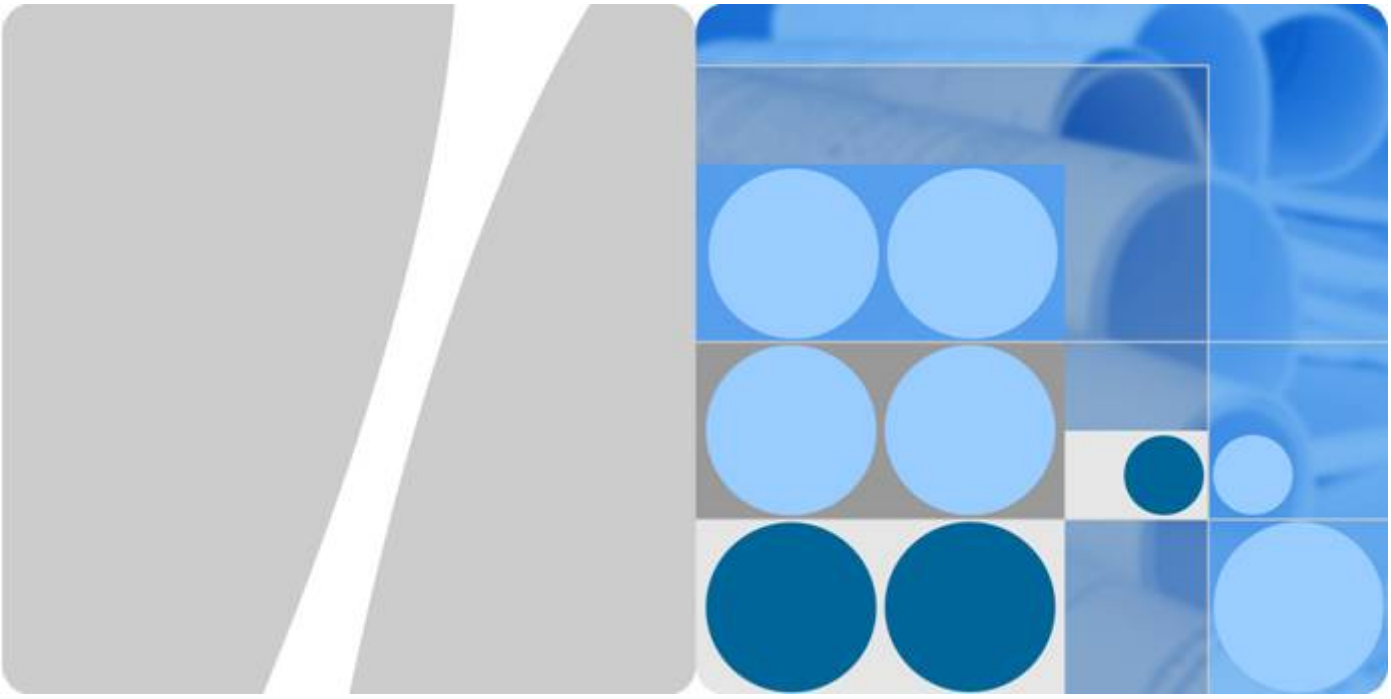


iManager NetEco 1000S

V001R002C20

User Manual

Issue 02

Date 2017-03-31

HUAWEI TECHNOLOGIES CO., LTD.

Trademarks and Permissions


and other Huawei trademarks are trademarks of Huawei Technologies Co., Ltd.
All other trademarks and trade names mentioned in this document are the property of their respective holders.

Notice

The purchased products, services and features are stipulated by the contract made between Huawei and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Huawei Technologies Co., Ltd.

Address: Huawei Industrial Base
Bantian, Longgang
Shenzhen 518129
People's Republic of China

Website: http://www.huawei.com

Email: support@huawei.com

Contents

1 Preface

Purpose

This document describes the installation, function, maintenance, and troubleshooting methods of the iManager NetEco 1000S V100R002C20 monitoring software.

Intended Audience

This document is intended for:

- Inverter maintenance personnel
- Electronic technicians with related aptitude

Product Models

This document describes how to use the following Inverter monitoring software:

- SUN2000
- SUN8000

Symbol Conventions

The symbols that may be found in this document are defined as follows:

Symbol	Description
 DANGER	Indicates a hazard with a high level or medium level of risk which, if not avoided, could result in death or serious injury.
 WARNING	Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

Symbol	Description
CAUTION	Indicates a potentially hazardous situation that, if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results.
NOTE	Provides additional information to emphasize or supplement important points in the main text.

Change History

Changes between document issues are cumulative. The latest document issue contains all the changes made in earlier issues.

02 (2017-03-31)

This issue is the second official release for iManager NetEco 1000S V100R002C20. Compared with 01 (2016-07-08), this issue includes the following changes.

Navigation Tree	Change Description
Operation and Maintenance > **NetEco 1000S Web Client Operation** > **Managing Devices**	Modified **5.2.3.1 Accessing Devices Through the SmartLogger** and optimized the table contents.
Operation and Maintenance > **NetEco 1000S Web Client Operation** > **System Management** > **Setting System Parameters**	Modified **5.2.7.4.2 Synchronizing Time** and optimized the table contents.

01 (2016-07-08)

This issue is the first official release for iManager NetEco 1000S V100R002C20.

2 Privacy Policy

Dear user,

Huawei Technologies Co., Ltd and its affiliates (Huawei for short) attach great importance on your personal data and privacy. Before using the NetEco 1000S and NetEco 1000S APP, please carefully read, learn, and agree to this policy.

