Adabas & Natural

Community Edition

October 2024

Version 1.3

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Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

CONTENTS

1 Welcome

Welcome to the Adabas & Natural Community Edition by Software AG running on containers.

This package includes all tools for developing and running applications in Natural, such as:

- NaturalONE Community Edition - Software AG's Eclipse-based development environment for the Natural programming language
- Natural Community Edition - Natural's runtime and development environment
- Adabas Community Edition - Software AG's database system, including a demo database
- Adabas Manager Community Edition – A web application to administer Adabas databases in Linux and Windows environments, as well as Entire Net-Work suite of products and Adabas Auditing Server

These Community Editions are particularly interesting for you if you want to

- Gain practical programming experience with Adabas and Natural
- Get familiar with Adabas and Natural in a Containers images

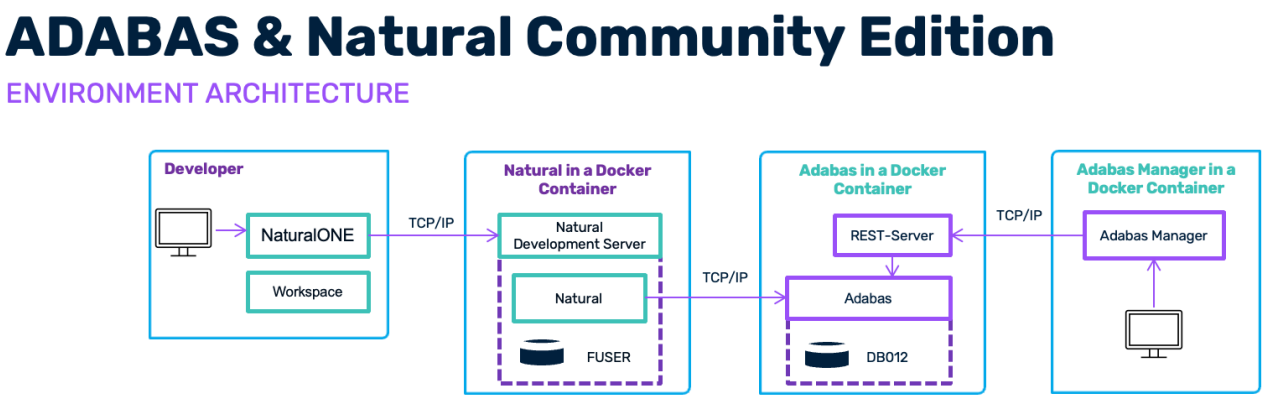
The Adabas & Natural Community Editions can run on Linux (x86-64 bit) and Windows 10/11 platforms.

As a prerequisite, a Docker Container compatible runtime environment must be installed on these operating systems (e.g., Podman, Docker Community Edition).

To load the Adabas & Natural images you need to have access to Docker Hub or Software AG registry.

So that you can start working without much Containers training, you can find all necessary commands in this guide, as well as in the Readme.md files of the Natural, Adabas and the Adabas Manager Community Edition. You can use the commands directly via copy & paste.

2 Architecture Overview



NaturalONE is the Development Environment running on a Developer Workstation (Windows / Linux).

NaturalONE connects to Natural running in a Docker Container.

Natural applications are connecting over TCP/IP to the Adabas database running in a Docker Container.

Adabas Manager connect via REST server to Adabas databases running in a Docker Container.

3 Getting Started

To run the Adabas & Natural Community Editions on your computer, just follow these steps. This requires a connection to the internet.

1. Install Podman or Docker Community Edition.
2. Start Adabas in a container.
3. Start Natural in a container.
4. Download and unpack NaturalONE.
5. Start Adabas Manager in a container.

For NaturalONE, Natural, Adabas and Adabas Manager, an installation in the classical sense is not required.

4 Installing Podman or Docker Community Edition

4.1 Linux

If you want to run Adabas & Natural in the Docker container on Linux, the Docker Community Edition for Linux or Podman must be installed. This is available for different Linux distributions. The installation consists of four steps:

1. Install the required tools.
2. Set up the repository.
3. Install the Podman or Docker Community Edition.
4. Start the Docker service.

To install Podman on Red Hat 8, these steps can be performed with the following commands:

```
sudo yum module install -y container-tools:rhel8
sudo yum module enable -y container-tools:rhel8
```

Note – in our document we share podman statements, to use the docker images installation replace all “podman” to “docker”

e.g.

```
docker run -d -p 60001:60001 -p 8190:8190 -e ACCEPT_EULA=Y -e ADABAS_DBID=12 -e
ADABAS_DB_CREATION=demodb --name adabas-db softwareagcr.azurecr.io/adabas-ce:7.3.0
```

For complete installation instructions or installations on other Linux distributions, use the links below.

Podman installation on Red Hat:
https://podman.io/getting-started/installation
Look for RHEL version.

Docker installation on CentOS:

https://docs.docker.com/install/linux/docker-ce/centos/

Docker installation on Ubuntu:

https://docs.docker.com/install/linux/docker-ce/ubuntu/

Further Docker distributions:

https://docs.docker.com/install/

Determine the IP address of your environment and note it down. The IP address will be used later to connect the database container, and to connect the development environment with the development server.

