

*IBM Z Software Asset Management
Container V9.1 Installation and
Customization Guide*



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Chapter 1. Installation and Customization Guide

The product installation involves transferring the appropriate installation package file to your Linux on Z or IBM z/CX system, unpacking the installation file, performing the installation, and during the post-installation steps, defining at least one repository database and creating at least one additional administration user.

It is also assumed that the IBM Z Software Asset Management V9.1 for z/OS product collectors has already been installed, configured, along with scan and optionally usage data, collected into z/OS zip datasets.

After verifying that all components are correctly installed and configured, you can create a production repository database and optionally automate data collection on z/OS. Then, perform upload and import either manually or by using the provided IBM Z SW Asset Mgmt API service container. z/OS system analysis reports are then available for viewing or downloading from the IBM Z SW Asset Mgmt Web UI from the loaded repository.

Installation

In this section we will discuss the Installtion process in detail.

Installation Dependencies

We support the following Linux s390x (Linux on Z or IBM z/CX) Host OS environments:

- Linux on z Ubuntu 20.04+ and later releases.
- IBM z/OS V2.5+ z/CX

The following dependencies are also required:

- **Linux on Z:** Docker Server Version: 19.03.x to 24.0.5+
- IBM Z Software Asset Management V9.1 for z/OS collectors

Unsupported Storage Configurations:

- Non-physical DASD/Disk devices (ie network attached disks/file-systems) are not recommended as docker volume or image repositories. Severe performance issues using the product can occur using such a configuration.
- Using docker storage drivers other than overlay2 with EXTFS, btrfs or XFS as the backing file-system is **not** recommended. Installation failures may occur.

IBM Z SW Asset Mgmt 9.1 Web/User Interface browser support:

- Opera (Windows 10) – Version 71.0.3770.271 and above
- Chromium (Ubuntu 18.04+) - Version 86.0.4240.75 and above
- Firefox (Ubuntu 18.04+) - Version 72.0.1 and above
- Firefox (Windows 10) - Version 88.0.1 (64-bit) and above
- Brave (Ubuntu 18.04+) - Version 1.15.75 and above
- Microsoft Edge (Windows 10) - Version 90.0.818.62
- Safari (Mac OS 11+) - Version 14+

New Installation or Product Update

This section provides instructions on performing a new installation of IBM Z SW Asset Mgmt V9.1 or updating an existing IBM Z SW Asset Mgmt V9.1 installation.

Installation System Requirements

The installation process will require approximately the following available DASD space :

- 800MB – For the unzipped installation package files
- 740MB - for the UI docker container
- 400MB - for the Importer docker container
- 530MB - for the (optional) API service docker container image

Permanent docker volume storage space initial requirements are approximately 3GB.

Further docker volume space consumption used for GKB, and repository databases will depend upon the amount of z/OS asset and usage data imported.

For small to average system asset and usage data, DASD requirement planning should include a range from 24-32 GB of available docker volume storage. Increasing as usage data collection is imported.

It is also recommended that an **additional** amount of virtual storage in the 4-6 GB range be added to the IBM Z Software Asset Management container hosting environment. Though swap rates should be monitored during IBM Z Software Asset Management data import processing, if import processing performance becomes an issue.

Pre-installation or update activities

1. Please ensure you have received an IBM Z Software Asset Management V9.1 installation package file. For Linux on Z hosts, the install package file name will be:

```
IBM-Z_Sw_Asset_Mgmt-V91-Prod-Installation_Package-s390x-<date>.zip
```

2. For installing under IBM z/CX, install package file name will be:

```
IBM-Z_SW_Asset_Mgmt-V91-Prod-Installation_Package-zCX-<date>.sh
```

Note: IBM z/CX for z/OS V2.5+ appliances are compliant with IBM Z Software Asset Management dependency requirements.

3. Transfer this file to the Linux on Z or IBM z/CX host you wish to use for execution of IBM Z Software Asset Management V9.1. Use **'sftp'** for IBM z/CX or **'ftp'** for Linux on Z. Note – if using 'ftp' (not applicable to 'sftp' on z/CX) for the transfer protocol, please ensure you set the **'binary'** (or 'image') option first.

Note: Only use zCX installation media on a z/CX system and zLinux media (s390x) on a Linux on Z system.

4. Log on to the Linux for Z or IBM z/CX host system using your host account details. For Linux on Z environments, if there are missing dependency packages found during the installation script processing, you will need either **root** privileges (i.e, sudo) to correct this or contact your system administrator to perform this action for you. See [Appendix A](#) for a list of dependencies for using an Ubuntu target host system privileges to correct this or contact your system administrator to perform this action for you. See ["Appendix A" on page 20](#) for a list of dependencies for using an Ubuntu target host system.

Note: IBM z/CX for z/OS V2.3+ appliances are compliant with IBM Z Software Asset Management dependency requirements.

5. If not already performed, unpack the transferred installation file into any available folder. Linux on Z users, please refrain from using '/tmp', as this location will be used by the installation process as a work area.

- **Linux on Z use :** unzip <install package filename> -d <target install folder>
- **z/CX use :** ./IBM-Z_Soft_Asset_Mgt-V91-Prod-Installation_Package-zCX-<date>.sh
- z/CX users should skip forward to the ["Begin New Installation or Update Processing"](#) on page 4 section.

6. Check Installation Environment (**not applicable for IBM z/CX hosts**):

- If not using secure access (ie TLS/HTTPS) to the host docker engine, then your Linux for Z system account requires the 'docker' group to be available to your account. To verify this, enter the following command after you have logged on:

\$groups

- Ensure that **docker** is listed in the group names displayed. If it is not, please contact your system administrator to add the '**docker**' group to your accounts available groups.
- The provided IBM Z Software Asset Mgmt V9.1 installation script requires the **Bourne Shell** (bash) be available on the target system. To verify, enter the below command:

\$echo \$SHELL

- If `"/bin/bash"` is returned, you are running with the correct shell. If not, enter `"bash"` at the command prompt. If you receive an error, contact your system administrator to have `"bash"` installed on your host system.
- Ensure your login session's active directory is now in the previously used unpacked installation directory (-d option). If not, please change to that directory now. It is required that you start the installation script from the unzipped target installation folder.