By learning this privacy policy, you can understand the following information:

- How to use your personal data
- How to protect your personal data
- Contact Huawei

How to Use Your Personal Data

- NetEco 1000S: NetEco 1000S is able to send report and alarm data, in this case, NetEco 1000S collects your Email address or obile phone number to accept report and alarm data.
- NetEco 1000S APP: To ensure service security, the NetEco 1000S APP collects the identification number of your mobile terminal. Only the registered mobile terminal can access the server.

How to Protect Your Personal Data

- NetEco 1000S: Email address and mobile phone number are only used to accept report and alarm data. Huawei will protect data security through technical measures.
- NetEco 1000S APP: To identify the validity of a mobile terminal, the IMEI of your mobile equipment is stored on the NetEco 1000S server. Huawei will protect data security through technical measures, and ensure server security according to physical and guidance proposals. Although Huawei take appropriate measures to protect your personal data, there is still no a perfect security measure.

Your personal data will not be disclosed to a third party.

Contact Huawei

NOTICE

Huawei support engineers can perform maintenance operations only after being authorized by the customer, and are forbidden to perform any operations that are not approved by the customer. In addition, fault-locating data cannot be transferred out of the customer's network without authorization from the customer.

If you have any questions, comments, or suggestions, you can submit them to the local Huawei branches. You can obtain the list of Huawei branches all over the world from **http://www.huawei.com/en/about-huawei/contact-us/index.htm**.

Note: Due to local laws and regulations and local language using habits, the privacy policy of the local language may be different slightly from that of the English version. Different contents in the local language version take precedence.

Latest update time: Jan 13, 2017

3 Description

About This Chapter

The NetEco 1000S provides various security features and mechanisms to protect the NetEco 1000S system and the entire operations support system (OSS) network from attacks and eavesdropping.

3.1 Product Description

For details, see *iManager NetEco 1000S V100R002C20 Product Description.pdf*.

3.2 Security Management Description

The NetEco 1000S provides various security features and mechanisms to protect the NetEco 1000S system and the entire operations support system (OSS) network from attacks and eavesdropping.

3.2.1 Networking Security

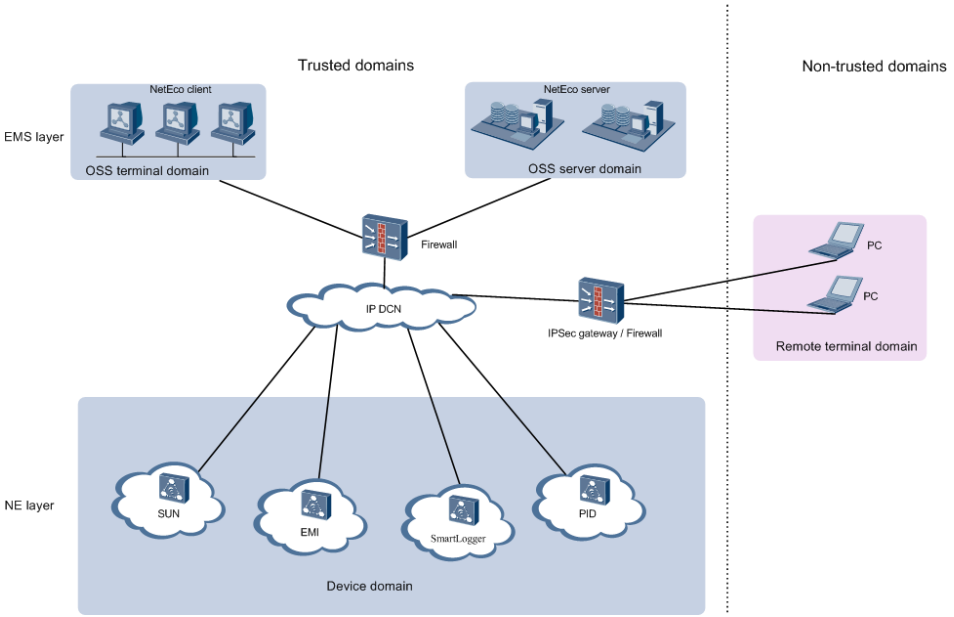
Networking security provides policies such as security domain division and firewall isolation to protect the OSS network.

3.2.1.1 Security Domain Planning

This section describes how to plan security domains. During the initial stage of networking, system administrator need to divide an OSS network into multiple subnets based on security domains, separate trusted domains from non-trusted domains, and properly plan IP addresses. This ensures the security of the OSS network and NetEco 1000S servers.

Figure 3-1 shows the security domains on an OSS network. The four OSS security domains are interconnected. Devices in the OSS server domain and device domain are essential to the OSS network and require the highest security protection level. Security domains other than the OSS server domain and device domain belong to subnets that are used for access. Therefore, security risks brought about by these subnets to the OSS server domain and device domain must be fully considered before and during the design of security policies for these subnets. Possible security risks include eavesdropping and network attacks.

Figure 3-1 Security domains on an OSS network



OSS Server Domain

The OSS server domain comprises devices (mainly OSS servers such as NetEco 1000S servers and Trace Servers) that are crucial to the entire OSS network. After connecting to the NetEco 1000S, this domain operates and maintains the entire network and even controls the network. Therefore, this domain requires the highest level of security protection. It must be isolated from other domains and access to devices in this domain must be restricted.