On Linux, you can determine the IP address using the following command:

```
ifconfig
```

Look for an entry that starts with "eth" or "ens", and then look for an address in the format "x.x.x.x" (for example, 192.168.229.128).

4.2 Windows 10/11

If you want to run Adabas & Natural in containers on Windows, Docker Desktop on Windows, Podman for Windows or any other Docker compatible runtime must be installed.

Windows 10/11 supports Docker containers.

To install Docker Desktop for Windows, go to https://docs.docker.com/desktop/install/windows-install/

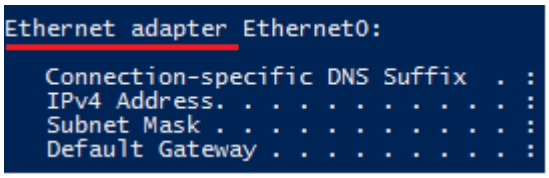
Click **Docker Desktop for Windows** to download the “Docker Desktop Installer.exe”, and then install the Docker Desktop for Windows.

To install **Podman** for Windows, go to https://podman.io/docs/installation

Start the Windows Powershell

Use the following command to determine the IP address of your environment and note it down:

```
ipconfig
```



Look for an entry "Ethernet adapter" or "Wireless LAN adapter", and then look for an "IPv4 Address" in the format "x.x.x.x" (for example, 192.168.229.128).

The IP address will be used later to connect the database container, and to connect the development environment with the development server.

5 Login to Docker Hub / Software AG Registry

Docker Hub:

You can find the docker images with the following links on Docker Hub (no need to register):

https://hub.docker.com/r/softwareag/natural-ce

https://hub.docker.com/r/softwareag/adabas-ce

https://hub.docker.com/r/softwareag/adabasmanager-ce

To pull the image to your container environment, you must login to Docker and copy the pull command on the top right, paste it into your Docker Environment, add a ":" and then add the version you want to use. All available versions are listed in the "Tags" tab at the top of the page. After you modified it, the command will look something like this:

```
docker login
<DOCKER-STORE-USERNAME>
<DOCEKR-STORE-PASSWORD>
```

Latest versions of containers images:

```
docker pull softwareag/natural-ce:9.3.2
docker pull softwareag/adabas-ce:7.3.0
docker pull softwareag/adabasmanager-ce:9.3.0
```

Software AG Official Registry:

To Pull and subscribe to Software AG official registry you should use your Empower credentials.

Follow this instruction and keep the data for pulling the images:

1. Navigate to Software AG registry page: https://containers.softwareag.com/
2. Login using your Empower credentials
3. Use this links of Natural Community Edition, Adabas Community Edition and Adabas Manager community Edition to get the pull command.
4. Review the terms and condition on the top right of the page and click on the checkbox next to it accordantly
5. Click on “Get the pull command”
6. Copy and store your Token Name, Token Password and login command. (it will be visible only on the first image)
7. Click “Got it”, the window will be closed
8. Select the desired version
9. Copy the pull command

In case you have lost your credentials you can click on your avatar on the top right of the page, click setting and Generate password button, then follow the instructions to retrieve your credentials.

Login Command sample:

```
podman login softwareagcr.azurecr.io
<my-username-softwareag-com>
<my-password>
```

Login into Software AG public registry environment using your “podman login” command, with success login pull all the images one after the other using the pull command for each product.

6 Starting Adabas in a Container

The Adabas Community Edition is a functionally complete database system against which you can perform database queries and make database changes.

If you start the database with the command below, a demo database is automatically created in the container. Data changes to this demo database are not persisted.

If you need to persist the demo database, you must:

1. create a directory, and
2. mount this directory.

For further information, see the Readme file of the Adabas Community Edition in Docker Hub.

To start the Adabas Community Edition with Adabas running on port 60001 and Adabas REST server running on HTTP port 8190, run the following command:

Docker Hub:

```
podman run -d -p 60001:60001 -p 8190:8190 -e ACCEPT_EULA=Y -e ADABAS_DBID=12 -e
"ADABAS_DB_CREATION=demodb" --name adabas-db softwareag/adabas-ce:7.3.0
```

Software AG registry:

```
podman run -d -p 60001:60001 -p 8190:8190 -e ACCEPT_EULA=Y -e ADABAS_DBID=12 -e
ADABAS_DB_CREATION=demodb --name adabas-db softwareagcr.azurecr.io/adabas-ce:7.3.0
```

The software is now automatically fetched from Containers registry and runs in the background of your computer.

If you wish to view the log, type this command:

```
podman logs adabas-db
```

6.1 Checking the Adabas Demo Database

After starting the demo database, you can check whether its start was successful:

```
podman exec -it adabas-db adainfo.sh
```

The following should be shown at the end of the output (important: the status must be “active”):

```
%ADAREP-I-TERMINATED,   11-APR-2022 09:57:36, elapsed time: 00:00:00

Database ID   : 12
Database Name : GENERAL_DATABASE
Version       : 7.0
Config. file  : /data//db012/DB012.INI
Status        : active
TCP-Port      : 60001
TCP-SSL-Port  : Not enabled
```

7 Starting Natural in a Container

The following command starts the Natural container. You have to replace "<OWN-IP>" in the command with the IP address of the host running the Adabas container that you have determined, to get access to the Adabas database.