The IBM Z Software Asset Management product installation and execution require access to the host's docker engine to perform container orchestration. Access to the docker engine is supported by one of two methods.

- Using docker.sock (UNIX socket) connection, which is the default method but is insecure (will require 'docker' group).
- Using secure access to the docker engine via TLS/HTTPS connection. This is a secure interface but requires separate configuration.

If you wish to use the secure connection method, please review the official docker documentation here:

<https://docs.docker.com/engine/security/protect-access/#use-tls-https-to-protect-the-docker-daemon-socket>

To support this connection method, IBM Z Software Asset Management will require three files for uploading during the install. The certificate authority (ca.pem) file, the client certificate file (cert.pem), and the client key file (key.pem) were created to secure docker access. Please ensure these files are available on the installation host system for copying during the installation process and are named correctly – as specified.

Begin Install or Update Process

Linux on Z Users

Once the provided installation package file has been unzipped into a directory containing the installation files and folder, you can start the product installation process.

It is recommended that, before installation, a review of the provided **README.txt** text file be undertaken to understand any new updated product features or installation details. This is also where you will find your product license key that will be required during the post-installation steps.

IBM z/CX Host Users

IBM z/CX appliance users will be prompted with the following message before the installation process beginning:

```
Do you wish to start the IBM Z SW Asset Mgmt for z/CX installation process now or exit to run later? (y=install, n=exit, default=n) ==>
```

If you wish to begin the installation process now, enter **y** to continue. This will automatically invoke the **IBM-z_sw_asset_mgmt_install.sh** script as shown below in step #1. You can then continue with the installation from this point.

If you do not wish to begin the installation now, either press **enter** or reply with **n**, and the setup process will end. You can start the installation later at any time from step #1, after changing to the created **__package-zCX-IBM/** installation folder.

Begin New Installation or Update Processing

If you are performing an IBM Z Software Asset Management product update and do not want to save your existing docker images for back-out (due to a later installation failure or cancellation of the update process), you can use the **-R** switch to disable the **recovery** mode.

Next, to install or update IBM Z Soft Asset Mgt V9.1, follow the steps given below:

1. Enter the following command from the installation package unzip target location:

```
./IBM-z_sw_asset_mgmt_install.sh -R -p <optional UI port>
```

The output, similar to the following appears:

```
*****
*
* Licensed Materials -
* Property of IBM and/or HCL
* © Copyright IBM Corporation 2018. All Rights Reserved.
* © Copyright HCL Technologies Ltd., 2020, 2025.
* All Rights Reserved.
*
*****

Backout recovery deactivated
Verifying IBM Z Software Asset Management installation dependencies are available.
WARNING! Installation user account does not include 'docker' in its group list.
Host system is running Ubuntu 24.04.2 LTS (matching Ubuntu 24.) which is a supported IBM Z
Software Asset Management V9.1 host operating system.
Storage driver backing file-system found ( extfs ) matches one of the overlay2 supported
versions.
Using package installation folder :
/home/<user>/izsam/tmp/__work/
-----

IBM Z Software Asset Management V9.1 GA installation process begins.

-----

Installing ibm-z-sw-asset-mgmt-ui:prod-91-IBM
Target BE Version : 91
NOTE! Unable to verify license key as no IBM Z Software Asset Management V91 import
container image is present.

New Installation for IBM Z Software Asset Management V9.1 detected.

Please wait. Importing IBM Z Software Asset Management V9.1 docker container images from
installation package.
```

The installation script will check that all required dependencies are installed and available on the host system before starting to install the IBM Z Software Asset Management V9.1 files.

Linux on Z Users: If you have not already setup secure docker access using TLS/HTTPS then you may see a warning message related to the docker group. This is only a problem if you are not using secure docker access as use of the host's docker engine will be required during installation.

If any mandatory dependencies are missing then an error message is displayed, and the package shown needs to be installed before re-running the installation script again. It is recommended that you perform an unzip of the installation package again after correcting the missing dependency before re-running the installation script.

Import Docker Container Images

Eventually the following progress messages will appear:

```
Loaded image: ibm_z_sw_asset_mgmt-import:09.01-<APAR>-<fixlvl>-IBM
Loaded image: busybox:latest
Loaded image: ibm-z-sw-asset-mgmt-ui:prod-91-IBM
```

Note: Product Update processing may show **deleted** and **untagged** messages. This is normal.

```
Do you wish to install the IBM Z Software Asset Management API container and associated
sample? (y/N default=y) :
```

At this point, you need to decide if you are going to want the IBM Z Software Asset Management API service container to be installed. The IBM Z Software Asset Management API service container provides an API interface to the repository databases with some provided pre-configured reports, the ability to submit your own customized SQL queries, perform file upload and imports, repository DB maintenance and GKB update processing. It can be used for later transferring of z/OS generated zip datasets to the container for processing, allowing to bypass manual downloading from z/OS zip datasets and subsequent uploading of z/OS zip datasets by a user.

A default **Swagger UI** (documentation link: <https://github.com/swagger-api/swagger-ui#documentation>) is also available with this container.

Management of the API service is performed through the IBM Z Software Asset Management V9.1 UI Admin Tool web interface. See the Administration and Users guide for more details on defining and starting a API service Instance.

If you wish to install the API service container, press **Enter**. If you do not wish to install this container, then enter '**N**' (case sensitive) and press **Enter**.

If you choose to install or update the API service image, similar messages to those below will be displayed:

```
Importing IBM Z Software Asset Management API service docker image ibm-z-sw-asset-mgmt-api-
service.
Loaded image: ibm-z-sw-asset-mgmt-api-service:prod-91-IBM
Load of the IBM Z Software Asset Management API service image tmp/__/work/api-
service.tar.bz2 successful. rc=0
```

Docker Database Volumes

2. For a new installation, the required volumes are created and populated with the needed database and supporting files.

The following message appears:

```
Defining required docker volumes.
```

If you are performing a new install, please skip forward to the following [New Installation Messages](#) section.