Device Domain

The device domain comprises all NEs managed by the NetEco 1000S, specifically the units of NEs including SUN, EMI, SmartLogger and PID.

The NEs managed by NetEco 1000S are at the same security level.

OSS Terminal Domain

The OSS terminal domain comprises PCs only for O&M operations on the OSS network. These PCs may be placed either in central offices where NetEco 1000S servers are located or in remote equipment rooms where only NEs are located. This domain comprises of NetEco 1000S clients, and LMTs. These terminals are applicable only to mobile network devices' O&M services.

The OSS terminal domain and OSS server domain work in similar network environments, but devices in the OSS terminal domain have lower security levels. Security policies in this domain depend on customer requirements and network environments. For example, customers determine whether to install firewalls between the OSS terminal domain and the OSS server domain or between the OSS terminal domain and the OSS device domain. By default, customers provide the VLAN policy.

Remote Terminal Domain

The remote terminal domain comprises terminals that remotely access the OSS network, for example, using LANs or dial-up connections. If authorized customers, device vendors, or third parties want to remotely access to the OSS network, security control must be implemented because: 1. Uncertainties exist in the environments where remote O&M terminals are located. 2. Remote O&M terminals often attempt to access the OSS network through public networks. Users are advised to disable the access between this domain and the OSS server domain and provide remote access through a secure VPN channel as required.

3.2.1.2 Firewall Deployment

During OSS network deployment, firewalls must be deployed between the entities.

Firewalls should be deployed between the following entities:

- The OSS server domain and the device domain
- The OSS server domain and the OSS terminal domain
- The device domain and the OSS terminal domain

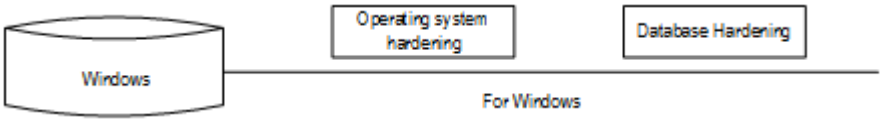
Policies for deploying firewalls contains: configuring the firewall port and configuring the IP access.

3.2.2 Platform Security

This section describes operations for enhancing platform security, including operating system hardening, database hardening, antivirus solution deployment. These operations increase the security levels of operating systems and databases and provide a secure and reliable platform for OSS service applications.

In terms of security risks on operating systems, provide security hardening solutions for increasing the security levels of operating systems and databases. **Figure 3-2** describes the security policies for operating systems and databases.

Figure 3-2 Security policies for operating systems and databases



- OS hardening: You are advised to perform security hardening on the PC running the NetEco software according to **Policies for MySQL Database Hardening** in **3.2.2.1 Operating System and Database Hardening**.
- Database hardening: The MySQL database is automatically installed when you install the NetEco software and has been hardened upon delivery. For details about the hardening policies, see **Policies for MySQL Database Hardening** in **3.2.2.1 Operating System and Database Hardening**.
- Antivirus software: The NetEco software does not contain the antivirus software for the OS upon factory delivery. You need to install the mainstream commercial antivirus software on the OS of the NetEco.

  Third-party antivirus software is integrated into Huawei products to protect Windows against virus and worm threats.

3.2.2.1 Operating System and Database Hardening

Security hardening policies are based on the features of NetEco 1000S service applications. The policies can increase the security levels of operating systems and databases.

Policies for Windows Hardening

Main policies for Windows hardening are as follows:

- Set auditing and user account policies.
  - Auditing policies:

    Set events to be audited, such as events about user account login and management success and failure.
  - User account policies:

    Set attributes for user account passwords, such as shortest and longest storage duration, length, and complexity.
  - Policies for locking user accounts:

    Set thresholds for user account locking, locking duration, and time for resetting the account-locking timer.

  - Event log settings:

    Set logs that user **Guest** cannot query, event log size, and storage mode. Event logs include application logs, security logs, and system logs.

- Security options:

  For example, user account, auditing, network security, and network access.

- More security protection polices:

  For example, shared folder deletion, registry settings, user rights assignment, firewall settings, and directory permission settings.

NOTE

For details about the hardening policies and suggested measures, see **3.2.2.2 Windows OS Security Hardening**.

You are advised to use the mainstream commercial Windows hardening tool to harden the Windows OS.

Policies for MySQL Database Hardening

The policies for hardening the MySQL database are as follows:

- Installation and configuration
  - Control the user who can access the **MySQL.user** table.
  - Control the access to the MySQL database.
  - Set the maximum number of allowed login attempts.
  - Close default ports.
  - Record user login.
  - Change the password of the database administrator and delete empty passwords.
  - Add the password complexity check for database users.
  - Set the timeout interval for database connection.
- Permission minimization management
  - Manage authorization with the **GRANT** option.
  - Forbid users other than the database administrator to access the objects in the MySQL database.
  - Set the OS rights for the MySQL installation path.
  - Set the OS rights for the MySQL parameter file.
  - Set the OS rights for the MySQL log file.
  - Forbid the remote login of database administrators.
  - Forbid database access from another PC.
  - Delete the default test database.

NOTE

The user **administrator** in the MySQL database hardening policies is the system administrator of MySQL database.

Database security hardening has been performed for NetEco 1000S V100R002C20 upon factory delivery.

3.2.2.2 Windows OS Security Hardening

When the NetEco 1000S software runs on Windows, perform security hardening for the Windows OS to improve the NetEco 1000S security.

