
iStrobe
```

18. Confirm your selection. If you would like to make changes to your selection, type Back. Otherwise, press **Enter**.

19. Compuware Enterprise Services stores log and configuration data in the `/data` directory under the installation directory specified in step 16. Press **Enter** to accept the default location (`<installation_directory>/data`) or specify the absolute path to another location.

20. Specify Y (Yes) or N (No) whether you want to modify the default port numbers. Be sure that the ports you choose are open on your network's firewall.

– **Strobe communication port** (default: 24354) Used to communicate between mainframe and client. This replaces the iStrobe Manager function that was previously used in iStrobe 5.x.

– **Web server port** (default: 48226) Used to access the web application via a browser.

– **Infocenter port** (default: 10250) Used to access online help.
– **Internal Messaging port** (default: 17667) Provides additional processing capacity.
– **Derby port** (default: 1545) Used to start the embedded Derby database.

21. (*Fault Analytics only)* Specify a port number between 1024 and 65535 as the Fault Analytics port used to transmit messages. Press **Enter**.

22. (*iStrobe only*) iStrobe stores measurement data in profiles. Specify the absolute directory path for the Profile directory.
(default: `<installation_directory>/profile`). Press **Enter**.

23. (*iStrobe only*) When a Profile cannot be read, it goes to a different location referred to as Quarantine. Specify the absolute directory path for the Profile directory
(default: `<installation_directory>/quarantine`). Press **Enter.**

24. (*Topaz for Java Performance only*) Topaz for Java Performance requires a port for communication between the mainframe agent and server. Enter the **Agent Communication** port number on which to listen for this communication, or press **Enter** to accept the default (48128).

25. Review installation information you selected in the **Pre-installation Summary** panel. If anything is incorrect, type `Back` and revise the installation settings as necessary. If the information is correct, press **Enter** to start the Compuware Enterprise Services installation. The **Installation Complete** panel appears when the installation finishes.

26. The Compuware Enterprise Services installation process is complete. Although the installation is complete, you still need to configure Compuware Enterprise Services. Continue with Chapter 4, "Configuring Compuware Enterprise Services".

27. (*Fault Analytics only*) To configure Abend-AID Fault Analytics web application (manager) and install the Fault Analytics Collector, refer to the *Abend-AID Fault Analytics Installation and Configuration Guide*.

28. (*iStrobe only*) To configure iStrobe, refer to the *iStrobe Configuration Guide*.

29. (*Topaz for Java Performance only*) At least one Topaz for Java Performance Agent per LPAR is required to be installed on z/OS UNIX in order initiate measurements. Refer to Chapter 5, "Installing the Topaz for Java Performance Agent on z/OS UNIX".

30. (*ISPW Web only*) To configure ISPW Web, refer to the ISPW Web online help accessed within Compuware Enterprise Services.

**Note:** Initialization may take several minutes. You may see a 404 page in your web browser during this time.

# Uninstalling Compuware Enterprise Services from z/OS UNIX

1. From a command line, execute the following command:

```
rm -r <ces installation directory>
```

# Running the Compuware Enterprise Services Web Application

1. Create a dataset for the CES Manager runtime files. A partitioned dataset (PDS) will lend itself better to updating and customizing the JCL prior to submission. The job shown in step 2 illustrates creation of a new PDS for this FTP transfer.

2. FTP the following files from the CES installation directory in z/OS UNIX to MVS:

- JZOSPROC.JCL
- PARMLIB.CESAMN
- SAMPLE.JCL
- PARMLIB.CESEMN

The names must be shortened to the eight-character member name limit. The files that start with PARMLIB are input parameter files used to start the appropriate Compuware Enterprise Services Manager service. These can be shortened to CESxxx member names. The files that are qualified as JCL are the PROC and JOB samples for executing on the z/OS system; these can be shortened by removing the.JCL qualifier.

Refer to the **SAMPLE_FTP.JCL** in the CES directory and edit it as follows:

- Modify the job card.

- Change **sysid** on JOBPARM card to the target z/OS system name.

- Change **userid** to your z/OS user ID throughout the JCL.

- In the INPUT DD, make the following changes:

  - Change **sysid** on JOBPARM card to the target z/OS system name.

  - Change **password** to the password associated with the z/OS user id to the FTP server.

  - Change the `cd` directory to your Compuware Enterprise Services installation location.

  - Add the extra `get` command that appears at the bottom of the job before the **quit** command.

Submit the job to transfer the files.

3. After the FTP process is complete, modify the JCL members in the dataset you created in as needed:

   - JZOSPROC - Change the dataset name for DDNAME STDENV and MAINARGS to a system dataset where you store the PARMLIB.CESxxx members. The PROC is shipped by default to use &QUAL.CNTL where QUAL defaults to SYSA. This PROC should be put into a system PROCLIB to be referenced automatically when the job for the CES Manager is submitted. You can rename the PROC to follow your system standards (e.g., CESMANGR).

     - VERSION - Set the VERSION variable to the level of Java installed on the system. The VERSION variable is used within the JZOSPROC to invoke the proper version of the Java Batch Launcher. The default is set to 70 to invoke Java 7.

     - REGSIZE - The REGSIZE variable specifies a specific region memory allocation. The default is 0, which sets the region memory size based on the system defaults defined within the JES2 sub-system.

     - LEPARM - The LEPARM variable is the mechanism used by the JZOS to establish settings for the z/OS language environment. The initialization of Java is performed by LE as part of the z/OS operating system. By default, the setting assigns the UMASK to files created in the HFS file system. Note that UMASK is a compliment to the permission assignment. The default value is 022, which will give new files a permission setting of 644 for files and 755 for directories. Refer to z/OS UNIX documentation for valid values and other information.

   - MANAGER - Change the job card to match your system requirements.

     - ARGS=CESAMN is set by default to start the Compuware Enterprise Services Manager.