If you are updating your current IBM Z SW Asset Mgmt V9.1 product you will receive the following prompt:

```
Some/All IBM Z Software Asset Management V9.1 Docker volumes are already present.

Replying 'Y' to the following prompt will result in all your current IBM Z Software Asset
Management V9.1 repository data, repository backups, users and configuration settings being
deleted
permanently. Please answer carefully!
Do you wish to re-create the existing IBM Z Software Asset Management V9.1 Docker volumes?
(Y/n default=n)
```

Reply to the prompt (**case sensitive**) as required based on your need to keep any previously created backups, repositories and user definitions from the older product. **Replying Y will result in all current IBM Z Software Asset Mgmt V9.1 repositories, user accounts and profiles, license key, repository backups and product configuration being permanently deleted. Please answer this prompt carefully.**

If you are performing an update and took the default reply, the following messages are displayed:

```
Skipping creation of IBM Z Software Asset Management V9.1 Docker volumes.
Please wait... checking for GKB or product upgrade requirement
Skipping docker DB volume population due to docker volumes already present.
Please wait, updating IBM Z Software Asset Management report preprocessing files as
required.
dc2a05cc9a3e47afc0ff743e4e5d14d4e774cb84e0d99bcd1a5928a4533f9c
Performing check for updated preprocess report SQL.Successfully copied 36.4kB to
dc2a05cc9a3e:/data/reports/
Preprocessed Reports copy to docker volume completed with rc=0Preprocess reports indicate
no updated SQL.
Please wait...stopping busybox work docker container.
copytovol
copytovol
```

If you chose to re-create IBM Z Software Asset Management V9.1 docker volumes messages similar to the following will be displayed:

```
Creating IBM Z Software Asset Management V9.1 Docker volumes.
zswam_database-91-IBM
Creation of docker repository database volume for IBM Z Software Asset Management V9.1
completed with rc=0.
zswam_uploads-91-IBM
Creation of docker upload volume for IBM Z Software Asset Management V9.1 completed with
rc=0.
zswam_logs-91-IBM
Creation of docker logs volume for IBM Z Software Asset Management V9.1 completed with rc=0.
zswam_tls-91-IBM
Creation of docker TLS volume for IBM Z Software Asset Management V9.1 completed with rc=0.
zswam_backup-91-IBM
Creation of docker backup volume for IBM Z Software Asset Management V9.1 completed with
rc=0.
```

If you chose to re-create IBM Z Software Asset Mgmt V9.1 docker volumes, the following message is shown:

```
Switching from update to install mode due to Docker volume re-creation
```

The update process is now changed to a new install due to the removal of all previously used IBM Z Software Asset Mgmt V9.1 docker volumes.

Next all the docker volumes will be re-created.

New Installation Messages

```
Some or all messages, similar to the following, may then be shown:
Creating IBM Z Software Asset Management V9.1 Docker volumes.
zswam_database-91-IBM
Creation of docker repository database volume for IBM Z Software Asset Management V9.1
completed with rc=0.
zswam_uploads-91-IBM
Creation of docker upload volume for IBM Z Software Asset Management V9.1 completed with
rc=0.
zswam_logs-91-IBM
Creation of docker logs volume for IBM Z Software Asset Management V9.1 completed with rc=0.
zswam_tls-91-IBM
Creation of docker TLS volume for IBM Z Software Asset Management V9.1 completed with rc=0.
zswam_backup-91-IBM
Creation of docker backup volume for IBM Z Software Asset Management V9.1 completed with
rc=0.
Creation of IBM Z Software Asset Management V9.1 docker volumes completed with rc=0
Populating docker volumes with required folder structure and data files. Please wait...
68ecbf8aa422f27603c28c7138c778354a52e9b0993458bd143cba29eb63c531
Successfully copied 5.12kB to 68ecbf8aa422:/data
Successfully copied 73.2kB to 68ecbf8aa422:/data
Successfully copied 6.14kB to 68ecbf8aa422:/data
Successfully copied 6.14kB to 68ecbf8aa422:/data
Successfully copied 75.3kB to 68ecbf8aa422:/data
Successfully copied 620MB to 68ecbf8aa422:/data
Successfully copied 13.7MB to 68ecbf8aa422:/data
Successfully copied 104kB to 68ecbf8aa422:/data
```

Secure Docker Engine Access – Linux on Z Only

3. Secure docker engine access configuration. Not applicable to z/CX hosts.

If you are performing a new installation or you re-created all your docker volumes, the following messages are displayed:

```
The IBM Z Software Asset Management requires access to the hosts Docker engine to perform
container orchestration for import and maintenance processing.
The product supports two methods of accessing the host Docker engine.
1. Using the unsecured docker.sock (unix socket) file, or
2. Docker engine API using TLS/https.
If you have configured your Docker engine to use TLS/https access already,
IBM Z Software Asset Management can use the server Certificate Authority,
client certificate and key files already used to interact with the hosts
docker engine. If not, you can use the default docker.sock and configure
secure docker engine API access at a later time.

If you have the Docker engine SSL/TLS CA (ca.pem), client certificate
(cert.pem) and key files (key.pem) for secure Docker API https access
available on this host and wish to use them, please reply 'y' to the
following prompt, else just press enter to skip and use the docker.sock file
interface instead.
For information on securing the docker engine API, please visit
https://docs.docker.com/engine/security/protect-access/#use-tls-https-to-protect-the-docker-
daemon-socket
for detailed instructions.
Will Docker engine API access require use of TLS/https? (y/n default=n)
```

Please read the mentioned messages carefully before continuing.