Prerequisites

You have obtained the **SecureCAT SetWin.exe** installation package for the security hardening tool and the **SetWin_2K12R2_CIS_V1.1.0.inf** configuration file from Huawei technical support engineers.

Context

The NetEco 1000S can run on Windows 7 or Windows Server 2012. This section describes how to perform security hardening for the Windows Server 2012 OS. To learn the detailed security hardening policy for Windows 7, see ***Windows 7 OS Security Hardening Policy.pdf***.

Procedure

Step 1 Copy **SecureCAT SetWin.exe** and **SetWin_2K12R2_CIS_V1.1.0.inf** to the Windows Server 2012 OS to be hardened.

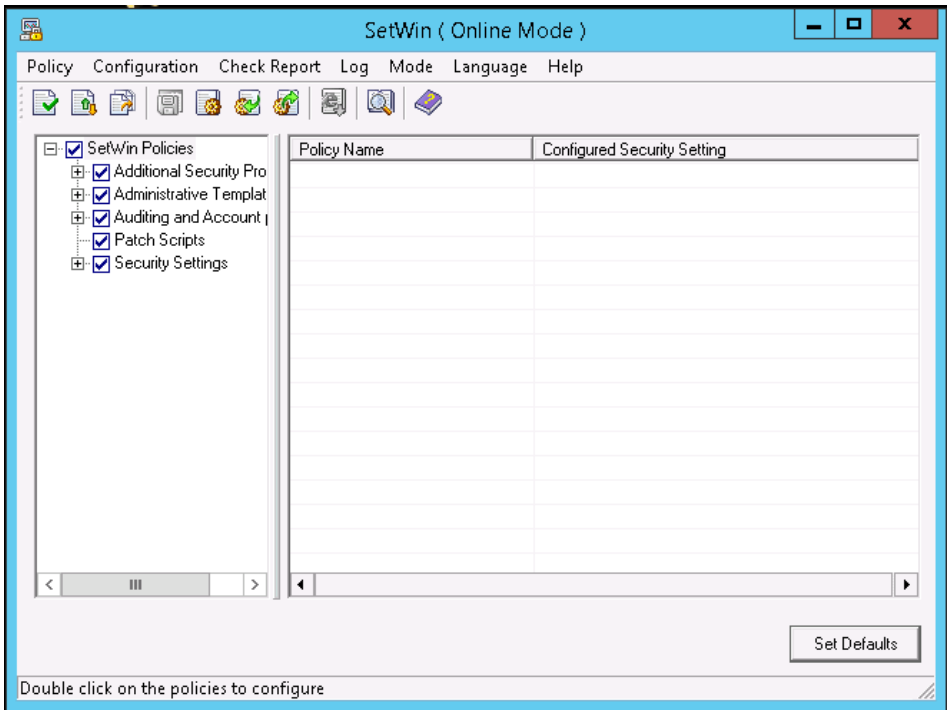
Step 2 Double-click **SecureCAT SetWin.exe** to install the security hardening tool.

After the installation is complete, the **SetWin** icon is displayed on the desktop.

Step 3 Right-click the **SetWin** icon and choose **Run as Administrator** from the shortcut menu.

The home page of the SetWin tool is displayed, as shown in **Figure 3-3**.

Figure 3-3 SetWin home page



Step 4 Click **Language** on the menu bar.

The tool supports Chinese and English (default). After changing the language, restart the tool for the change to take effect.

Step 5 Choose **Configuration** > **Import Configuration File**.

In the displayed **Open File to import** dialog box, select the **SetWin_2K12R2_CIS_V1.1.0.inf** file saved in **Step 1**.

Step 6 When the "Import successful" message is displayed, click **OK**.

Step 7 Back up the OS.

1. Choose **Policy** > **Roll back**.

   A message is displayed, prompting you to confirm that the user password meets the requirements.

2. Click **Yes**.

   A dialog box is displayed for you to save the backup file.

3. Set a name for the backup file and click **Save**.

   It is recommended that the backup file be named after the current date.

Step 8 **Optional:** Configure the security hardening policy.

Set security hardening items in the left navigation tree on the **Policy** tab page.

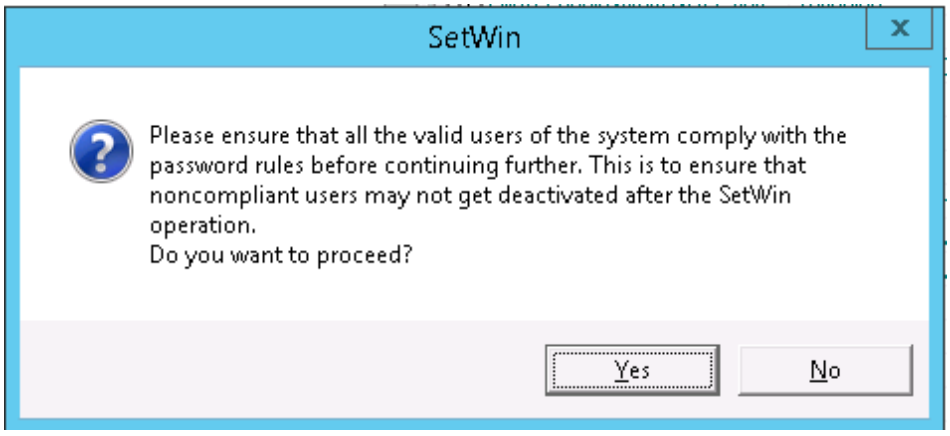
NOTICE

- If you perform security hardening remotely, choose **SetWin Policies** > **Security Settings** > **Security Options** > **Network Security** in the left navigation tree and clear **LAN Manager authentication** in the right pane. If **LAN Manager authentication** is not cleared, remote access to the OS will fail after security hardening.
- The item **Rename administrator account** is under **SetWin Policies** > **Security Settings** > **Security Options** > **Accounts**. After security hardening, the system administrator will be renamed **SWMaster**. If you do not want the system administrator user to be renamed, clear **Rename administrator account**.

