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Remote Access to SIMATIC HMI Comfort Panels

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Table of Contents

1 Task

1.1 Overview

Introduction

Whether for the purpose of servicing or evaluating production data, working on site involves travel time and, above all, travel expenses. To keep these as low as possible, SIMATIC HMI Panels provide you with the option of remote maintenance and remote control.

The solutions described in this application are not only suitable for use in the global environment, but also in large, distributed plants.

Overview of the automation task

The figure below provides an overview of the automation task.

Figure 1-1

Overview of the application

The following sections describe the various scenarios and explain possible solutions. For a detailed description of the individual solutions, please refer to the documents that you can download from the download page of this document (https://support.industry.siemens.com/cs/ww/en/view/109476153) or to other entries (see links in the Links & Literature chapter).

1.2 Scenarios

1.2.1 Scenario 1: Service

During plant operation, a problem occurs that cannot be solved by the staff on site. Your task as a service technician is to solve the problem. To this end, you want to

- read current process and diagnostic data
- control the plant via live images
- transfer projects remotely
- back up data or the entire operator panel.

In this case, the right solutions can be found in the Service chapter.

1.2.2 Scenario 2: Management

As the manager or plant manager of a global company whose production sites are distributed over large distances, you want to

- obtain information about the plant status and production data
- be actively notified of problems in order to immediately prevent production outages.

The right solutions for these requirements can be found in the Management chapter.

1.2.3 Scenario 3: Commissioning

During commissioning, you want to access the operator panels, to the greatest extent possible, from anywhere so that you can move around freely in the entire plant. For the right solution, see the Commissioning chapter.

2 Service

2.1 Overview

Table 2-1

Scenario	Task	Solution
Plant status	Read current process data	**Sm@rtServer**
	Display diagnostics/messages	**Sm@rtServer** Web server
	Alert	**Sending email**
Live images	Control plant	**Sm@rtServer**
Backup	Back up data	**Web server**
	Back up operator panel	**VPN connection** (ProSave)
Project transfer	Transfer configuration to operator panel	**VPN connection** Pack&Go

2.2 Description of the scenarios

Plant status (alert)

As a service technician, you need to be actively notified of certain plant statuses to be able to respond quickly in the event of an error. A suitable solution is to automatically send messages by email. The recipient addresses can be set automatically via a shift schedule or manually using the operator panel. A description of how to do this can be found here:
https://support.industry.siemens.com/cs/ww/en/view/106226404

Live images

To analyze the occurred error, you want to get an overview of the plant status. To do this, you have to read the current process data, display messages or control the plant via the live images on the operator panel. All of these functions can be implemented with WinCC Sm@rtServer. Then, for example, a tablet or smartphone with the WinCC Sm@rtClient app or a standard PC is used for control. Detailed information on how to work with WinCC Sm@rtServer can be found in the "Sm@rtServer" document.

Alternatively, the diagnostic information can be read using the operator panel's web server. In this case, however, only the system messages of the device will be displayed; HMI messages configured by the user will not be displayed. More information on the SIMATIC HMI Comfort Panel's web server can be found in the "Integrated web pages" document.

Backup

Another task for you as a service technician is to create a backup. You can use the SIMATIC HMI Comfort Panel's web server to back up data such as archives or recipes. Details can be found in the "Integrated web pages" document. To create a backup of the entire operator panel via remote access, you can use the ProSave software in conjunction with a VPN connection. The "VPN connection" document contains further information on the VPN connection.
https://support.industry.siemens.com/cs/ww/en/view/58876345 describes how to create a backup of the operator panel using ProSave.

2.3 Features of the solutions

The SIMATIC HMI Comfort Panels additionally allow you to set up an automatic backup of all the operator panel data relevant to the process. More information can be found here: https://support.industry.siemens.com/cs/ww/en/view/68373729

Project transfer

If the configuration of the operator panel is not created by the plant operator but by a service provider such as a machine manufacturer or project planning office, you can, in case of a new project version, transfer the project via a VPN connection as you normally would. More information can be found in the "VPN connection" document.

TIA Portal V14 or higher allows you to download the configuration directly to a storage medium (e.g., a USB flash drive). You can handle the files using Windows Explorer and thus send them, for example, by email. A description of how to do this can be found here: https://support.industry.siemens.com/cs/ww/en/view/109740696

Alternatively, you can use a "Pack&Go" file. The "Pack&Go" file enables the staff on site to transfer the project from a PC without WinCC (TIA Portal) to the operator panel. The "Pack&Go" document describes how to generate a Pack&Go file and transfer it to the operator panel.

2.3 Features of the solutions

To enable you to assess whether the recommended solution is suitable for your application, the following sections describe the features of the individual solutions.