For a POC installation, it could be acceptable to skip this option and use the unsecured Unix socket connection (assuming this is already configured for use by the installers account) for the duration of the POC. If this is your choice, please reply **n** or press enter and then skip forward to the **Internal DB and Report Pre-processing Configuration** section.

However, if you wish to use secure docker connections or are performing an installation where this instance will be used to store production z/OS asset and usage data and you wish to ensure that access to the hosts docker engine is secure from abuse (host root access is possible if it is accessible unsecured), then consider activating secure docker engine access by reviewing and implementing the instructions available at the URL shown above. You can pause the installation at this point (prompt message) and generate the required TLS CA, certificate and key pem files, configure your hosts docker engine to use secure access only and then continue with the installation process by replying **y** to the prompt.

If you are performing an update and had previously enabled secure docker engine access, then the following message will be shown:

```
Do you wish to update the Docker engine API TLS/https certificate files already present?
(y/n default=n)
```

If you wish to add/update/change the current docker engine TLS/HTTPS files being used for access then enter **y** to the prompt. If not, you can just press enter to continue the product update process. The following messages will be issued if you are performing an update:

```
Please wait.... terminating work docker container.
Docker engine API access using TLS/HTTPS will be activated.
```

Then please skip to the following **HTTPS Support – For Product Updates** section.

If you are performing a new installation and did not select to configure secure docker engine access, please skip to the **Internal DB and Report Pre-processing Configuration** section.

Otherwise, the following messages will now be shown:

```
The default docker engine connection port for TLS access is 2376.
If the hosts docker engine is configured to use a different port, please enter it here
(default=2376) ==>
```

If you have configured the secure docker engine to listen on a different port to the default (2376) for secure connections, please enter the port number used at this prompt. If you are using the default port number, you can press enter to continue.

The following messages will now be displayed:

```
Using port <portnum> to access the hosts docker engine
```

```
Three files are required to use the secure docker engine API access.
These are the certificate authority (ca.pem), the client certificate (cert.pem) and the
client key file (key.pem).
```

Please provide the directory path of where your docker engine client tls **pem** files are located:

Enter the location (path), accessible by the installer account on the host, where the specified named files (displayed previously) for secure docker access can be located for copying to the IBM Z Software Asset Mgmt docker environment. **Only files matching the names shown above will be accepted and copied.**

Ensure you have at least read+execute permission to the folder and read-permission to the files.

Once entered and the files found, messages similar to the following will be shown:

```
Expanded tls/ssl directory location is : /home/<user>/.docker/
a660aaca20f567118b2fa535a4f04f68ef1094dfab47aedda367c7ecf034d276
mktls
mktls
ae5579addf7e653b576367c8891f7c40fe6343390123f2fc9fdb44691972b6bc
Successfully copied 4.1kB to ae5579addf7e:/data/client
Successfully copied 3.58kB to ae5579addf7e:/data/client
Successfully copied 5.12kB to ae5579addf7e:/data/client
Copy of 3 Docker TLS/https 'pem' files to IBM Z Software Asset Management
docker volume completed successfully.
Please wait.... terminating work docker container.
Docker engine API access using TLS/HTTPS will be activated.
```

Internal DB and Report Pre-processing Configuration

4. For new installations and product updates, the internal product Dbs and report pre-processing configuration will now be created and/or updated as required. Messages similar to the following will be displayed as this process is performed.

```
CreateUserDB: Extraction of required definition files completed successfully.
eb8da7fbb59ae4efb376f5b6ce0e5e3666c0641390c69f73a9232806ba6a67dc
Successfully copied 4.1kB to eb8da7fbb59a:/data
Successfully copied 2.56kB to eb8da7fbb59a:/data
CreateUserDB: Copy of internal DB definition files to docker volume completed with rc=0
CreateUserDB: Please wait... Copying preprocess report SQL from tmp/__/work/reports
Successfully copied 36.9kB to eb8da7fbb59a:/data/reports/
CreateUserDB: Preprocessed Reports copy to docker volume zswam_database-91-IBM completed
with rc=0
CreateUserDB: Start container request using image ibm_z_sw_asset_mgmt-import:09.01-<APAR>-
<level>-IBM with zswam_database-91-IBM completed with rc=0
CreateUserDB: If a failure occurs, output log for container ID 5f9b83f6bbd3 can be found
at : /tmp/IBM-CreateUserDB.err
CreateUserDB: Creation of Internal DB completed with rc=0, initialization load completed
with rc=0
CreateUserDB: Completed with rc=0
```

Note: – New installations will optionally need to activate pre-processing using the web UI (Admin Tools→App Settings) for the product after performing the post-installation steps if this report performance feature is required.

New installs will see the following messages displayed. They are informational only.

```
PreCleanUp: Removing tmp/__/work package input folder
PreCleanUp: Removing tmp package input folder
```

For those who are performing a product update with HTTPS previously activated, please skip forward to **HTTPS Support For Product Updates** section.

HTTPS Support - New Installs

5. If you are performing a new installation or you re-created all your docker volumes, then the following messages will be displayed:

```
HTTPS - if you have the required SSL/TLS certificate/key(*.pem) files for https access and wish to use them, please press enter to the following question, else enter 'N' to skip. Please consult the provided installation guide for more information if required. Will website access require use of https? (y/N default=y)
```

At this point, decide if you wish to access the IBM Z Software Asset Management UI web interface using HTTPS or HTTP. If you do not require the activation of HTTPS support, then please enter “N” (**case sensitive**) to the displayed prompt and skip forward to the following “**Host Name for Web UI**” topic.

To use **HTTPS**, press ‘**Enter**’ at the displayed prompt.