Step 9 Choose **Policy** > **Execute**.

The message shown in **Figure 3-4** is displayed.

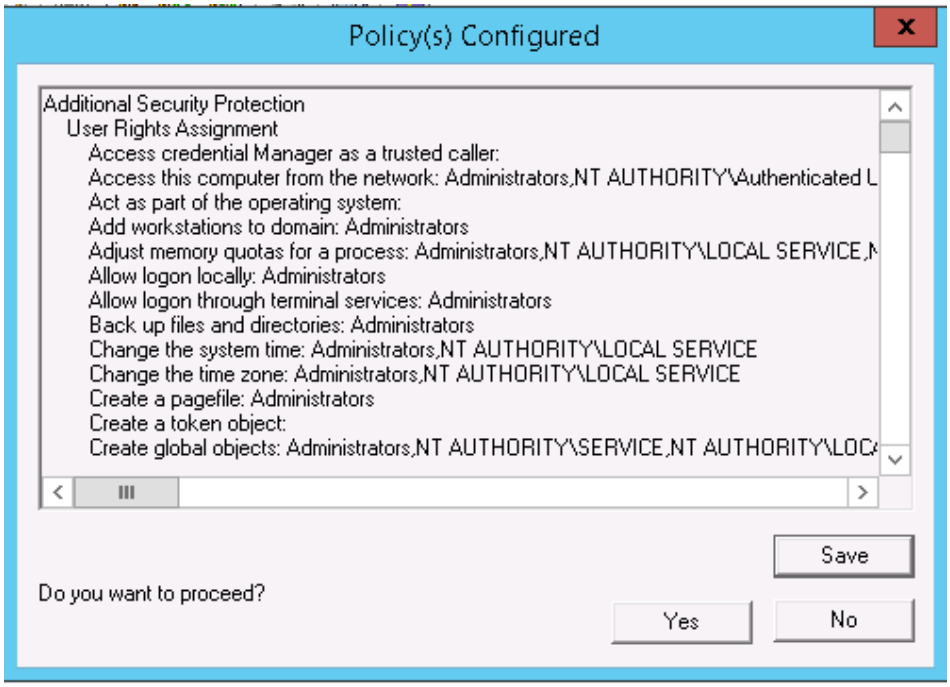
Figure 3-4 Confirming password complexity



Step 10 Click **Yes**.

The message shown in **Figure 3-5** is displayed.

Figure 3-5 Confirming policy execution



Step 11 Click **Yes**.

When a browser is displayed, click **Allow blocked content**. The browser displays the execution status of each security hardening item. If an item fails to be executed, view the operation logs and solve the problem. If the problem persists, roll back the operation by following instructions provided in **Exception Handling**.

When the "Execution completed" message indicating completion of security hardening is displayed, click **OK**. A dialog box is displayed, prompting you whether to restart the OS for the policy to take effect. Do not restart the OS because you still need to configure the firewall port.

Step 12 Configure the firewall port.

1. Open the control panel.
2. Choose **Windows Firewall** > **Advanced settings**.

   The **Windows Firewall with Advanced Security** page is displayed.
3. In the left navigation tree, right-click **Inbound Rules** and choose **New Rule**.

   The **New Inbound Rule Wizard** page is displayed.
4. In the **Rule Type** pane, select **Port** and click **Next**.
5. Select **Specific local ports** and type **8010,8443,33000,16100,11000-11500,2121** in the text box.
6. Click **Next** until you go to the pane for setting a rule name.

   Set a rule name.
7. Click **Finish**.

   NOTE

   If the created rule is displayed in the **Inbound Rules** pane and the rule state is , the rule has taken effect.

Step 13 Restart the OS to complete security hardening.

----End

Exception Handling

If the security hardening operation fails or you want to cancel it, perform the following steps to roll back the operation:

Step 1 Right-click the **SetWin** icon and choose **Run as Administrator**.

The login page is displayed.

Step 2 Enter the user name and password and click **Yes**.

After performing security hardening, you must enter the user name and password of the administrator to log in to the tool.

If **Rename administrator account** is selected for the security hardening policy in **Step 8**, the user name of the system administrator is automatically changed to **SWMaster**. The password remains unchanged.

Step 3 Choose **Policy** > **Roll back**.

The **Open Rollback File** dialog box is displayed.

Step 4 Select the file backed up in **Step 7**.

The rollback automatically starts. When the rollback is complete, you will be asked whether to restart the OS for the configuration to take effect. Determine whether to restart the OS based on the actual situation.

----End

3.2.2.3 Antivirus Solutions for Operating Systems

This section describes the antivirus solutions for operating systems to prevent viruses from attacking NetEco 1000S software and virus spreading.

The NetEco 1000S software does not contain the antivirus software for the OS upon factory delivery. You need to install the mainstream commercial antivirus software on the OS of the NetEco 1000S.

- Update the antivirus software to the latest version in time.
- Enable the firewall.
- Enable the anti-DoS attack function.
- Enable the anti-port-scanning function.

