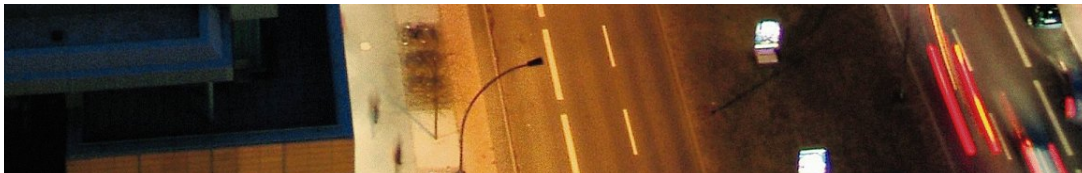
Sitraffic sX Developer Workstation

Installation Guide V1.0
A001

Intelligent Traffic Systems

SIEMENS



Contents

Preface

This manual explains how to install the Sitraffic sX Developer Workstation (DWS). The installation provides components to start with the development of a regional traffic actuation (TA) component or a traffic control center (TCC) interface. It includes:

- Sitraffic sX image (VMware image of the Linux part of the Sitraffic sX traffic controller)
- CBC (signal monitoring unit) simulation running within the Sitraffic sX image
- Required Java interface components of the Sitraffic sX
- Eclipse IDE
- Simple example project of a traffic actuation (TA) component
- Simple example project of a traffic control center (TCC) interface component
- Sitraffic SmartCore (configuration tool of the Sitraffic sX controller)
- Example configuration of the Sitraffic sX
- Manuals, interface definition and Javadoc descriptions

Some applications are not part of the software delivery due to license regulations. These applications (like Mozilla Firefox) have to be downloaded and installed separately.

We assume that you are familiar with Microsoft Windows 7, Linux, VMware Player, Eclipse, Java and basic road traffic concepts.

The manual *Sitraffic_sX_DWS_Developer_Guide_en.pdf* provides a logical overview of the development system

1. Installation of Developer Workstation

1.1. System Requirements

- Microsoft Windows 7 64Bit
- Minimum of 4GB RAM
- Minimum of 4 GB free disk space (additional disk space for Mozilla Firefox and virtualization application)
- CPU and BIOS supporting (and enabled) virtualization (see requirements of virtualization application, please)

The Sitraffic sX image (virtualized Sitraffic sX controller) was generated with VMware Player V5.

1.2. Installation of the Basic Components

Before installing the DWS Basic Components to your system, it is recommended to uninstall a previous version from your system. To uninstall, please remove the installation directory of the previous version (default is C:\dws). If you worked on the example Java projects it is recommended to make a copy of your projects as a backup.

Start the InstallDWSEnvironment.exe setup of the base components. Make sure that you have administrator rights for installation. This setup just unpacks the provided zip files. Except one shortcut to the Eclipse IDE on your desktop, it does not change anything on your computer outside of the installation folder. We strongly recommend using default folder C:\dws as installation root directory. You can confirm the Browse for Folder dialog window to use this default setting. Confirm this program installed correctly in dialog window Program Compatibility Assistant at the end of installation.

The setup generates a folder structure containing the main parts of the Developer Workstation.


dws


appfs

(Containing the necessary Sitraffic sX code, classpaths, project settings and some external components)


configurations

(Example of controller configuration)


ControlCenterIfProcessExample

(Simple example project of the TCC connection component)


doc

(Manuals, interface definition and interface descriptions)


eclipse

(Eclipse base directory)


jdk

(Oracle JDK 1.7)


OmcVm

(Image of the Sitraffic sX Linux part)


TrafficActuationControlExample

(Simple example project of traffic actuation component)

1.3. Installation of Sitraffic SmartCore

Sitraffic SmartCore is the configuration tool for the Sitraffic sX controller. You can use it to configure the Sitraffic sX image as well.

Before installing Sitraffic SmartCore, please read the following file from your installation source folder:

\Core\Readme_Core_with_Dongle_for_DWS.txt.

It includes important information about the installation procedure and some manual steps due to copy protection reasons, which you have to do after you have installed Sitraffic SmartCore. Otherwise you will not be able to start and use the software!

Sitraffic SmartCore provides a separate installation guide located in the Core subfolder. You can start the installation using Sitraffic.Core.Setup.exe located in this subfolder as well. We recommend using default settings for the installation.