Docker Hub:

```
podman run -d -p 2700:2700 --add-host adabas-db:<OWN-IP> -e ACCEPT_EULA=Y --name
natural-ce softwareag/natural-ce:9.3.2
```

Software AG Official Registry:

```
podman run -d -p 2700:2700 --add-host adabas-db:<OWN-IP> -e ACCEPT_EULA=Y --name
natural-ce softwareagcr.azurecr.io/natural-ce:9.3.2
```

The software is now automatically fetched from Containers registry and runs in the background of your computer.

If you wish to view the log type this command:

```
podman logs natural-ce
```

For further information, see the Readme file of the Natural Community Edition in Software AG registry or Docker Hub.

8 Downloading and Unpacking NaturalONE

Download the NaturalONE Community Edition (the Eclipse development environment) as a zip or tar.gz file from:

https://tech.forums.softwareag.com/t/adabas-natural-community-edition-for-docker-download/235228

To receive the download link, you need to sign-in to the Software AG Tech Community, if you haven't already.

Unpack the zip file and start it with "Start_ONE_".

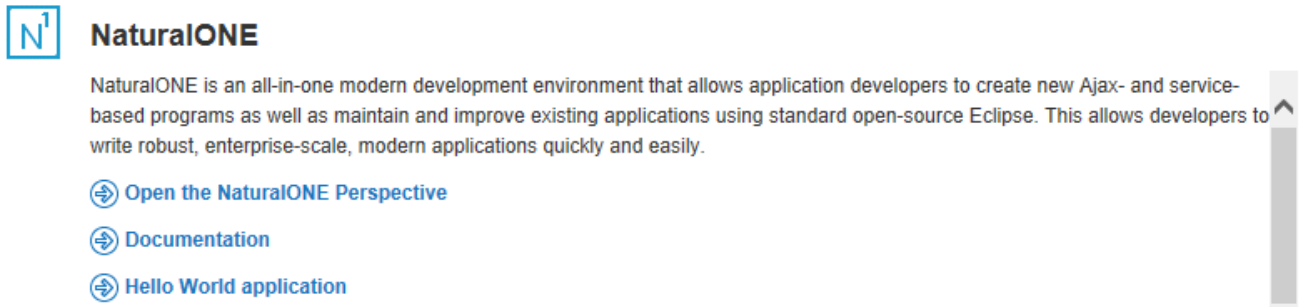
9 Quick Start Guide for NaturalONE

Copy the zip or tar.gz file into a directory and unpack the file.

Then go to the installation directory "ONE_<version>.CE". A shortcut or shell script "Start_ONE_<version>.CE" for starting NaturalONE can be found there.

When you start NaturalONE for the first time, you are asked for a workspace directory.

Use the default setting or define another directory. The welcome page of NaturalONE is shown next.



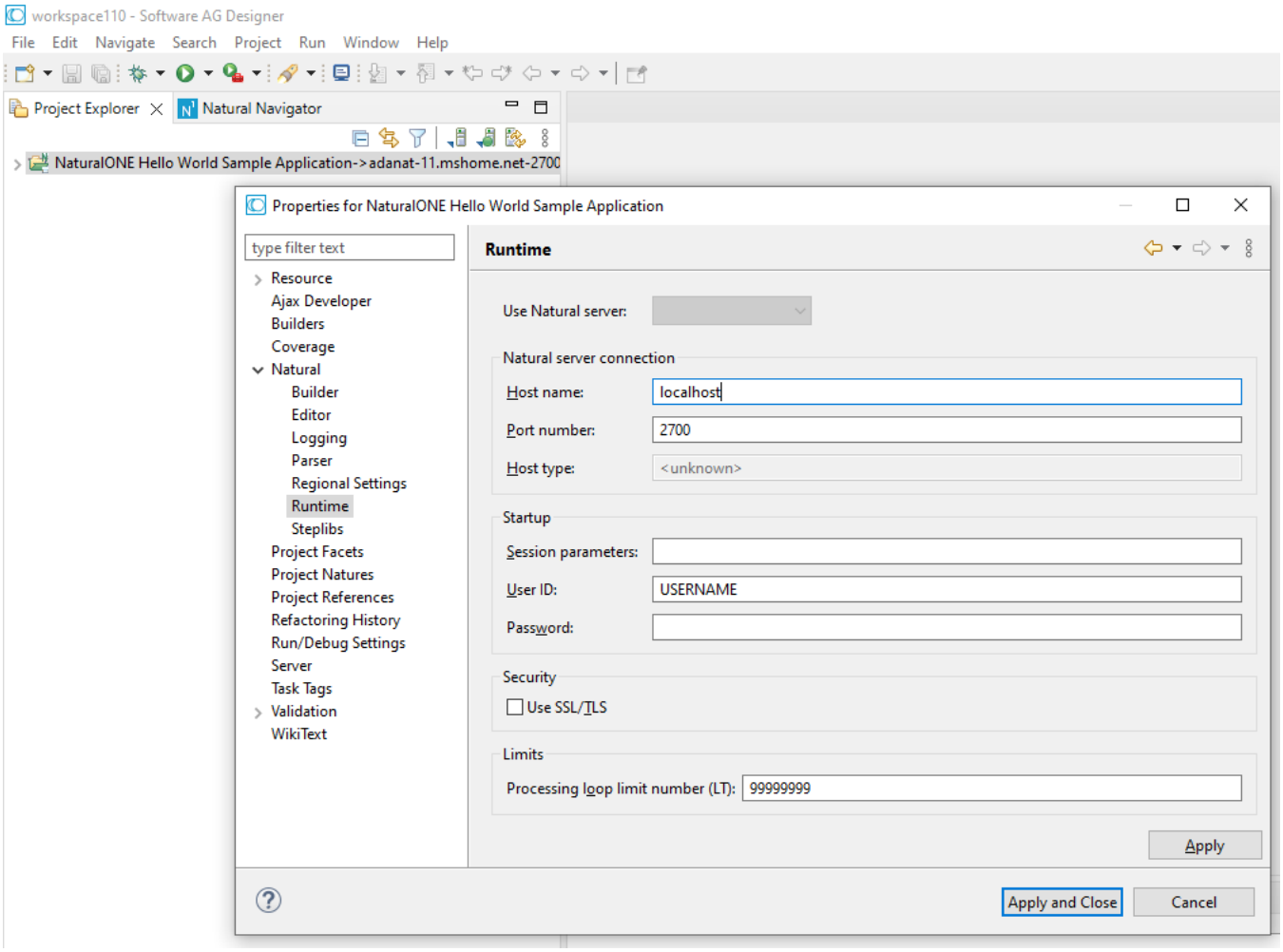
If you are familiar with Eclipse, you can immediately start working on your own projects. Click **Open the NaturalONE Perspective** to start developing Natural applications.