NOTE

The preceding measures are some common functions of the antivirus software. To ensure your information security, you must enable these functions in time.

3.2.3 Application Security

This section describes application security solutions dedicated to service applications, such as user management, session management, and log management.

3.2.3.1 User Authentication and Authorization Management

The system administrator must authenticate users and manage authorities so that only authorized users can log in to the system and perform operations. This ensures system security.

Users need to enter correct user names and passwords to log in to the NetEco 1000S. After user authentication succeeds, the NetEco 1000S authenticates user operations and users can perform only the operations that they are allowed to preform.

Role-based User Management Policies

The NetEco 1000S system provides three types of roles: system administrator, system operators, and guest users.

Role system administrator needs to classify users into the corresponding roles based on the management mode.

Role system administrator is unique and cannot be added, modified or deleted.

User Information and Password Policies

- User information policies

  User information managed on the NetEco 1000S includes the user name, description, account validity, password, password validity period, user type.

- Password policies

  Password policies include:

  - Password complexity policy: Complex passwords are required to reduce possibility of password cracking. Security administrators can set the password complexity policy on the NetEco 1000S client. For details about password complexity requirements, see **5.2.7.1.7 Setting a Password Policy**.
  - Password update policy: Security administrators need to pose restrictions on password updates, such as password update period, message prompting for a new password, and password validity period, to ensure that users update passwords timely.

Authority Management Policies

Three types of roles provided by the NetEco 1000S system have different rights. You can set user rights by specifying roles for users.

NOTE

For details about the role rights, see **5.2.7.1.1 User Categories**.

Idle Logout Time

The NetEco 1000S supports automatic client automatically logged out. If a user does not perform any operations during the preset period, the NetEco 1000S client automatically logged out. When the user attempts to log in to the NetEco 1000S client again, the user name and password are required.

3.2.3.2 Log Auditing

System administrator can audit operations and activities performed by NetEco 1000S users and check for any illegal user operations.

4 Installation and Commissioning

About This Chapter

4.1 NetEco 1000S Installation

This section describe the hardware and software installation procedures of NetEco 1000S.

4.1.1 Hardware Installation

Direct Connection Using the RS232 Cable

Direct connection using the RS232 cable: It is applicable only to local commissioning. In this case, you can search Inverter based on serial port addresses.

NOTE

The Windows Server 2012 OS does not support the serial port function. Direct connection using the the RS232 cable applies only to the Windows 7 OS. The following serial port-related functions are available only in the Windows 7 OS:

- Searching Devices Based on Serial Port Addresses
- Setting Parameters for the SMS Modem
- Setting Communication Parameters

You can connect the RS485 serial port on the Inverters to the idle RS232 serial port on the PC by using the RS232 cable (RS485 needs to be converted to RS232 through the signal converter). You can also connect multiple Inverters to one RS485 bus which is connected to the PC serial port.

- The serial port number is the one used for connecting the monitoring PC and a device.
- The address of the RS485 bus is the **RS485 Com Address** of the Inverter. For details about how to obtain this address, see the corresponding *User Manual on the monitored device side*.

  Contact Huawei technical support engineers to obtain the *User Manual on the monitored device side*.

NOTICE

It is recommended that no more than six inverters be connected to the bus for better monitoring performance.

If new physical or logical serial ports are added on the PC on which the NetEco 1000S is running, you need to restart the NetEco 1000S. Otherwise, the newly added ports cannot be automatically identified by the NetEco 1000S.

Currently, the serial-port connection mode does not support security authentication, which may introduce security risks. You are advised to use network cables for connection.

Connection by Using Network Cables

Connection by using network cables: It is applicable to remote Inverter monitoring. In this case, you can search target device based on IP addresses.

- Connection using the SmartLogger: Connect the inverter, EMI, or PID to the SmartLogger and then connect the SmartLogger to the monitoring PC through an IP network.

  The IP address is that of the SmartLogger. For details about how to obtain the IP address, see the corresponding *Smart Logger User Manual*.

  Contact Huawei technical support engineers to obtain the *Smart Logger User Manual*.
- Direct connection to the FE: Inverters that support direct connection to the FE can be directly connected to the FE and can access the NetEco 1000S through the client.

4.1.2 Installing the NetEco 1000S Software

Preinstallation Check

Before installing the NetEco 1000S software, check whether the PC meets the requirements listed in **Table 4-1**.

Table 4-1 Preinstallation check items

Check Item	Description
Software package	Contacted Huawei technical support engineers to obtain the software package **iManagerNetEco1000S_V100R002C20*SPCXXX*_win7_standard.zip** or **iManagerNetEco1000S_V100R002C20*SPCXXX*_win2012_enterprise.zip**. To obtain the software package, Huawei technical support engineers can choose **SUPPORT** > **Software** > **Energy** > **PV Inverter** > **Smart PV Plant System** > **iManager NetEco 1000S** > **V100R002C20** at **http://support.huawei.com/carrier/**. Contact the Huawei technical support engineers and obtain the signature files **iManagerNetEco1000S_V100R002C20*SPCXXX*_win7_standard.zip.asc** and the**iManagerNetEco1000S_V100R002C20*SPCXXX*_win2012_enterprise.zip.asc** from the path **SUPPORT** > **Software** > **Energy** > **PV Inverter** > **Smart PV Plant System** > **iManager NetEco 1000S** > **V100R002C20** on the **http://support.huawei.com/carrier/** website. **NOTE** ● If the Windows Server 2012 OS is used, obtain the **iManagerNetEco1000S_V100R002C20*SPCXXX*_win2012_enterprise.zip** installation package and **iManagerNetEco1000S_V100R002C20*SPCXXX*_win2012_enterprise.zip.asc** digital signature file. ● If the Windows 7 OS is used, obtain the **iManagerNetEco1000S_V100R002C20*SPCXXX*_win7_standard.zip** installation package and **iManagerNetEco1000S_V100R002C20*SPCXXX*_win7_standard.zip.asc** digital signature file. You can check the integrity of the software package by referring to **5.2.8.7 Verifying OpenPGP Signature**. **NOTE** Software package integrity check is related to the software security. You must perform the check to ensure the software security.