Now, you are prompted to provide the folder location of the required TLS/SSL certificate and key “pem” files.

```
Please provide the directory path of where your ssl/tls certificate and key 'pem' files are located:
```

Note:

- If you do not have access to the required **cert.pem** and **key.pem** files for configuration of TLS/SSL (for HTTPS access) but want to use HTTPS, then please contact your system or network administrator to get copies of these two (certificate and key)files.
- If you have different format TLS/SSL files (eg DER files such as .crt , .cer, .der) these can be converted to **.pem** files using linux terminal commands similar to the following :

```
openssl x509 -inform der -in certificate.cer -out cert.pem
openssl x509 -inform der -in key.cer -out key.pem
```

- Use of **self-signed** certificate and key **.pem** files are supported. Remember to add an exception to your browser when connecting to the IBM Z Asset Management Web UI.

The installation process expects to find two files for HTTPS activation at the provided folder location. A ‘cert.pem’ file and another named ‘key.pem’ file; each being respectively the certificate and key files. These files can be updated using the “Admin Tools” menu under the “App Settings” tab once the installation and post-installation steps have completed if required.

If you do not have access to these files at this time, you can press enter at this prompt and the https setup process is bypassed. You can then skip forward to the following **Host Name for Web UI** topic.

Once you have the **cert.pem** and **key.pem** files at a specific folder location, you can enter the folder location of the files to the prompt. Ensure you have at least read+execute permission to the folder and read-permission to the files.

At which point the installation process will copy your SSL/TLS **cert.pem** and **key.pem** files to the required product docker volume and then prepare to activate HTTPS support.

Messages similar to the following will be displayed :

```
Expanded tls/ssl directory location is : /home/<user>/TLSCerts/
01f6be17131f0c8ab62951e8015f7dc8458929044d8d79dd56b87674d951d9a0
Successfully copied 4.1kB to 01f6be17131f:/data
Successfully copied 5.12kB to 01f6be17131f:/data
Copy of HTTPS 'pem' files to required IBM Z Software Asset Management docker volume
completed successfully.
```

You can now skip to the **Required TLS Version Support** topic to continue the installation.

HTTPS Support - For Product Updates

6. For existing IBM Z Software Asset Management V9.1 installations upgrading with HTTPS support already activated, the following prompt is displayed:

```
Do you wish to update the HTTPS/SSL '*.pem' files already present?(y/N default=y)
```

If you wish to continue using the existing TLS/SSL certificate files, then press enter or reply '**N**' (**case sensitive**).

```
HTTPS will be activated using existing config files.
```

You can skip forward to the **Required TLS Version Support** section to continue.

If you need to update the TLS/SSL certificate files previously used, reply '**y**' (**case sensitive**) to the prompt.

The below prompt is then displayed:

```
Please provide the directory path of where your ssl/tls
certificate and key 'pem' files are located:
```

Ensure you have the "cert.pem" and "key.pem" files at in specific folder location that you have access to. Ensure you have at least read+execute permission to the folder and read-permission to the files.

Then enter the relevant folder location (path) details where the required *.pem files are located, and press **Enter**.

The below success message is displayed indicating a successful copy of the *.pem files has been performed.

Note: Only the expected file-names will be copied if present.

```
Expanded tls/ssl directory location is : <your entered path/folder>
Copy of HTTPS 'pem' files to required IBM Z Software Asset Management docker volume
completed successfully.
copyssl
copyssl
68dfadf1bcfe167474014b7a5019d11e012fa9bd976cdb71e4431736e7933fe2
```

Required TLS Version Support

7. Next the following messages are displayed:

```
Please select the desired MINIMUM TLS version
  IBM Z Software Asset Management will be required to support for network connections.
1.  TLS v 1.0 (not recommended)
2.  TLS v 1.1 (not recommended)
3.  TLS v 1.2 (default)
TLS version - Please select from the above options ( default=3 )
```

Please select the desired MINIMUM TLS version clients connecting to the IBM Z Software Asset Mgmt web UI will require by entering the matching number.

Using a TLS version that is not recommended can expose the web UI to known vulnerabilities such as encryption attacks.

It is highly recommended to accept the default option here unless there will be legacy clients needing to connect to the IBM Z Software Asset Mgmt web UI that cannot support a TLS V1.2 (default) connection.

Once the selection is entered, a message similar to the following is displayed:

```
Please wait.....saving TLS configuration settings.
Successfully copied 2.05kB to 90d306a64d1f:/data
TLS configuration copy completed with rc=0
```

Host Name for UI Web Interface

8. The following prompt message is displayed:

```
Hostname - Please provide the installation system's hostname
( default=your.host.name )
```

If the displayed default is not the correct IBM Z Software Asset Management host-name, then enter the correct fully qualified host-name. If the default shown is correct, you can just press **Enter** to this prompt to continue.

```
Using hostname : <your.host.name>
```

Host IP Address for UI Web Interface

9. The following prompt message is displayed:

```
HostIP - Please enter host IPv4 Address ( default=xxx.xxx.xxx.xxx ) ==>
```

If the shown IP address is the correct host IPv4 address, then you can simply press enter to continue. If it is incorrect, please enter the correct host system IPv4 address.

Host Port Number to use for Connections

10. If you did not use the “-p” argument on the installation startup script (IBM-z_soft_asset_mgt_install.sh), the following prompt will be shown depending upon the connection protocol (HTTPS or HTTP):

```
Connection Port Number - Please enter the desired port number to use for <host> HTTP(S) Web UI connection (default=8443) -->
```

If the default port displayed in the message is acceptable, then press **Enter**. If you wish to use a different port number, enter the port number at the prompt and press **Enter**.

Externally Created Backup Media – zLinux Only

11. Backup of IBM Z Software Asset Management Repository data can be stored internally (default) on a docker volume created for this purpose, or on two different external (to docker) file-systems available on the IBM Z Software Asset Management host system.