```
000001//SAMPLEOI JOB   ('ACCOUNT',78,1,1),'CES WEB APP SERVER',
```

```
000002//        CLASS=L,MSGCLASS=H,NOTIFY=&SYSUID,REGION=0M,JOBRC=LASTRC
000003//****************************************************
000004//*   Use CESEMN for the env member for all uses
000005//*   Use ARGS="CESAMN" to run CES Web Application
000006//****************************************************
000007// SET QUAL='SYSA' < PARMLIB HI-LEVEL QUALIFIER
000008//CESSERVR EXEC JZOSPROC,ENV=CESEMN,ARGS=CESAMN
000009//*
000010//* Following step automatically restarts if we get an rc=3 since
000011//* Since when applying a patch we shut down with RC=3 so the job
000012//* knows we need to start CES due to it being shutdown as part
000013//* of the upgrade process
000014//RESTART EXEC PGM=IEBGENER,COND=(3,NE)
000015//SYSUT1 DD DSN=&QUAL..CNTL(MANAGER),DISP=SHR
000016//SYSUT2 DD SYSOUT=(,INTRDR)
000017//SYSPRINT DD SYSOUT=*
000018//SYSIN DD DUMMY
```

- As shown in the JCL above, you can insert a JCLLIB statement if you want to invoke the JZOSPROC from the CESOSGI.CNTL dataset.

    For example:

    ```
    // JCLLIB ORDER=(<USER>.CESOSGI.CNTL)
    ```

4. Submit the JCL from member MANAGER, or start the system task (described below), to start the CES OSGi.

**Note:**  Compuware Enterprise Services must be restarted after applying maintenance. The Compuware Enterprise Services web server will exit with a return code 3. You should configure the CES started task to restart when it gets a return code 3 using your sites standards. If you do not have automatic restart capabilities at your site, add the following step in your started task to automatically restart Compuware Enterprise Services:

```
//RESTART EXEC PGM=COMMAND,COND=(3,NE)
//STEPLIB DD DSN=WPA.APF.LOADLIB,DISP=SHR
//SYSIN DD *
START CESTASK
/*
```

## Executing CES OSGi Job as a Started Task

You can, optionally, set up the CES OSGi to execute as a started task on your z/OS system by adding the start command to the SYS1.PARMLIB(COMMNDxx) member. Your installation may require special security authorizations for the started task to actually execute. You can also rename the PROC at your discretion so that the long-running task is identifiable as the CES Manager (for example: CESMANGR) or to match your systems standards. In this setup, you would only have to start the CES Manager the first time with a z/OS console command:

```
START JZOSPROC
```

or

```
START CESMANGR
```

For stopping the CES Manager, you can cleanly terminate it by using the following console command:

```
STOP JZOSPROC
```

or

```
STOP CESMANGR
```

**Note:**   The started task userid must have access to the CES files and directories. You may encounter errors when starting CES if the userid does not have such authority. Compuware therefore recommends changing all the CES directories and files to be owned by the started task userid.

Execute the following change owner command from a USS command prompt such as OMVS.

```
cd <top-level-CES-install-directory>
chown -R <started-task-userid> *
```

# Changing the Time Zone for CES OSGi

The member name CESEMN defines the Time Zone variable.

For example:

```
TZ = EST5EDT
```

– EST is Eastern Standard Time
– Standard Time is 5 hours west of the universal reference time
– EDT is Eastern Daylight Savings Time

For more information on setting time zones in Compuware Enterprise Services, refer to IBM's z/OS Information Center on the Web.

# Modifying Java Heap Size for CES OSGi

The member name CESEMN defines the startup options. The CES Server is configured with an initial heap size of 256 MB (java option = '-Xms256M') and a maximum heap size of 1024 MB (java option = '-Xmx1024m').

To modify these parameters:

1.  Stop the CES Server.
2.  Locate the following two lines in member CESEMN.

```
# INSTALLER:   Sets java heap allocation if more becomes necessary
DEFS="-Xms256M -Xmx1536m "
```

3.  Make the appropriate changes to the heap sizes.
4.  Restart the CES OSGi.

# Modifying the CES OSGi to Accommodate PassTicket

This member defines the APPLID and the user ID for PassTicket.

To add these parameters:

1.  Stop the CES Server.
2.  Locate the following line in member CESEMN.