Check Item	Description
Hardware	OS version installed on the PC: ● Standard edition: Windows 7 Professional edition or Windows 7 enterprise edition ● Enterprise edition: Windows Server 2012 standard edition
	Minimum memory configuration: ● Standard edition: 1 GB 4 GB is recommended for use. ● Enterprise edition: 8 GB 16 GB is recommended for use.
	Minimum disk configuration: ● Standard edition: 1.5 GB ● Enterprise edition: 2 GB Installation directory disk space: ● Standard edition: 500 GB ● Enterprise edition: 4 x 600 GB
	Recommended configuration: ● Standard edition: CPU: quad-core 3.6 GHz; memory: 4 GB; hard disk: 500 GB or above ● Enterprise edition: CPU: 2 (octa-core); memory: 16 GB; hard disk: 4 x 600 GB
Software	Operating system: ● Standard edition: Windows 7 Professional edition or Windows 7 enterprise edition ● Enterprise edition: Windows Server 2012 standard edition **NOTE** The NetEco 1000S supports the Chinese, English, German, French, and Japanese operating systems. For the Chinese, German, French, and Japanese operating systems, only the NetEco 1000S with the same language can be installed. For the English operating system, there is no requirement on the language of the NetEco 1000S.
	Web browser: Internet Explorer 11 or Chrome 50.
	The antivirus software that can be updated properly must be installed on the PC. You are not advised to install other applications. You are not allowed to install the MySQL database. Services that are unnecessary or have potential security risks must be disabled. Operating system patches must be updated in a timely manner.

Check Item	Description
	Only users in the system administrator group can install the NetEco 1000S. **WARNING** Only a fixed user in the system administrator group can install and maintain the NetEco 1000S. Other users in the system administrator group are not allowed to reinstall the NetEco 1000S. Otherwise, the database for the installed NetEco 1000S will be initialized and all data will be lost. You are not allowed to share the NetEco 1000S installation directory with other system accounts or grant the NetEco 1000S permission to other system accounts. Otherwise, security risks may occur.

Procedure

Step 1 After the software package is decompressed, double-click **setup.bat** in the folder.

NOTICE

The path where the software package is decompressed consists of only letters or contains letters, digits, and underscores (_). Otherwise, the installation fails.

During the installation, you can click **Cancel** in any window that has the **Cancel** button. A **Are sure to cancel installation?** dialog box is displayed.

- Click **Yes** to exit the installation.
- Click **No** to continue the installation.

The **Select Installation Language** window is displayed.

Step 2 Choose **English**, and click **OK**.

The **Introduction** window is displayed.

Step 3 Click **Next**.

The **Copyright Notice** window is displayed.

Read the terms of the copyright notice in the **Copyright Notice** window.

Step 4 Select **I agree**, and click **Next**.

The **Select Installation Directory** window is displayed.

The default installation directory is **D:\NetEco1000S\NetEco1000S**.

WARNING

You are not allowed to install the software in a system volume.

You are not allowed to share the NetEco 1000S installation directory with other system accounts or grant the NetEco 1000S permission to other system accounts. Otherwise, the software cannot be used.

Step 5 Specify an installation directory and click **Next**.

NOTE

If the specified installation directory does not exist, the following information is displayed.

- Click **Yes** to create the specified installation directory.
- Click **No** to return to the last step to re-specify an installation directory.

  The installation directory consists of only letters or contains letters, digits, and underscores (_). The installation directory length cannot exceed 50 characters.

```
The directory D:\NetEco1000S\NetEco1000S does not exit. Do you want to create it?
```

The **Set Currency Parameters** window is displayed. window is displayed.

Step 6 Choose the currency you need to use and click **Next**.

The **Select Software Components** window is displayed.

Step 7 Select **NetEco 1000S** for installation and click **Next**.

The **Confirm Installation** window is displayed.

Step 8 Confirm the installation settings and click **Next**.

The installation status window is displayed.

The **Installation Completed** window is displayed after the installation process reaches 100%.

Step 9 Click **Finish**.

When the software is installed successfully, the NetEco 1000S shortcut menu is available under **Start** > **All Program**.

NOTICE

- You are not allowed to change the OS time whereas installing the software.
- After the software is installed successfully, you are advised to removed the software package. Otherwise, security risks may occur.

----End

4.2 NetEco 1000S APP Installation

This section describes the networking and software installation procedure of NetEco 1000S APP.

4.2.1 NetEco 1000S APP Networking

This section describes the networking schemes when the NetEco 1000S APP is used on the mobile device.