Messages similar to the following will be displayed:

```
Enter IBM Z Software Asset Management Backup/Restore default User-id and group-id permission setting.
```

```
For externally mounted/accessible backup folders and files, you can set a default host system user-name and group-id to assign ownership and permissions. The default owner of any externally created backup folders and files on the host system is the installation user account.
```

When creating these backup files on an externally mounted host file-system, the default ownership will be set to the current (install) user (press Enter to select). If you choose to use a different account name and that entered user-name is invalid or unavailable, the highest currently assigned UID+1 will be used instead. You can change this by specifying a host defined user (first prompt) and group-id (second prompt) at the following prompts:

```
Enter an existing IBM Z Software Asset Management backup host user account name to use for folder and file permissions (default=<current user>)>
```

Then if you wish to use a different group-name, enter that at the following prompt (default is the user-account):

```
Enter an existing IBM Z Software Asset Management backup host group name to use for folder and file permissions(default=<user>) →
```

A summary of the entered information will be displayed as follows:

```
Using default group <user> for external backup file group ownership. Setting backup ownership and group information: <user>:<group>(<uid>:<gid>)
```

Those performing an new/initial installation can skip to the **Installation Completed** section to continue.

Product Update – Configuration Data Migration

12. If you are updating your IBM Z Software Asset Management product and decided to keep your existing data, the following messages will appear to check if any internal or User account DBs require updating.

```
Please wait.... checking for any internal DB migration to IBM Z Software Asset Management
V9.1 level requirements.
Successfully Extracted LKB DB schema.
Successfully Extracted LKU DB schema.
86849551ef85ba28b3571a17c46d7c965e453e585e1993521ccd4ed4ea37fd30

Exiting internal DB migration processing. No updated DB configurations found for migration.

Please wait... stopping work docker containers.

Please wait.... checking for User migration to IBM Z Software Asset Management V9.1 level
requirement.
f27e0e2ff1d614d5faf8ab57bdd5cec906203b982975e65576dad9980e2b263d8
Successfully copied 4.1kB to f27e0e2ff1d61:/data
Successfully copied 2.56kB to f27e0e2ff1d61:/data
MigrateUserDB: Copy of User DB schema and commands completed with rc=0

PMigrateUserDB: Begins at 12/04/2025-16:08:28 .
MigrateUserDB: Please wait...Performing any User DB migration as required.
MigrateUserDB: If a failure occurs, migration output log will be available in /tmp/IBM-
MigUserContainer.log
MigrateUserDB: Ended at 12/04/2025-16:08:30 .
Completion of IBM Z Software Asset Management V9.1 User DB migration returned rc=0
Please wait....stopping User DB migration process container (ID:cda3aa2653e8)
Migration of IBM Z Software Asset Management User DB to V9.1 level completed with rc=0.
```

Installation Completed

13. At this point, if everything is entered and is completed successfully, the IBM Z SW Asset Mgmt UI container will be started and will be listening on your provided port number. A string of letters and numbers are displayed along with completion information messages similar to those following:

```
Connectivity to port:<port> on hostname:<your host> for starting IBM Z Software Asset
Management V9.1 Web UI confirmed.
Using IMPORT_VERSION : ibm_z_sw_asset_mgmt-import:09.01-<APAR>-<level>-IBM for IBM Z
Software Asset Management V9.1 installation
Starting IBM Z Software Asset Management V9.1 UI using HTTPS on host <your host> at port
<port>
fbc5e862763459e7deaf7dc291c71fd091c00721f75c2950e4eb8d70a6507715

=====

Installation of IBM Z Software Asset Management V9.1 GA is now complete. Return code = 0

External backup file ownership default setting is : <user>(100?):<group>(100?)

If not already done, please ensure connections are permitted to <your host> at port <port>
Then please connect to the IBM Z Software Asset Management V9.1 UI website at HTTPS://<your
host>:<port> using your favorite internet browser.
Remember to add/enable a browser exception if you have used a 'self-signed' SSL/TLS
certificate.

A sample/skeleton IBM Z Software Asset Management V9.1 startup script is available at /home/
<user>/izswam/start_IBM-Z_SW_Asset_Mgmt-UI.sh
A sample/skeleton IBM Z Software Asset Management V9.1 stop script is available at /home/
<user>/izswam/stop_IBM-Z_SW_Asset_Mgmt-UI.sh

Please consult the provided IBM Z Software Asset Management V9.1 Installation and
Configuration Guide PDF for your initial admin login credentials and the post-installation
steps required.

=====
```

Locally available IBM Z SW Asset Mgmt web UI container start-up and stop scripts are generated and saved as :

```
start_IBM-Z_SW_Asset_Mgmt-UI.sh
```

```
stop_IBM-Z_SW_Asset_Mgmt-UI.sh
```

14. These are stored in the current product installation folder location. You can use these scripts to start and stop the IBM Z SW Asset Mgmt web UI container as required. The API service container can be started and stopped using the UI admin tools menu, under the **API Service** tab.

Note: Only a single IBM Z SW Asset Mgmt web UI container instance can be run on the host using the provided start-up script at a time.

15. You can now proceed to the [Post Installation Customisation](#) section to complete the required post-installation steps.

Chapter 2. Post Installation Customisation

In this section, we will discuss the Customization process in detail.

First Time Login to UI

So long as the network and firewall(s) have been configured correctly to allow connections, you can now connect to the IBM Z Software Asset Management web UI using the hostname and port address shown at completion of the installation process, with your configured https or http connection, using your desired browser.

Remember to add/enable a browser exception if you have used a **self-signed** SSL/TLS certificate.