```
#--REQUIRED-- custom CES definitions for the runtime environment
```

3.  Add the following lines after the line identified above.

The following line is **required**:

```
DEFS="$DEFS -Dces.passticket.db2.applid=<PassTicket application id>"
```

The following line is **optional**. If not specified, it defaults to the value of the system property "user.name":

```
DEFS="$DEFS -Dces.passticket.db2.userid=<PassTicket user id>"
```

4. Restart the CES OSGi.

For more information on setting up PassTickets, refer to the following two IBM specific documents:

- "Defining Profiles in the PTKTDATA Class" in the IBM manual *z/OS V1R12.0 Security Server RACF Security Administrator's Guide*

- "R_ticketserv (IRRSPK00): Parse or extract" in the IBM manual *z/OS V2R1.0 Security Server RACF Callable Services*

# Restarting Compuware Enterprise Services on z/OS UNIX

To restart Compuware Enterprise Services on z/OS UNIX, execute a "stop jobname" where jobname is the name of the job Compuware Enterprise Services is running as from the system console. Then to start it execute the JCL you originally executed to start Compuware Enterprise Services.

# Chapter 3.
# Installing Compuware Web Products on Linux

This chapter guides you through the process for installing Compuware Web Products (Compuware Enterprise Services, Abend-AID Fault Analytics, iStrobe, ISPW Web, and Topaz for Java Performance) on Linux.

Compuware web products will all be installed at the same release level. If your site is using one CES instance for all Compuware web products, installing a new release of CES requires a complete installation of each Compuware web product being used. To avoid having to install and configure a new installation for each web product, your site could maintain multiple instances of CES, one instance for each Compuware web product.

## Before Beginning

Before beginning the installation, you should have the following:

- The Compuware Web Products electronic image downloaded from either the Compuware Web Products order or the Enterprise Common Components (ECC) DVD.

- A single user to install or upgrade CES and all web products into CES. This allows CES and those installed web products to run with a single set of permissions.

  If multiple users have already installed web products into an installed version of CES, then the permissions must be modified in the install directory of CES to grant read & write permissions to all users.

  To change the permissions for the CES install directory, execute the following command:

  ```
  chmod -R 777 /<path to CES>
  ```

  For example, if CES is installed in /opt/cpwr/ces, then you would execute this command:

  ```
  chmod -R 777 /opt/cpwr/ces
  ```

- Compatible version of Java on the Linux machine. Those versions include either 64-bit Oracle or IBM Java 1.7 or 64-bit Oracle or IBM Java 1.8.

- Identified path to your installed JRE (if Java home is not set as a system variable).

- Enough allocated system *temporary space* during the installation. Compuware recommends 1,125,000 1k blocks. When the installation is complete, the temporary installation files are removed.

- Enough system *installed space* after the installation. Compuware recommends 1.2 GB (or 1,125,000 1k blocks).

- If you are performing an upgrade installation of Compuware Enterprise Services, be sure to stop the CES daemon *before* beginning the upgrade.

# Installation Procedure

1.  Click the **Compuware Web Products** tab from the product image.
    Ex. `<network or hard drive>:\Disk1\setup.exe`

2.  Click **Install Compuware Web Products for Linux**. The **Linux FTP Information** tab appears.

3.  Specify a valid **Host**, **User ID/Password**, **Port** number (default = 21), and finally an existing Linux Path in which to upload the `install.bin` file from the Compuware Enterprise Services product image to the mainframe.

4.  Click **Upload files** to begin the upload.

5.  Be sure that the `install.bin` file has execute authority. Perform a `chmod 777` to open up permissions if necessary. This file is located at `Disk1\InstData\NoVM`.

6.  Execute the following commands:

    ```
    JAVA_HOME=/<path to JRE>

    PATH=$JAVA_HOME/bin:$PATH

    ./install.bin
    ```

    The Comnpuware Enterprise Services installer starts.

    **Notes:**

    –   You can cancel the installation at any time by typing `quit`.

    –   You can go back in the installation panels at any time by typing `back`.

7.  After reading the Introduction panel, press **Enter**. The **License Agreement** panel appears.

8.  Read the Compuware Web Products license agreement, pressing **Enter** until you have scrolled through and read the entire agreement. When prompted, type Y and press **Enter** to accept the terms of the license agreement. The **Oracle License Agreement** panel appears.

9.  Read the Oracle Technology Network Development and Distribution License Agreement, continuing to press **Enter** until you have scrolled through and read the entire agreement.

10. Again, type Y and press **Enter** to accept the terms of the license agreement. The **Compuware Web Products** panel appears.

11. Specify the absolute directory path in which to install Compuware Enterprise Services, or press **Enter** to accept the default location (Default: `/opt/Compuware/CES`).

    **Notes:**

    –   Compuware Enterprise Services 17.02 *cannot* be installed over an existing CES 05.00.0x release. You will be prompted with a warning and asked to supply a different path.

    –   If you choose an alternate installation directory instead of the default, the directory (and any parent directories) will be created with privileges of 775.

    –   The installer requires use of up to 1.2 GB (or 1,125,000 1k blocks) of pre-allocated space to install properly. You may be prompted to create free space in the specified directory in order to continue with the installation.

12. Select the Compuware web products to be installed along with Compuware Enterprise Services by entering a comma delimited numbered list corresponding to the products and press **Enter**.

    For example, to install Abend-AID Fault Analytics and iStrobe, type 1,2 and press **Enter**. In the panel, the products to be installed are displayed.