If you want to get to know NaturalONE using the supplied examples, click **Hello World application**. This example uses Natural and Adabas.

10 Establishing the Connection between NaturalONE and the Natural Container

NaturalONE must know where to find the runtime environment.

To set the appropriate runtime right-click the project and choose **Properties**.



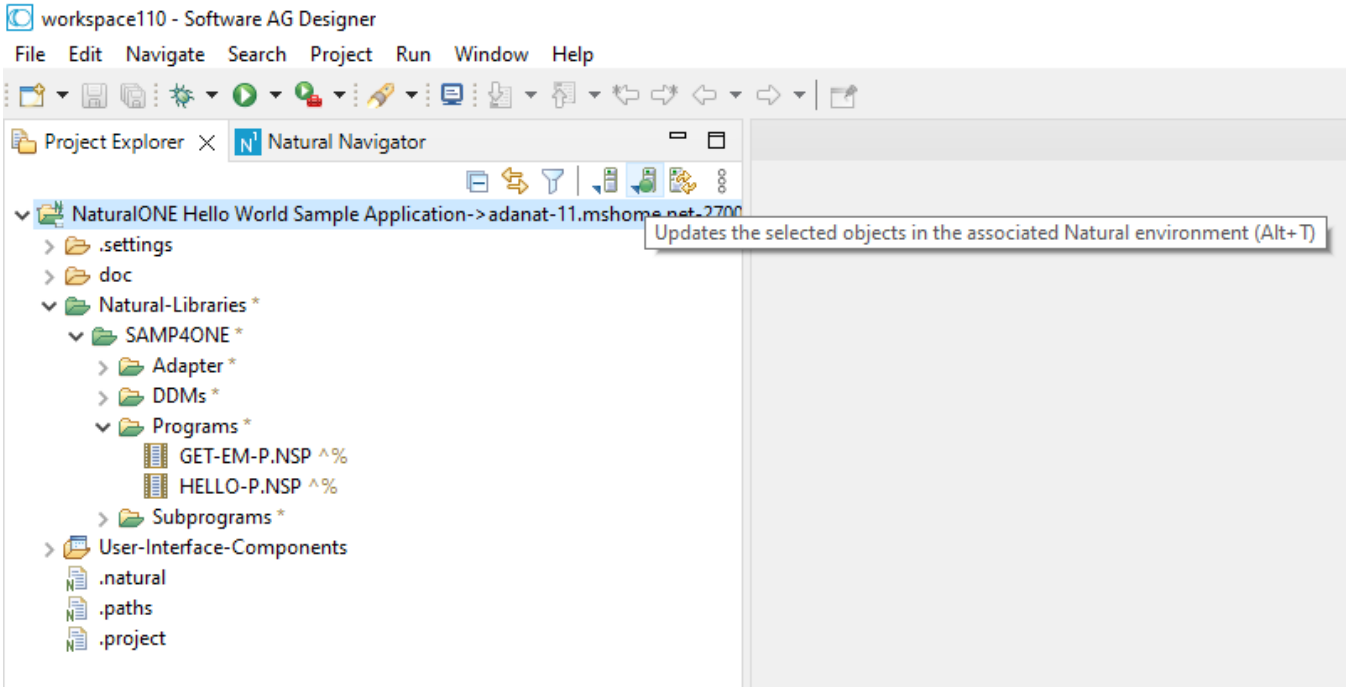
For **Host name**, enter the IP address of your Container environment, that is, the address that you have determined previously.