For Example:

With https - <https://your.system.domain:port>

Without https - <http://your.system.domain:port>

If the connection is successful, the login screen displays as follows:

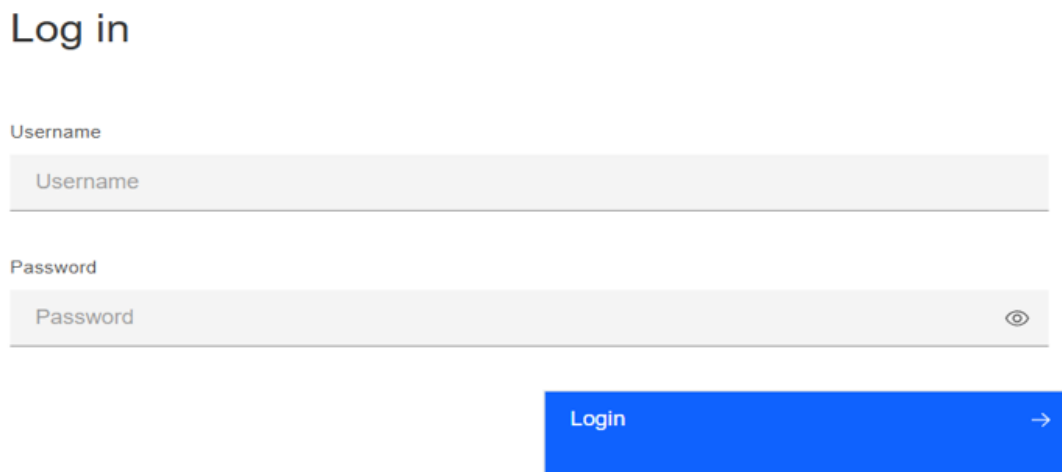



Figure 1. Web UI Login Page

Use the below default credentials to log in for the first time:

Username: izsamadmin@ibm.com

Password: 1234567890

Note: Once you have entered the credentials, you will be required to change the initial password. Complete this step and then log in again using the original username (izsamadmin@ibm.com) but with your changed password. For acceptable password content, please refer to the following [Create User Accounts](#) section.

You can change the web interface language by clicking on the  icon at the top right corner of the Login page and selecting your desired language from the available options. Currently, only English and Japanese languages are supported.

Docker Connection Status

1. Once you have successfully logged into the IBM Z Software Asset Management V9.1 UI website, the docker connection status page will be shown.

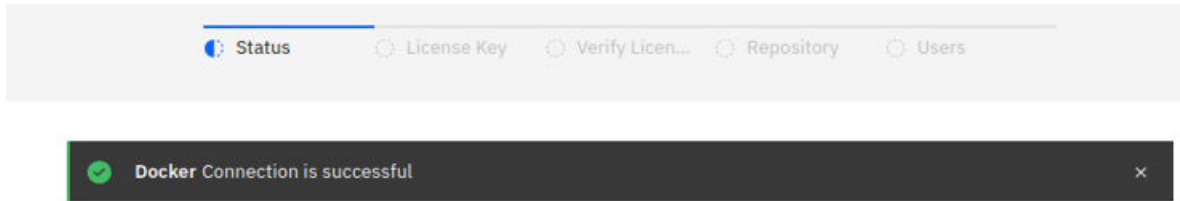


Figure 2. Docker Connection Details

2. Click **Next**.

The **License Key** page is displayed

Enter Product License Key

Once you have successfully logged into the IBM Z Software Asset Management 9.1 UI website, the **Licenses** page is displayed with the license key details.

1. Copy the license key provided in the product installation **Readme** file and paste it in the **Enter license key** text box.
2. Click **Next** to verify your license key and to continue.

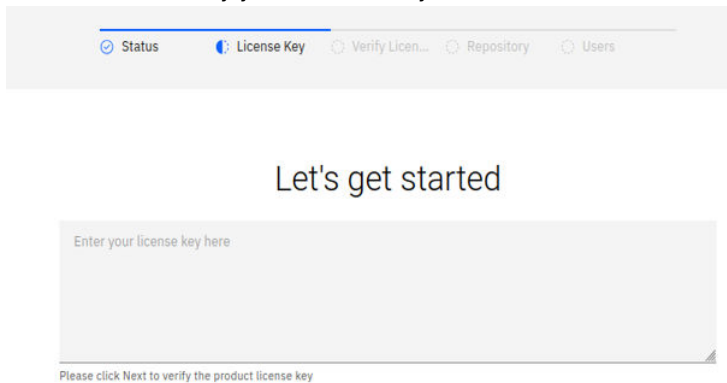


Figure 3. License Key Details

The Verify License page is displayed with a summary of the product license details.

3. Click **Next** to continue

Create Repository Database

The Repository page is displayed next. You need to create at least one database repository that can be used for imported data.

1. Select **Add Repository** to create repository. Enter a repository name and then a useful description to describe the intended use for this specific repository, in the **Description** box provided.

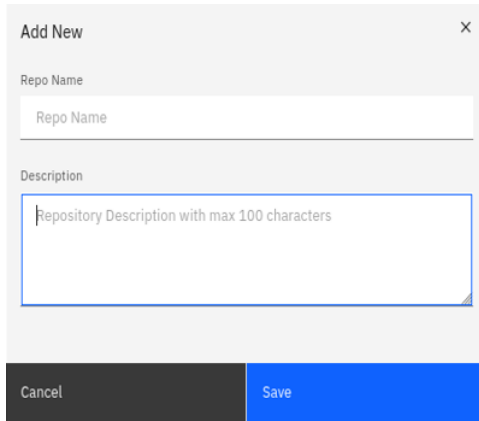


Figure 4. Add Repository

2. Select **Save** to complete the database repository creation.

Your repository is successfully added. The message displays as follows:

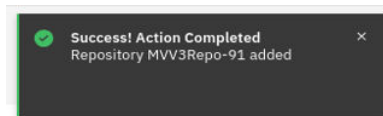


Figure 5. Added Repository

You now have the option to create more repositories from the Repositories page.

3. To create more Database Repositories, click **Add Repository** or else, click **Next** to continue.

Create User Accounts

You are next directed to the **Add New Users** page.

1. On the User page, you can create additional users using the **New User+** button located at the top right.

Note: It is recommended that you make at least one Admin user for later use, rather than using the supplied installation Admin user once the installation is complete.

2. Password rules are as follows:

- Password must be min 8 characters long
- Password must contain at least one digit
- Password must contain at least one uppercase letter
- Password must contain at least one lowercase letter
- Password must contain at least one special character
- Password must not contain any whitespace

3. If you do not wish to create any users at this point of time, click **Finish** to complete the post-installation process.

Figure 6. User Page

Once you add a new user or proceed from the User page, you will be directed to the IBM Z SW Asset Mgmt home page.