```
Compuware Web Products
---------------
The following products(s) will be installed:

Compuware Enterprise Services
Abend-AID Fault Analytics
iStrobe
```

13. Confirm your selection. If you would like to make changes to your selection, type `Back`. Otherwise, press **Enter**.

14. Compuware Enterprise Services stores log and configuration data in the `/data` directory under the installation directory specified in step 11. Press **Enter** to accept the default location (`<Installation_directory>/data`) or specify the absolute path to another location.

15. Specify an Instance Name for the CES Service. This is used to distinguish between different versions that can run on your system. The name entered here will be appended to 'cpwrenterpriseservices' as the daemon name.

    `Ex. cpwrenterpriseservices_CES_17.2`

16. Specify the user ID needed to install and run the CES daemon (Default: root).

    **Note:** The CES daemon is a long running process for CES to function. Choose a user ID appropriate for that condition.

17. Specify `Y` (Yes) or `N` (No) whether you want to modify the default port numbers. Be sure that the ports you choose are open on your network's firewall.

    – **Strobe communication port** (default: 24354) Used to communicate between mainframe and client. This replaces the iStrobe Manager function that was previously used in iStrobe 5.x.
    – **Web server port** (default: 48226) Used to access the web application via a browser.
    – **Web application stop port** (default: 8465) Used to stop the web application.
    – **Infocenter port** (default: 10250) Used to access online help.
    – **Internal Messaging port** (default: 17667) Used to provide additional processing capacity.
    – **Derby port** (default: 1545) Used to start the embedded Derby database.

18. (*Fault Analytics only)* Specify a port number between 1024 and 65535 as the Fault Analytics port used to transmit messages. Press **Enter**.

19. (*iStrobe only*) iStrobe stores measurement data in profiles. Specify the absolute directory path for the Profile directory.
    (default: `<installation_directory>/profile`). Press **Enter**.

20. (*iStrobe only*) When a Profile cannot be read, it goes to a different location referred to as Quarantine. Specify the absolute directory path for the Profile directory (default: `<installation_directory>/quarantine`). Press **Enter.**

21. (*Topaz for Java Performance only*) Topaz for Java Performance requires a port for communication between the mainframe agent and server. Enter the **Topaz for Java Performance Service port** number on which to listen for this communication, or press **Enter** to accept the default (48128).

22. Review installation information you selected in the **Pre-installation summary** panel. If anything is incorrect, type `Back` and revise the installation settings as necessary. If the information is correct, press **Enter** to start the Compuware Web Products installation. The **Installation Complete** panel appears when the installation finishes.

23. The Compuware Enterprise Services installation process is complete. Although the installation is complete, you still need to configure Compuware Enterprise Services. Continue with Chapter 4, "Configuring Compuware Enterprise Services".

24. (*Fault Analytics only*) To configure Abend-AID Fault Analytics web application (manager) and install the Fault Analytics Collector, refer to the *Abend-AID Fault Analytics Installation and Configuration Guide*.

25. (*iStrobe only*) To configure iStrobe, refer to the *iStrobe Configuration Guide*.

26. (*Topaz for Java Performance only*) At least one Topaz for Java Performance Agent per LPAR is required to be installed on z/OS UNIX in order initiate measurements. Refer to Chapter 5, "Installing the Topaz for Java Performance Agent on z/OS UNIX".

27. (*ISPW Web only*) To configure ISPW Web, refer to the ISPW Web online help accessed within CES.

**Note:** Initialization may take several minutes. You may see a 404 page in your web browser during this time.

# Uninstalling Compuware Enterprise Services from Linux

1. From a command line, execute the following command:

```
rm -r <ces installation directory>
```

# Restarting Compuware Enterprise Services on Linux

To restart Compuware Enterprise Services on Linux, execute:

**<path to ces install>/execces.sh stop**

and then execute:

**<path to ces install/execces.sh start**

# Chapter 4.
# Configuring Compuware Enterprise Services

After installing CES, there are a few additional configuration considerations required to allow full functionality of the application.

The next step is to modify the SAMPLE_FTP.JCL to transfer the files to your z/OS system, update the job card information in the MANAGER JCL, and change the QUAL parm in the JZOSPROC JCL PROC.

Launch the Compuware Enterprise Services application from a browser using the URL specified in the installation. For example:

```
http://<hostname>:48226/compuware
```

Once in the Compuware Enterprise Services application, navigate to the **Administration** page. To access this page, you are required to provide the default password. Refer to "Default Password" on page 4-1.

Select each of the following configuration items:

- "Database Setup"
- "Email"
- "Host Connections"
- "Licensing"
- "Infocenter Settings"
- "Issue Tracking"

# Default Password

The default password for accessing and configuring CES administration is `cesadministration`. Enter the administration password and click **OK**.

# Database Setup

Although Compuware Enterprise Services installs out of the box with a fully functional **Apache Derby** database, you can either switch or migrate that database to one of the following supported databases:

- Apache Derby (comes configured by default)
- Microsoft SQL Server
- Oracle
- IBM DB2 for LUW
- IBM DB2 for z/OS

Refer to your database system documentation for the minimum hardware requirements. Compuware Enterprise Services data storage requirements vary from 300k to 50MB per profile, depending on the measurement taken. Processor usage also varies, depending on the number of users and their use.

Further CES database setup details are provided in both the online help for Compuware Enterprise Services, as well as Appendix A, "CES Repository Preparation" of this installation guide.

# Email

In the Email settings you can specify your outgoing mail server and enter an email address as the sender.