For **Port number**, enter 2700.

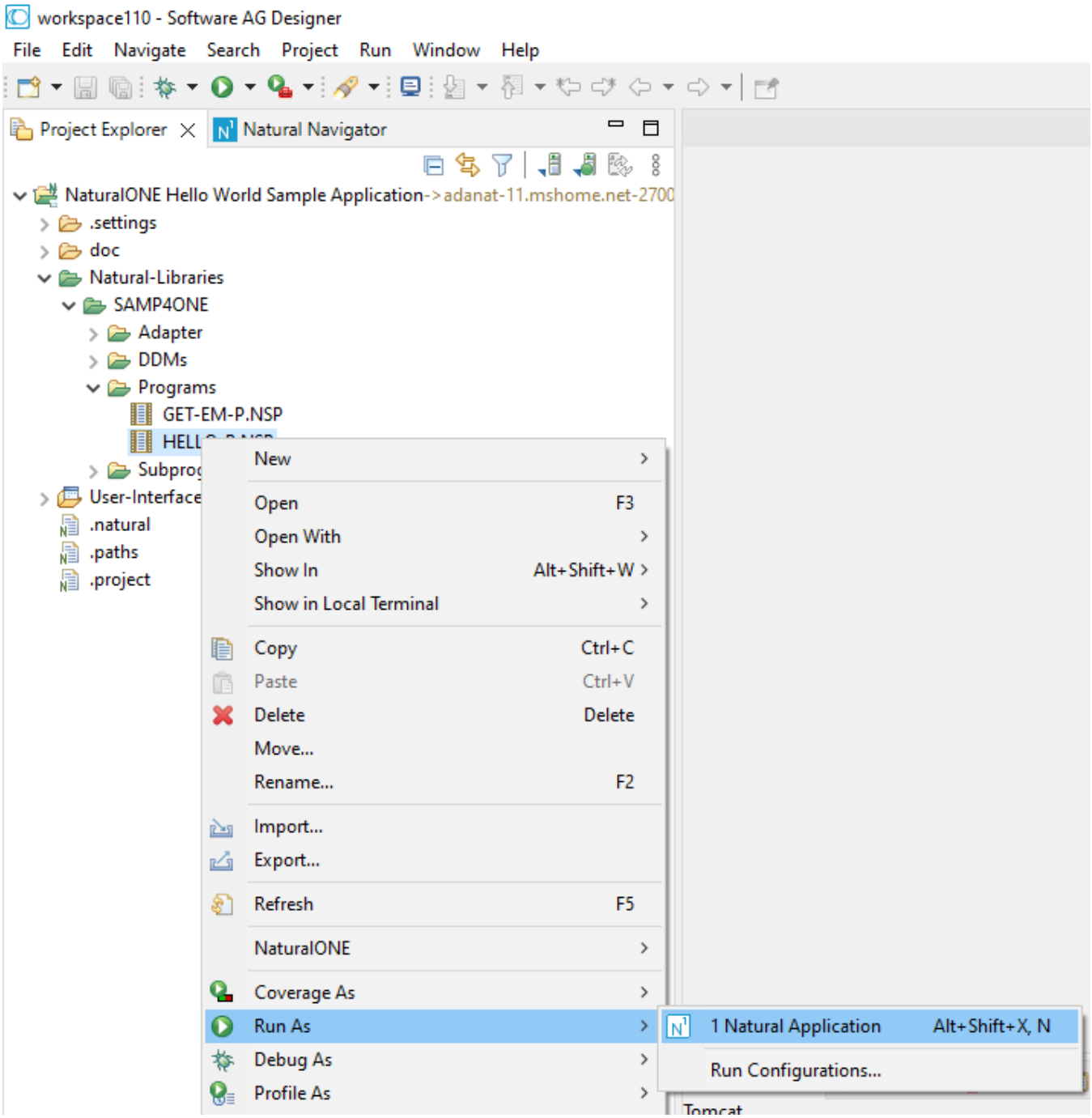
For your comfort, the Natural Demo Application is also delivered with the Natural Community Edition. Therefore, you are able to execute the sample programs using ‘Run As’, as described below.

But In general, you have to upload and catalog all Natural sources in the workspace inside the Natural runtime environment.