Sm@rtServer

- Flexibility through a variety of Sm@rtClient solutions
    - The Sm@rtClient app for Android and iOS enables you to access the Sm@rtServer from mobile devices such as smartphones or tablets.
    - The Sm@rtClient Viewer enables you to access the Sm@rtServer from a programmer or standard PC.
    - WinCC Control Sm@rtClient View enables you to access the Sm@rtServer via another SIMATIC HMI Comfort Panel or a WinCC Runtime Advanced station.
    - Internet Explorer enables you to access the Sm@rtServer from any PC.
- No additional configuration overhead
- Depending on your settings and the operator panel used, up to three Sm@rtClients per SIMATIC HMI Comfort Panel or four per SIMATIC IPC are simultaneously possible (see technical specifications of the devices in https://support.industry.siemens.com/cs/ww/en/view/109091876/56146218635)
- Operator actions are displayed on the device on site; i.e., an employee on site can follow your operator steps
- The operator panel layout is represented by the Sm@rtClient app and the Sm@rtClient Viewer and you can use, for example, keyboards
- Checking and – if necessary – interrupting active connections using the "Sm@rtServiceMonitor" tool
- Available as an option for WinCC (TIA Portal)

2.3 Features of the solutions

VPN connection

- Protection of sensitive areas and production facilities using VPN tunnels
- Easy configuration without special expert knowledge
- Quick, reaction-free integration into existing automation systems

Web server

- No additional configuration overhead
- Included in the standard scope of supply of SIMATIC HMI Comfort Panels
- No additional software required on the terminal
- No display of user-defined messages

Sending email

- Active notification in the event of a fault, even without operating staff on site
- Allows quick response
- Email recipients can be set automatically via a shift schedule
- Independent of the terminal. Any device capable of receiving emails can be used (e.g., a smartphone).

3 Management

3.1 Overview

Table 3-1

Scenario	Task	Solution
Plant status	Read process data	**User-defined web pages**
	Read production data	**User-defined web pages**
Messages/alert	Actively send info	**Sending email**

3.2 Description of the scenarios

Plant status

With the aid of user-defined web pages, a standard browser allows you to obtain information about the current status of your plant anywhere and anytime. The information is compiled individually based on your needs. Details can be found in the "User-defined web pages" document.

Alert

Quickly identify and respond to critical production states – in this context, the "automatic sending of messages by email or SMS" function supports you. A description can be found here:
https://support.industry.siemens.com/cs/ww/en/view/21184132

3.3 Features of the solutions

To enable you to assess whether the recommended solution is suitable for your application, the following sections again describe the features of the individual solutions.

User-defined web pages

- Display via a standard web browser, no additional software required
- Included in the standard scope of supply of SIMATIC HMI Comfort Panels
- Allows custom creation of special web pages tailored to management via HMTL programming
- Operating the plant on site is not affected by your input

Sending emails/SMS text messages

- Active notification in the event of a fault, even without operating staff on site
- Allows quick response
- Independent of the terminal. Any device capable of receiving emails can be used (e.g., a smartphone).

4 Commissioning

4.1 Overview

Table 4-1

Scenario	Task	Solution
Live images	Control plant	**Sm@rtServer**

4.2 Description of the scenarios

Using mobile devices can considerably facilitate the commissioning process. Instead of having to stand directly in front of the operator panel for each operator action, you can move around freely in the entire plant and still have full access to the operator panel. You can keep track of the effects of an operator action at all times and check the correct functioning of all components directly on site. Using the WinCC Sm@rtServer in conjunction with the WinCC Sm@rtClient app allows you to use these functions with your smartphone or tablet, which makes you flexible. This is described in the "Sm@rtServer" document.

4.3 Features of the solution

Sm@rtServer

- The Sm@rtClient app for Android and iOS enables you to access the Sm@rtServer from mobile devices such as smartphones or tablets
- Allows you to move around freely in the entire plant
- No additional configuration overhead
- The operator panel layout is completely represented by the Sm@rtClient app. This allows you to use key devices (such as the KP700 Comfort) almost without restrictions.

5 Links & Literature

Table 5-1

	Topic
\1\	Siemens Industry Online Support https://support.industry.siemens.com
\2\	Download page of the entry https://support.industry.siemens.com/cs/ww/en/view/109476153
\3\	Toolbox for HMI Projects – "Transfer Data" chapter – "Email" tool https://support.industry.siemens.com/cs/ww/en/view/106226404
\4\	How do you back up/restore with a Comfort Panel? https://support.industry.siemens.com/cs/ww/en/view/58876345
\5\	Comfort Panels Service Concept: Continuous automatic backup of all the process-relevant control panels https://support.industry.siemens.com/cs/ww/en/view/68373729
\6\	How do you send short text messages (SMS) from a WinCC (TIA Portal) or SIMATIC WinCC flexible HMI station to a mobile phone? https://support.industry.siemens.com/cs/ww/en/view/21184132
\7\	WinCC Advanced manual, "Performance features" chapter https://support.industry.siemens.com/cs/ww/en/view/109091876/56146218635
\8\	How with the TIA Portal do you transfer your project to your operator panel via a storage medium (USB stick, for example)? https://support.industry.siemens.com/cs/ww/en/view/109740696

6 History

Table 6-1

Version	Date	Modifications
V1.0	05/2015	First version
V1.1	12/2016	TIA Portal V14 update