```
Ex. example@company.com
```

Further details for Email Settings setup are provided in the online help for Compuware Enterprise Services.

# Host Connections

Host Connection settings are used to configure connections to the Host Communications Interface (HCI). You must have at least one HCI port configured on one LPAR. Specify the host connection of the HCI port on the LPAR that contains the license file that is available to the License Management System (LMS) connected to that LPAR. In the case where multiple HCIs have been defined to Compuware Enterprise Services, each HCI instance is checked until a valid license in encountered.

Further details for Host Connections setup are provided in the online help for Compuware Enterprise Services.

# Licensing

Licensing Settings allows you to configure license lease durations and display a list of license holders for Topaz licenses being used at your site. This function is specific *only* to those sites using either Topaz Workbench or Topaz for Java Performance. Set your Lease Timeout (default 10 hours):   Use this to set an active time duration for a license that has been checked out. Once the time duration expires, that license then becomes available to be checked out again.

Further details for Licensing Settings setup are provided in the online help for Compuware Enterprise Services.

# Infocenter Settings

Infocenter Settings allows you to display online help for Compuware Enterprise Services by simply defining which port to use for displaying online help. Although Compuware Enterprise Services installs with a default port, you may choose to change this port setting during the installation, or at any time after the installation.

Further details for Infocenter Settings setup are provided in the online help for Compuware Enterprise Services.

# Issue Tracking

The Issue Tracking Settings page allows an administrator to configure integration between Compuware's products and Atlassian's JIRA issue tracking system. Such integration enables the rich issue recreation and debugging information to be stored in JIRA, which can then be used to track the issue and assign it to an application development team for resolution. This integration can be leveraged from Abend-AID web viewer or iStrobe to log issues directly in JIRA.

Further details for Issue Tracking Settings setup are provided in the online help for Compuware Enterprise Services.

# Chapter 5.
# Installing the Topaz for Java Performance Agent on z/OS UNIX

This chapter describes the installation procedure for installing the Topaz for Java Performance Agent on z/OS UNIX. Unlike the Manager which may be installed on z/OS UNIX, Linux, or Windows 64-bit, the Topaz for Java Performance Agent is installed only on z/OS UNIX. Depending on your site standards, you may need the assistance of the following individuals:

- z/OS UNIX system administrator should install Topaz for Java Performance.

- Security administrator to grant access to end users.

# Before Beginning

Before you begin the Topaz for Java Performance Manager installation, you should be sure of the following:

- A compatible Compuware Enterprise Services (CES) installation has been installed and configured with Topaz for Java Performance.

- Location of the CES instance (installation folder)

- An installed supported database that has been configured for this CES instance.

- An installed supported Java version

- A host name used as part of the Topaz for Java Performance and CES URLs. For example,

      http://<*yoursitehostname*>.<*yoursitedomain*>.com:<*port number*>/topazjava

- A port number for the Topaz for Java Performance Agent to communicate with the server.

- The Topaz for Java Performance Agent installer requires 20000 1K blocks of preallocated temporary space during the installation. When the installation is complete, the temporary installation files are removed.

# Installing the Topaz for Java Performance Agent

1. Click the **Topaz for Java Performance Agent** tab from the product image.
   Ex. `<network or hard drive>:\Disk1\setup.exe`

2. Click **Install Topaz for Java Performance Agent for z/OS UNIX**.

   The Mainframe FTP Information tab appears.

3. Specify the following valid information for your site:

   – Host
   – Host Port
   – User ID
   – Password
   – Existing z/OS UNIX Path to the planned Agent installation location

4. Click **Upload files to the mainframe**.

   The z/OS UNIX installation includes a file transfer utility that sends the Topaz for Java Performance product files to the mainframe. The `install.jar` is uploaded as binary, and the `install.sh` is uploaded as text.

5. Log on to the mainframe and navigate to an OMVS command prompt. Change the directory to the location where the Agent `install.jar` and the `install.sh` files were transferred. For example:

   `cd /installation_folder/agent`

6. Be sure that the `install.sh` file has execute authority. Perform a `chmod 777` to open up permissions if necessary

7. Start the installation script by entering:

   `./install.sh`

   The system displays RUNNING in the lower-right corner for a few seconds. When it requests INPUT, press **Enter**.

8. At the Java version prompt, enter the path to a supported Java 1.7 or Java 1.8 version you want to use with this Topaz for Java Performance installation. For example,

   `/usr/lpp/java/J7.1_64.bld111513`

9. Respond **Y** or **N** whether you want to use another folder instead of the default system temporary folder for the Agent installation files. Press **Enter**.
   - If you responded Y, enter the new folder name.
   - If you responded N, the default system temporary file will be used.

   The system displays **Launching installer...** and displays RUNNING in the lower-right corner for a few seconds.

10. When the system requests INPUT, press **Enter**.

    The **Introduction** panel appears.

**Notes:**
   - You can cancel the installation at any time by typing `quit`.
   - You can go back in the installation panels at any time by typing `back`.

11. After reading the Introduction panel, press **Enter**. The **License Agreement** panel appears.

12. Press **Enter** until you have read and scrolled through the agreement.

13. Enter **Y** to accept the terms of the license agreement.

    The **Choose Install Folder** panel appears.

14. On the **Choose Install Folder** panel, enter an absolute path to specify the location of this Topaz for Java Performance Agent installation, or press **Enter** to accept the default path.

15. On the **Topaz for Java Performance Agent** panel:
    - Enter the **Topaz for Java Performance Manager host,** or press **Enter** to accept the default.
    - Enter the **Topaz for Java Performance Service port,** or press **Enter** to accept the default.

    The **Ready to Install** panel appears.

16. Review the displayed entries for the **Install location, Topaz for Java Performance Manager host**, and the **Topaz for Java Performance Service port**.

17. Enter **back** to return to the previous panels to change any entries.

18. Review the display of any changes, and press **Enter** to begin the installation.

    The system displays **Installing....** and displays RUNNING in the lower-right corner for a few seconds.

19. When the system requests INPUT, press **Enter.**

    The **Installation Complete** panel appears.

20. Note the following for this Topaz for Java Performance Agent installation:

    – Agent **Install location path**
    – **Topaz for Java Performance Manager host**
    – **Topaz for Java Performance Service port**

21. Press **Enter** to exit the Topaz for Java Performance Agent installer.

# Post-Installation

After you successfully complete the Topaz for Java Performance Agent installation procedure, do the following:

1. The Agent is the licensed Topaz for Java Performance component. Configure a Host Connection in CES for Compuware License Management System (LMS) license(s) for Topaz for Java Performance Agents.

2. Define a Host Communications Interface (HCI) with licenses available on the LPAR where you plan to use Topaz for Java Performance Agents.

3. Refer to the readme.txt file in the Agent installation folder root directory for an example of the Java agent parameter to add to the command line used to launch your Java application that you intend to measure. For example:

```
java -javaagent: <install-dir>/TopazJavaAgent.jar

        where: <install-dir> is the directory where the Topaz for Java
            Performance Agent was installed.
```

4. For WebSphere usage, update the Generic JVM arguments to include the `-javaagent` parameter. Also, review the server policy file to be sure that the Topaz for Java Performance has the required security permissions to access required MXBeans and data.

5. In order to initiate any performance measurements, install at least one agent per LPAR.

# Appendix A.
# CES Repository Preparation

This worksheet is intended to help database administrators prepare a new repository for Compuware Enterprise Services. CES supports:

- "DB2 z/OS"
- "DB2 Linux, UNIX, and Windows"
- "Microsoft SQL Server"
- "Oracle"

**Note:** At the time of writing this document, DB2 v10 JDBC drivers are not compatible with Java 1.8.

# DB2 z/OS

Choose any single, non-destructive DB2 subsystem, running DB2 Version 10 (NFM) or later, in which to create a database and tablespace prior to starting the CES installation. Requirements for the database and tablespace can be found below under the heading 'Database/Tablespace Name'. The installation process will load some initial data, manual creation of the DB2 objects is not possible. JDBC universal drivers and a working WLM environment are also required to be available on the DB2 for z/OS subsystem that will be used. For more information on supporting the connection to JDBC, refer to "DB2 JDBC Location" on page A-2

- The IBM Data Server DB2 Driver for JDBC and SQLJ must be installed for that DB2 instance.
- You must know the DNS name or IP address of your DB2 server.
- You must know the port on which the DB2 instance is listening.
- Create a database for CES.
  - The table space associated with the database must be created in a 32K BUFFERPOOL.
- This authorization ID needs one of the following sets of privileges:
  - CREATETAB authority for the database; USE privilege for its table spaces.
  - DBADM authority for the database.
  - SYSADM authority.

**Note:** Be sure the IBM Data Server DB2 Driver for JDBC and SQLJ files can be read by the CES installation program from the server on which it will run.

## Database Server

DNS name or IP address of your DB2 host. Look for "DOMAIN", by browsing the *ssid*MSTR job and doing a find on 'DSNL004I'.

**Note:** The *ssid* refers to the DB2 subsystem id. *ssidMSTR* is a required DB2 address space that must be running for DB2 to be operational. 'DSNL004I' is a message generated by DB2 that can be found JES log output of ssidMSTR.

## Port

Port on which DB2 is listening. Look for "TCPPORT", by browsing the *ssidMSTR* job and doing a find on 'DSNL004I'.

# Database Location

Location name of your DB2 host. Look for "LOCATION", by browsing the *ssidMSTR* job and doing a find on 'DSNL004I'.

# Database Name

The name of a database created in your DB2 for z/OS subsystem that will be used to hold the DB2 tables and indexes that CES will create.  The database must use a 32k bufferpool. A CCSID of EBCDIC should be specified on the create database. The CES tables contain LOB data.  If you do not wish to create a LOB tablespace for CES, then include "**SET CURRENT RULES = 'STD';**" prior to creating the database and one will be implicitly created for you. An implicitly created LOB tablespace will require *"USE"* privileges to the default bufferpool for user LOB data.

# Schema

This is the Creator/Schema Name to use for the CES DB2 tables, indexes and views. If this name is different than the *"Database user ID"* then the *"Schema"* should be set up as a secondary authorization ID to the *"Database user ID"*.   Compuware recommends keeping the Schema and the Database user ID the same.

# DB2 JDBC Location

The IBM Data Server DB2 Driver for JDBC and SQLJ must be installed and the packages bound for that DB2 subsystem.  Be sure that the driver files can be read by the CES installation program running on z/OS UNIX.  To connect to the JDBC location, several z/OS DB2 stored procedures must be installed on the DB2 subsystem.  See 'DSNTESR' and 'DSNTIJMS' found in the DB2 SDSNSAMP dataset.  The JDBC connection will be verified, prior to installation, by clicking the 'Test Connection' button.

For additional information, refer to the reference manual *"DB2 for z/OS Application Programming Guide and Reference for Java"* found in the IBM Knowledge Center for your release of DB2.

# Database User ID/Database Password

This ID is required.  It is for use by CES to run the applications.

This ID will be used to create the CES tables, indexes, views, triggers, stored procedures and functions, when the Database administration ID below, is not specified.  To create the objects, DB2 will require that the ID has the following minimum DB2 authorizations:

```
GRANT USE OF BUFFERPOOL "default-bufferpool-for-user-data"
TO "Database user ID";

GRANT USE OF STOGROUP "user-specified-storage-group(see database create)"
TO "Database user ID";

GRANT DBADM ON DATABASE "user-specified-database-name" TO "database user
ID";

GRANT BINDADD TO "Database user ID";

GRANT CREATEIN ON SCHEMA "Schema-Name" TO "Database user ID";

GRANT CREATE IN COLLECTION "Schema-Name" TO "Database user ID";

GRANT SELECT ON TABLE "SYSIBM"."SYSSEQUENCES" TO "Database user ID";

GRANT SELECT ON TABLE "SYSIBM"."SYSDATABASE" TO "Database user ID";
```

```
GRANT SELECT ON TABLE "SYSIBM"."SYSTABLESPACE" TO "Database user ID";
```

**Note:** If the Schema Name is something other than the Database user ID then the *"Schema"* should be set up as a secondary authorization ID to the *"Database user ID"*.

## Database Administrator ID/Database Administrator Password

This ID is optional. When specified, it is used to create the CES tables, indexes, views, triggers, stored procedures and functions. This id and password may be removed after the installation of CES is complete, by accessing the installation panel and blanking out the data.

An ID with the following *minimum* DB2 authorizations or SYSADM authorization is required:

```
GRANT USE OF BUFFERPOOL "default-bufferpool-for-user-data"
TO "Database administrator ID";

GRANT USE OF STOGROUP "user-specified-storage-group(see database create)"
TO "Database administrator ID";

GRANT DBADM ON DATABASE "user-specified-database-name"
TO "database administrator ID";

GRANT BINDADD TO "Database administrator ID";

GRANT CREATEIN ON SCHEMA "Schema-Name"
TO "Database administrator ID";

GRANT CREATE IN COLLECTION "Schema-Name"
TO "Database administrator ID";

GRANT SELECT ON TABLE "SYSIBM"."SYSSEQUENCES"
TO "Database administrator ID";

GRANT SELECT ON TABLE "SYSIBM"."SYSDATABASE"
TO "Database administrator ID";

GRANT SELECT ON TABLE "SYSIBM"."SYSTABLESPACE"
TO "Database administrator ID";
```

## Sample Create Database DDL

```
SET CURRENT RULES = 'STD';

CREATE DATABASE "user-specified-database-name"