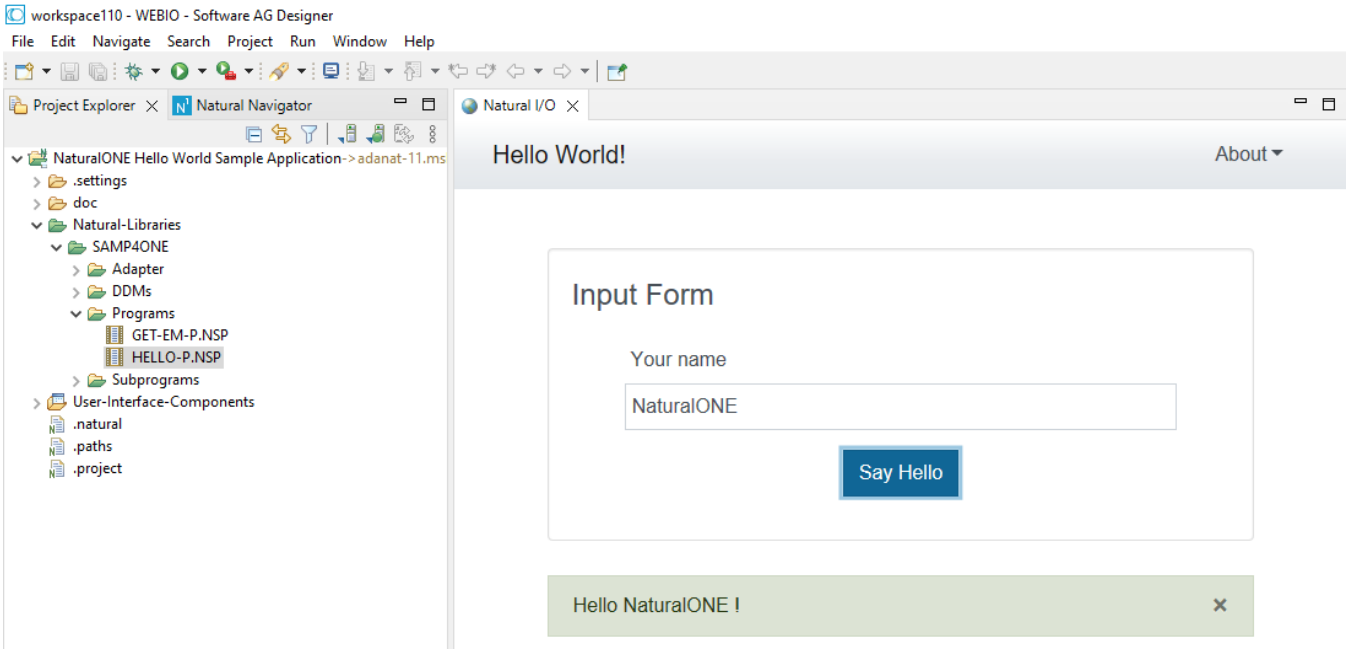
To do so, please select the Natural sample project and click the Update icon.



To run the programs, right-click GET-EM-P.NSP or HELLO-P.NSP and then choose **Run As > Natural Application** from the context menu.



After running the Natural program, you will see the "Hello-World" application in the editor area. When you now click "**Say Hello!**" you will get a corresponding output. The result should look similar to the following:



You can also run the GET-EM-P.NSP program to test successful access to the Adabas database.

If you are new to Natural and NaturalONE please feel free to head over to Software AG's NaturalONE tutorial videos on YouTube. There you can get a basic understanding of NaturalONE and make your first successful steps with Natural. Link.

11 Starting Adabas Manager in Containers

The following command starts the Adabas Manager container.

Docker Hub:

```
podman run -d -p 4990:4990 -e ACCEPT_EULA=Y --name adabas-manager
softwareag/adabasmanager-ce:9.3.0.
```

Software AG Registry:

```
podman run -d -p 4990:4990 -e ACCEPT_EULA=Y --name adabas-manager
softwareagcr.azurecr.io/adabasmanager-ce:9.3.0
```

The software is now automatically fetched from Containers registry and runs in the background of your computer.

If you wish to view the log type this command:

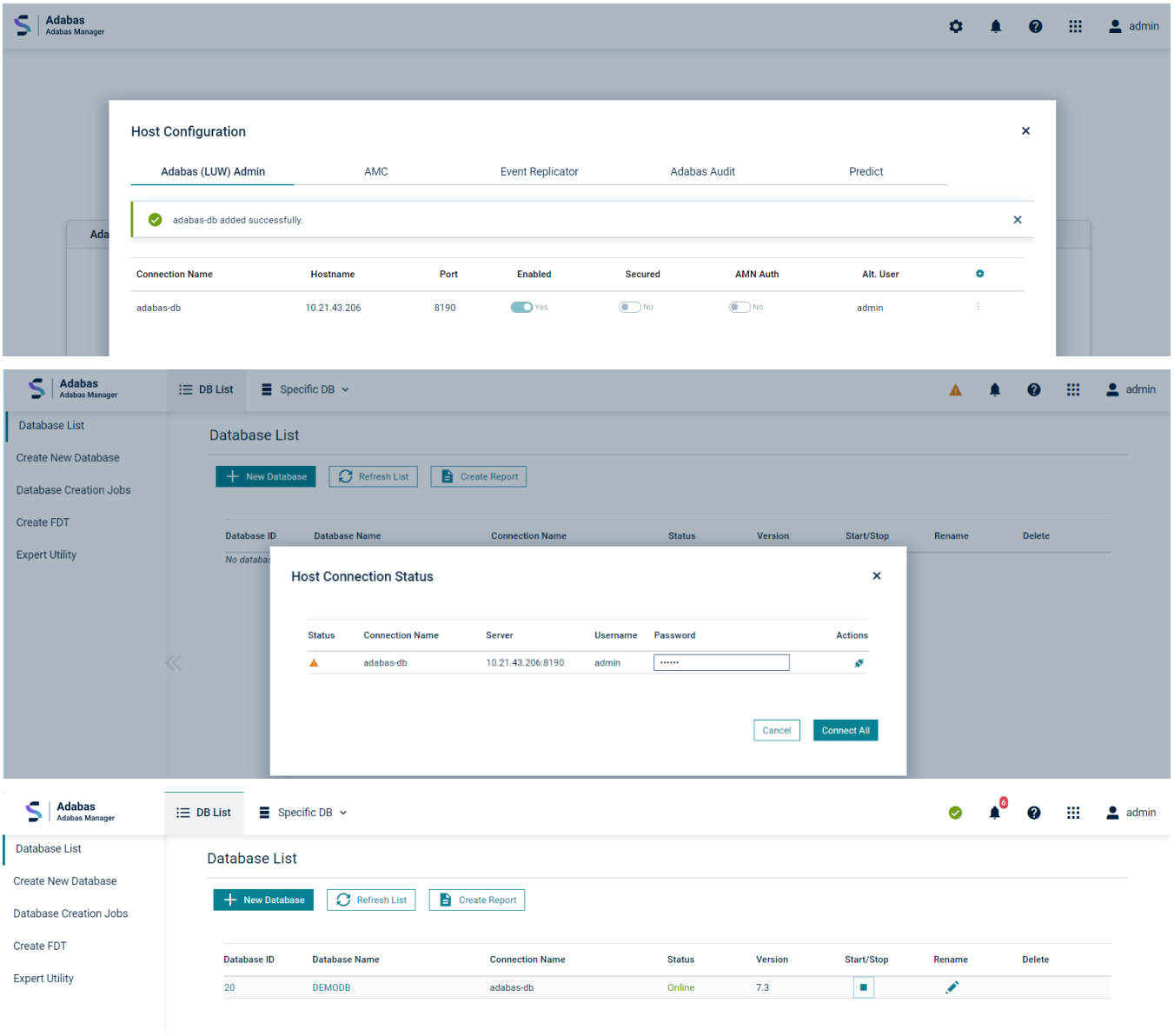
```
podman logs adabas-manager
```

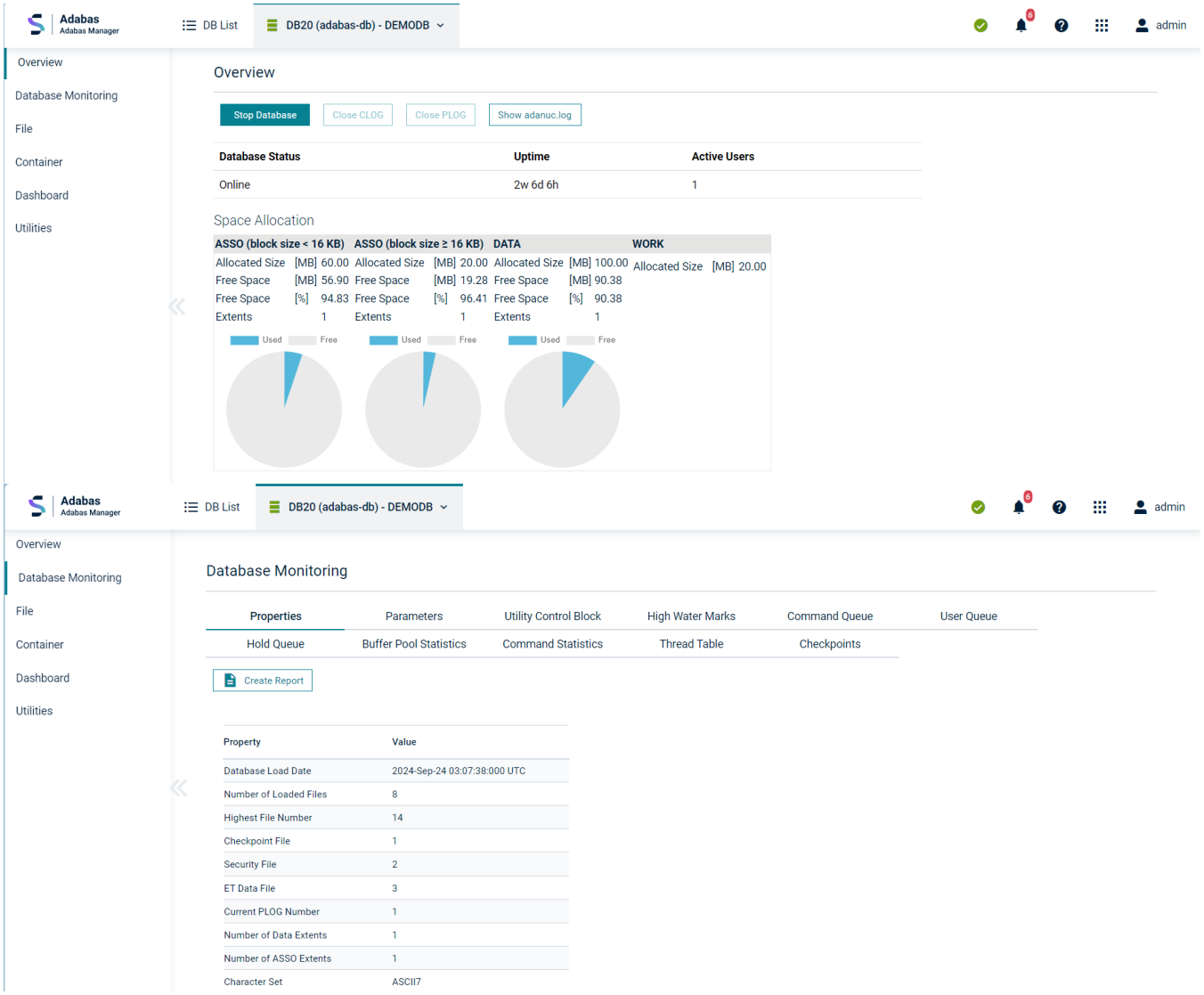
To launch Adabas Manager, enter the address "https://<host of the running container>:4990 " at the URL of a browser. The host of the running container can either be defined as a DNS name or through the IP address of the Containers environment.