4. Please select your initial default repository from the selection available as follows:

Figure 7. Initial Default Repository

Once selected, the home page will update to display your product license details and the available IBM Z SW Asset Mgmt database disk space as follows:

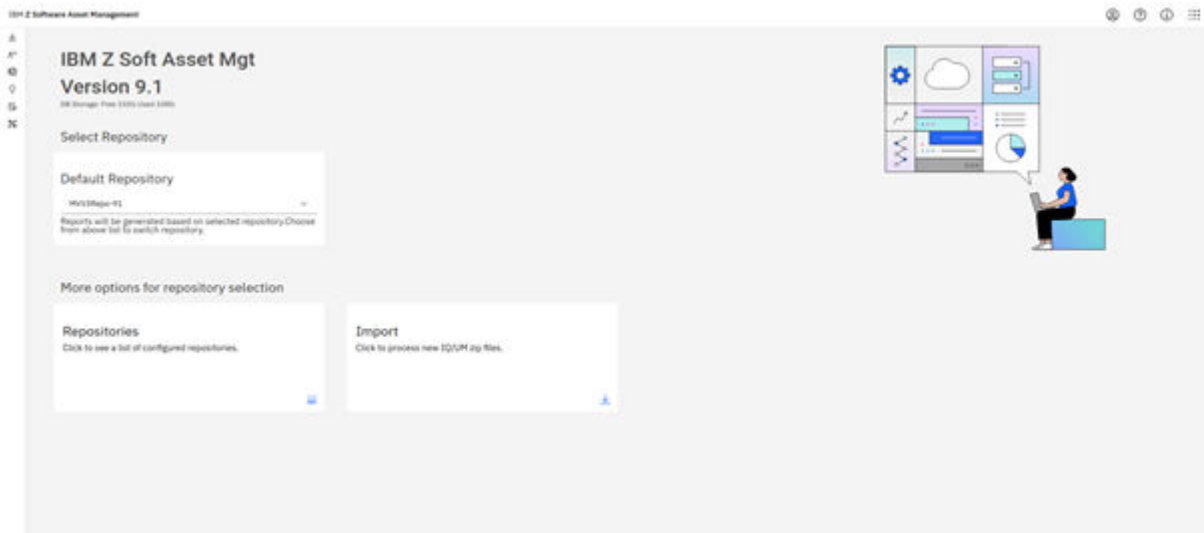


Figure 8. Home Page

The post-installation of the IBM Z SW Asset Mgmt containers component is now complete.

For information on importing the collected z/OS inquisitor and usage monitor data, please refer to the IBM Z SW Asset Mgmt V9.1 Administration and Users Guide.

Uninstall

In this section , we will discuss the Uninstall process in detail.

Linux on Z or z/CX Uninstall

To completely remove the IBM Z Software Asset Management V9.1 product from the installation system, you can use the provided `IBM-z_soft_asset_mgmt_install.sh` script with the `-r` flag.

Note: Performing this action and confirming that this is what you want to do will result in the complete removal of all data base files, container volumes, all backup media files resident on `_backup` and docker container images provided with the IBM Z Software Asset Management V9.1 product. This action is generally considered to be unrecoverable and irreversible. Only perform this action if you are absolutely sure this is what you want to do.

Note: The response to the removal confirmation message is case sensitive.

Sample Uninstall

Example:

```
$. /IBM-z_soft_asset_mgmt_install.sh -r
```

```
*****
*
* Licensed Materials -Property of HCL
* © Copyright HCL Technologies Ltd., 2020, 2025.
*
*****
```

About to completely remove IBM Z Software Asset Management V9.1 GA from this system. Are you sure?? (Y/n default=n) ==> Y

```
WARNING! Installation user account does not include 'docker' in its group list.
Host system is running Ubuntu 24.04.2 LTS ( matching Ubuntu 24. ) which is a supported IBM Z
Software Asset Management V9.1 host operating system.
Storage driver backing file-system found ( extfs ) matches one of the overlay2 supported
versions.
Starting IBM Z Software Asset Management V9.1 GA product Uninstall.
IBM Z Software Asset Management V9.1 uninstall process begins.
```

```
Please wait... Stopping any currently running IBM Z Software Asset Management V9.1 docker containers.
No active IBM Z Software Asset Management ibm-z-soft-asset-mgt-ui:prod-91-IBM (V9.1) containers found to stop.
No active IBM Z Software Asset Management ibm_z_soft_asset_mgt-import for versions 09.01 containers found to stop.
No active IBM Z Software Asset Management ibm_z_soft_asset_mgt-api-sample API sample containers to stop.
No active IBM Z Software Asset Management ibm_z_soft_asset_mgt-api-service for version 09.01 API service containers to stop.
No active busybox containers found to stop.
```

About to delete IBM Z Software Asset Management data docker volumes for GA V9.1. Are you sure? (y/n, default=y) ==> Y

To uninstall, reply **y** or press enter to the above prompt. This will begin the process of removing all IBM Z Software Asset Management V9.1 related docker volumes and images from the installation host system.

To confirm that the removal has been successful, you can issue the following commands on the installation host which should return no results.

```
docker images | grep IBM
docker volume ls | grep "\-91"
```

If there are no responses to the mentioned commands, the uninstall process is now complete.

If there are volumes or images returned, you will need to delete them manually to complete product removal.

z/OS Collectors Uninstall

The z/OS collectors component un-install process must now be performed on the applicable z/OS systems to completely remove the IBM Z SW Asset Mgmt V8.3.1 product. Please contact your z/OS Systems programmer to complete this task.

Appendix A

List of dependent packages/utilities for a target Ubuntu (e.g. 22.04 / 24.04) installation host:

- docker.io
- bash
- bzip2/bunzip2
- unzip
- lsb_release
- tar
- sed
- nc / netcat
- netstat
- bc
- base64
- bind9-dnsutils (nslookup)

Notices

PDF dated August 29th, 2025.

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