    BUFFERPOOL user-specified-32k-bufferpool-id

    INDEXBP user-specified-bufferpool

    CCSID EBCDIC STOGROUP "user-specified-storage-group";
```

# DB2 Linux, UNIX, and Windows

Compuware requires a Unicode code page. DB2 for Linux, UNIX and Windows JDBC URLs use the database name. There is no location.

- The IBM Data Server DB2 Driver for JDBC and SQLJ must be installed for that DB2 instance.
- You must know the DNS name or IP address of your DB2 server.
- You must know the port on which the DB2 instance is listening.

- Create a database for CES.
  - The table space associated with the database must be created in a 32K BUFFERPOOL.
- This authorization ID needs one of the following sets of privileges:
  - CREATETAB authority for the database; USE privilege for its table spaces.
  - DBADM authority for the database.
  - SYSADM authority.

**Note:**  Be sure the Data Server DB2 Driver for JDBC and SQLJ files can be read by the CES installation program from the server on which it will run.

# Database Server

This is the DNS Name or IP address of your database server.

# Port

Port on which this database is listening.

# Database Name

The name of the database you wish to use, this must be created in advance, CES will not create the database programmatically.

**Note:**  The table space associated with the database must be created with a 32K BUFFERPOOL.

# Schema

The schema you would like to associate the data objects with.  This will get created if it does not already exist.

# JDBC Driver Path

The IBM Data Server DB2 Driver for JDBC and SQLJ must be installed for that DB2 subsystem.   Be sure that the driver files can be read by the CES installation program running on your system.

# Database User ID

This ID is required. If the Database administrator ID is not specified, then this ID will be used to the create tables, indexes, views, triggers, stored procedures and functions used by CES. Otherwise, the ID is for use by the CES application. The ID must have one of the following privileges:

- CREATETAB authority for the database; USE privilege for its table spaces.
- DBADM authority for the database.
- SYSADM authority.

# Database Password

The user's password associated with the database.

# Database Administrator ID

The Administrator ID associated with this database. When specified, it will only be used to create the tables, indexes, views, triggers, stored procedures and functions used by CES.   This is an option field if the Database User ID does not have the following roles:

- CREATETAB authority for the database; USE privilege for its table spaces.
- DBADM authority for the database.
- SYSADM authority.

## Database Administrator Password

The password associated with the Database Administrator ID.

---

# Microsoft SQL Server

Observe the following when preparing a SQL Server database:

- You must know either the DNS name or the IP address of the server on which Microsoft SQL Server is installed.

- You must know either the statically assigned port number or the instance name (dynamically assigned port) for the Microsoft SQL Server instance.

  - For the instance name option, the Microsoft SQL Server Browser Service must be running on that server.

- Select a name for the database.

  - Limit this name to alphabetic, numeric and underscore (_) characters.

  - Strobe does not support delimited identifiers.

- Identify or create a schema name to be used.

- Microsoft recommends that you back up the master database before creating a new database.

**Note:**  Because CES connects through JDBC, Microsoft SQL Server authentication must be used.

## Database Server

This is the DNS name or the IP address of the server on which Microsoft SQL Server is installed.

## Port

The statically assigned port number or the instance name (dynamically assigned port).

## Instance Name

The named instance of SQL Server – If your SQL Server database uses a port, then you don't need this.

## Database Name

The name of the database you wish to use. This must be created in advance, CES will not create the database programmatically.

## Schema

The schema in which to associate the data objects.

## Database User ID

This ID is required. If the Database administrator ID is not specified, then this ID will be used to the create tables, indexes, views, triggers, stored procedures and functions used by CES. Otherwise, the ID is for use by the CES application. The ID must have the following privilege:

- sysadmin.

## Database Password

The user password for this database.

## Database Administrator ID

The Administrator ID associated with this database. This is an optional field if the Database User ID does not have the sysadmin role.

## Database Administrator Password

The Database Administrator password. When specified, it will only be used to create the tables, indexes, views, triggers, stored procedures and functions used by CES.   This is only required if configuring your database with an administrator's ID.

# Oracle

For Oracle Database, CES uses national character data types. Using a database with a Unicode character set is recommended, but not required.

You must create an Oracle database before the CES installation.

CES uses the JDBC Thin (type 4) driver with Thin-style server name syntax for its database URLs. You must know your database's service name for this syntax.

You must create a database user ID and password before the CES installation for database authentication. The Oracle CREATE USER command automatically creates a schema with the same name. CES will create all of its objects in this schema.

Before installing CES:

- An Oracle Database instance must be installed and running on a server.

- You must know either the DNS name or the IP address of the server on which the Oracle database is installed.

- You must know the port on which Oracle is listening.

- You need a database for CES and you must know its service name.

- You need a user ID and password within that database for use by the CES application with at least the following privileges:
    - CREATE SESSION system privilege.
    - CREATE TABLE or CREATE ANY TABLE system privilege.
    - CREATE VIEW or CREATE ANY VIEW system privilege.
    - CREATE ANY PROCEDURE system privilege.
    - Space quota on the database table spaces or the UNLIMITED TABLESPACE system privilege.

- Your Oracle DBA must change the default value of the *open_cursors* parameter to at least 400 to avoid the "Maximum open cursors exceeded" error message.

## Database Server

This is the DNS Name or IP address of your database server.

## Port

Port on which this database is listening.

## Database Name

The name of the database you wish to use, this must be created in advance, CES will not create the database programmatically.

## Schema

This will be the same as the name used for the CREATE USER command, this must be created prior to configuring the CES database.

## Database User ID

This ID is required.  If the Database administrator ID is not specified, then this ID will be used to the create tables, indexes, views, triggers, stored procedures and functions used by CES.  Otherwise, the ID is for use by the CES application.  The ID must have the following privileges:

- CREATE SESSION system privilege.
- CREATE TABLE or CREATE ANY TABLE system privilege.
- CREATE VIEW or CREATE ANY VIEW system privilege.
- CREATE ANY PROCEDURE system privilege.
- Space quota on the database table spaces or the UNLIMITED TABLESPACE system privilege.

## Database Password

The user password for this database.

## Database Administrator ID

The Administrator ID associated with this database.  This is an optional field, and only required if the Database User ID does *not* have the following roles:

- CREATE SESSION system privilege.
- CREATE TABLE or CREATE ANY TABLE system privilege.
- CREATE VIEW or CREATE ANY VIEW system privilege.
- CREATE ANY PROCEDURE system privilege.
- Space quota on the database table spaces or the UNLIMITED TABLESPACE system privilege.

## Database Administrator Password

The Database Administrator password.  This is only required if configuring your database with an administrator's ID.