1.4. Installation of Mozilla Firefox

Download and install Mozilla Firefox from homepage:

http://www.mozilla.org

Minimum Mozilla Firefox V16 or higher is needed. We recommend using default settings for the installation. Up to now we tested until version V25.0.1

1.5. Installation of VMware Player

The setup installs a Sitraffic sX image (vmx and vmdk files of the virtualized Sitraffic sX controller). This image was built and tested using VMware Player V5 (VMware Player license for professional use can be obtained as part of VMware Fusion 5 Professional, which is actually a Mac software package). Please download the VMware Player V5 from the following homepage and install it:

http://www.vmware.com/products/player/

Other players were not tested. The license of VMware Fusion Professional is not included.

We recommend using default settings for the VMware Player installation.

After setup finished you can start the provided virtualized Sitraffic sX controller (Sitraffic sX image). Start VMware Player, open the image located in subfolder OmcVm of the DWS installation directory and start this image. Choose "I copied it" when asked for origin of image. Do not install the VMware Tools. After a few seconds, you can login as user root.

Note: All passwords are provided in a separate document.

1.6. Configure Sitraffic sX Image for Initial Access

The Sitraffic sX provides an extensive service GUI. You can use this GUI for updating, configuring, monitoring and operating the Sitraffic sX image. For the first access of the controller service GUI, you have to adapt the network settings of your VMware installation:

- Open the network adapters of your Microsoft Windows 7 host system (Start Button -> Control Panel -> (Network and Internet) -> Network and Sharing Center -> Change Adapter Settings). The setup of VMware Player generates some network adapters. Adapter *VMnet8* is the virtual network adapter for Network Address Translation (NAT), used as a virtual NAT device.

- Select adapter VMnet8 and choose Properties at context menu. Change the IP V4 address of the VMnet8 adapter to 192.168.237.1.

If the virtualized Sitraffic sX VMware image is up and running, it should be possible now to ping from your Microsoft Windows 7 host to the Sitraffic

sX image IP address 192.168.237.231 and vice versa from your Linux Sitraffic sX image to IP address 192.168.237.1. The Sitraffic sX Service Gui is then accessible with your Mozilla Firefox installation at address http://192.168.237.231. You will need a Sitraffic sX Service Gui username and password to login, which is provided in a separate document.

The installation is now complete. Nevertheless, we recommend reading the next chapters because they will give you important information you will need later.

1.7. Firewall Settings

For some features of the development environment and the provided example projects, you may need to adapt your firewall (and security) settings (e.g. for RPC communication between your Microsoft Windows 7 host and Sitraffic sX image).

You may get a Windows Security Alert window if you are using the Microsoft Windows 7 firewall and you follow the steps of the use cases described in *Sitraffic_sX_DWS_Developer_Guide_en.pdf*. Windows will generate new firewall rules to allow the required communication if you choose Allow access.

Alternatively, you can set these firewall rules in advance. Open your Windows firewall settings. Select Advanced Settings, highlight Inbound Rules and select New Rule.... Choose option Program.

Generally, you need two inbound rules with the settings of the following table, whereas both rules vary just in their protocol type, UDP and TCP. You cannot specify the Windows firewall rules in detail using the New Rule... dialog but you can adapt the rules later. In this example, we restricted Local Address and Remote Address to the required IP addresses and Protocol to the required protocol types:

Name	Java™ Platform SE binary
Profile	Public
Enabled	Yes
Action	Allow
Override	No
Program	C:\dws\jdk\bin\javaw.exe
Local Address	192.168.237.1
Remote Address	192.168.237.231
Protocol	UDP (and TCP)
Local Port	Any
Remote Port	Any
Allowed Users	Any
Allowed Computers	Any

Make sure that you are compliant with security regulations of your organization.

Note: These are required settings but may not be sufficient due to other security settings on your Microsoft Windows 7 host. Particularly it is not possible to run the example projects on a CAT/GAIN client (SIEMENS internal standard client).