The Adabas Manager is using SSL encrypted communication (https) and is delivered with a self-signed certificate. You will have to accept and trust the self-signed certificate to see the login page.

Otherwise for further information how to exchange the SSL certificate with a custom trusted certificate, please see the Readme file of the Adabas Manager in Docker Hub. You can login to the Adabas Manager with the User-ID= “admin” and Password= “manage”.

Please add the corresponding Adabas REST Server Hostname in Adabas Manager with port 8190 of your running Adabas Community Edition container. You can see the steps in the following illustrations.


Adabas
Adabas Manager
admin
Host Configuration
Adabas (LUW) Admin
AMC
Event Replicator
Adabas Audit
Predict
adabas-db added successfully.
Connection Name
Hostname
Port
Enabled
Secured
AMN Auth
Alt. User
adabas-db
10.21.43.206
8190
Yes
No
No
admin
DB List
Specific DB
Database List
Create New Database
Database Creation Jobs
Create FDT
Expert Utility
New Database
Refresh List
Create Report
Database ID
Database Name
Connection Name
Status
Version
Start/Stop
Rename
Delete
Host Connection Status
Status
Connection Name
Server
Username
Password
Actions
adabas-db
10.21.43.206:8190
admin
Cancel
Connect All
20
DEMODB
adabas-db
Online
7.3



For further information, see the Description of the Adabas Manager Community Edition in Docker Hub or Software AG Official Registry.

12 How to restart container images

It’s worth noting, that if at any point in time the PC is shut down the containers are stopped but not automatically removed. Thus, a new container can’t be started but the old one can’t be used either.

Note: If a container image is removed, all data within that container is lost. Make sure important data is pulled from those containers before removing the containers.

To restart a container image in Linux, first if it isn’t already the running process needs to be stopped. For this you use the following command.

```
podman stop <softwarename>
```

Afterwards, the Container must be removed with the command

```
podman rm <softwarename>
```

Once this is done, a new container using the same image can be started.

13 Troubleshooting Network Connectivity

13.1 NaturalONE cannot connect to Natural running in a container

If you are not able to connect to the Natural container on port 2700, you should check first if the IP address you have determined is correct. Try to execute a ping command to see if it is reachable. If you are running in Windows 10 or pure Linux with all components, you could even use “localhost” to connect. With Docker Toolbox you can use the following command to determine your IP address:

```
docker-machine ip
```

In addition to that, check if you have a firewall running on your host machine that is blocking port 2700. Ensure that this port can be reached in your environment.

Port 2700 on your host machine might be already in use. If you have a Natural for Windows version installed on your Windows PC you could stop the appropriate ‘Software AG Natural 8.n NDV Listener Service’.

If port 2700 is in use by a service you cannot stop, you are able to change your port mapping on the host machine to another free port e.g. 2777 by modifying your Docker “run” command:

```
podman run -d -p 2777:2700
```

13.2 Natural runtime cannot connect to Adabas running in a container

You can connect to the Natural container on port 2700, but Natural applications running in the container cannot connect to the Adabas database, and you are getting error code 3148.

Check first if you have a firewall running on your host machine that is blocking port 60001. Ensure that this port can be reached in your environment.

If this is not the case, it is possible that you have a loopback address access problem in your configuration so that Natural cannot access the Adabas network on port 60001 through the external IP address.

You could fix this problem using a Docker network while starting your containers. To do so, first stop and remove the already started Adabas and Natural Docker containers.

Change your Quickstart commands to the following three commands:

```
podman network create adabas_natural
```

```
podman run -d -e ACCEPT_EULA=Y -e ADABAS_DBID=12 -e "ADABAS_DB_CREATION=demodb" --
network adabas_natural --name ADABAS-DB softwareag/adabas-ce:<version>
```

```
podman run -d -p 2700:2700 --network adabas_natural -e ACCEPT_EULA=Y --name
natural-ce softwareag/natural-ce:<version>
```