1.8. Network Interfaces of the Sitraffic sX Image

This chapter gives you some information about the network configuration of the Sitraffic sX image. The Sitraffic sX image has three network interfaces. The default network settings are (first two lines of each interface displayed using ifconfig shell command):

eth0 HWaddr 00:0C:29:79:96:68 inet addr:192.168.237.231 Bcast:192.168.237.255 Mask:255.255.255.0

eth1 HWaddr 00:0C:29:79:96:72 inet addr:192.168.128.231 Bcast:192.168.128.255 Mask:255.255.255.0

eth2 HWaddr 00:0C:29:79:96:7C inet addr:10.12.10.1 Bcast:10.12.10.255 Mask:255.255.255.0

MAC-addresses (HWaddr) may differ. The Sitraffic sX uses these interfaces for

- Service laptop access: eth0
- Central control system interface: eth1
- Internal interface to the system monitoring unit: eth2

The first virtual machine (VM) network adapter refers to eth0 and is set to network address translation (NAT). You can check this comparing MAC – address (HWaddr) of the eth0 interface of the Sitraffic sX image (using ifconfig) and the virtual machine network adapter configured for NAT (Virtual Machine Settings -> select network adapter set to NAT -> Advanced).

A second IP address (10.12.10.2) is configured for eth2. The CBC - simulation (signal monitoring unit simulation) uses this IP address.

In case of problems concerning communication between your host and the Sitraffic sX image, check the following points, please:

- Check settings of the network adapter VMnet8 and the Sitraffic sX image.
- Check settings of your firewall, virus protection software and security policies.

2. Next Steps

2.1. Activate example configuration

After successfully installing your Developer Workstation, you can start getting familiar with the system:

The original configuration is an empty one, e.g. no signal plan, signal group or detector is configured and state of virtual Sitraffic sX is therefore off. You can configure your Sitraffic sX image using the example configuration:

- Log in to the Sitraffic sX Service Gui as user service or expert. Passwords are provided in a separate document.
- Open the Sitraffic sX Service Gui and go to Configuration -> Configurations
- At Upload configuration select the example configuration dws\configurations\config001\hlc.c10 of your DWS installation and activate it, by pressing the "Activate" button in the Gui.
- Check the messages displayed at Active transaction, close the window, and wait until the Sitraffic sX image restarts. After the restart a confirmation window will appear.

2.2. Read further documents

Sitraffic_sX_Control_Model_en.pdf explains the basic concepts of the Sitraffic sX traffic controller. It also contains information about the C-Control interface and its definition (<dws>\doc\CControl.x) according to RFC 5531.

Sitraffic_sX_WebGui_Manual_en.pdf gives you an overview of the Sitraffic sX Service Gui.

Sitraffic_SmartCore_Manual_en.pdf explains how to generate new configurations for your Sitraffic sX image with Sitraffic SmartCore.

Sitraffic_sX_DWS_Developer_Guide_en.pdf provides a logical overview of the system, a Getting Started and use case descriptions. After importing the example projects, you can learn about basic use cases of the system.

3. Basic Information

This chapter gives you some hints you may find useful when starting with development.

3.1. VMware Player

- Backup your OmcVm folder (like all other important data) regularly
- Release mouse pointer from image (default setting): [Ctrl]+[Alt]
- Scroll VMware Player window: [Shift]+[Page up]/[Page down]

3.2. Sitraffic sX Image

- All passwords are provided in a separate document
- Firmware is located in Sitraffic sX image in /opt
- ssh service is running (e.g. for putty, WinSCP)
- Keyboard has QWERTY layout (try putty)
- Host system going to power saving mode is not a supported use case. You may have to restart the Sitraffic sX image afterwards.
- Time is synchronized only at startup. You can use ntpdate if a ntp server is available.
- Sitraffic sX Service Gui: http://192.168.237.231
- Sitraffic sX Diagnostics JMX GUI: http://192.168.237.231:8002
- CBC – Simulation JMX GUI: http://192.168.237.231:8032

3.3. Linux

- Lot of functions are available in Sitraffic sX Service Gui (e.g. in Initial startup-> System configuration).
- Shutdown operating system: /etc/init.d/halt

4. Uninstall

To uninstall your DWS installation, do the following steps (we recommend to backup your files before):

- Uninstall Sitraffic SmartCore using Start - > All Programs -> Sitraffic SmartCore -> Support -> Uninstall Sitraffic SmartCore
- Delete your DWS installation folder (default c:\dws). Delete the generated link to Eclipse from your desktop.
- Uninstall Mozilla Firefox and VMware Player according to their uninstall descriptions.

5. Index

Further information
is provided by:

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The information in this manual contains descriptions and features which can change due to the development of products. The desired features are only binding if they were agreed upon conclusion of the contract.

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