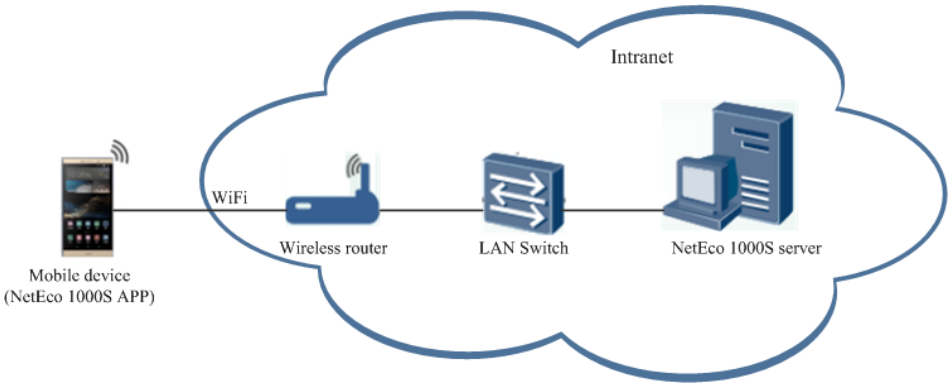
The mobile device supports the following two typical networking schemes when the NetEco 1000S APP is used on the mobile device:

NOTE

Customers are responsible for all network design and network-device-level security planning.

- The mobile device is connected to the internal network of the NetEco 1000S directly. **Figure 4-1** shows the networking diagram.

Figure 4-1 Mobile device connecting to the internal network of the NetEco 1000S directly



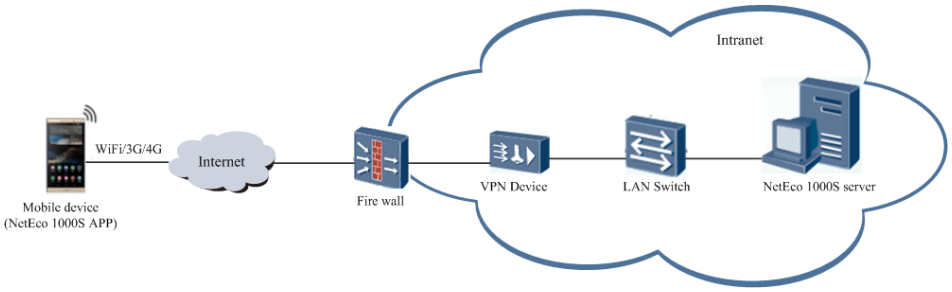
NOTICE

The following requirements must be met when the mobile device is directly connected to the internal network:

- You have configured a wireless router in the internal network.
- The mobile device is located in an area covered by Wi-Fi signals.

- The mobile device is connected to the internal network of the NetEco 1000S through the virtual private network (VPN). **Figure 4-2** shows the networking diagram.

Figure 4-2 Mobile device connecting to the internal network of the NetEco 1000S through the VPN



NOTICE

The following requirements must be met when the mobile device is connected to the internal network through the VPN:

- The VPN device is installed on the customer's internal network.
- Parameters, including the network port and virtual gateway, of the VPN device are configured through the serial port or network port on the PC.

  Configuration methods and parameters of the VPN devices vary with the vendors. For details, see the VPN device description.
- Mobile terminal VPN access is configured on the mobile device. For example, choose **Settings** > **Wireless&networks;** > **VPN** > **Add VPN network** on a Huawei mobile phone to configure the VPN access.
- Port 33000 of the NetEco 1000S server is opened.

4.2.2 Installing the NetEco 1000S APP Software

This section describes the operating environment requirements of NetEco 1000S APP, how to download and install the NetEco 1000S APP software.

Preinstallation Check

Before installing the NetEco 1000S APP software, check whether the mobile device meets the requirements listed in **Table 4-2**.

Table 4-2 Check items

Check Item	Description
Operating environment	When the NetEco 1000S APP runs on a mobile device, the mobile device must meet the following requirements: ● The mobile device must run the following OSs: – Mobile phone or Pad running the OS later than Android 4.0 – Mobile phone or iPad running the OS later than IOS 6.0 ● The mobile device is connected to the Internet properly. The rate is 500 kbit/s and higher. ● There are sufficient space and power on the mobile device so that new apps can be installed.
Software package	The NetEco 1000S APP software package has been obtained. If it is not obtained, download it using the following methods: ● Mobile device running Android: Search for **neteco** on the Google Play. ● Mobile device running IOS: Search for **neteco** on the APP Store.

Procedure

1. Click the NetEco 1000S APP software package, and then install the NetEco 1000S APP software according to the system information.

   After the installation is complete, the icon of the NetEco 1000S APP is displayed on the desktop of the mobile device.

4.3 Replacing Certificate of the NetEco 1000S System

The NetEco 1000S system provides the default Huawei-preconfigured certificate for security connection. This certificate applies only to the commissioning scenario. Huawei-preconfigured certificate cannot ensure the information transmission security. When users need to ensure information security, they must apply for a legal and valid certificate from the CA and replace the preconfigured certificate with the applied one. The certificate cracking possibility increases if one certificate is used for a long period. Therefore, replace the certificate periodically.

4.3.1 Viewing Certificates

Prerequisites

JavaKeysotre (JKS) certificates have been obtained.

You are authorized to access the NetEco 1000S installation directory.

Context

The Keytool provided by Java can be used to view JKS certificate information.

Check the validity period of the certificate and ensure that the certificate is used in the period of validity.

Procedure

Step 1 Copy the certificate **neteco.jks** to **NetEco 1000S installation directory\uninstall\jre\jre_win\bin**.

NOTE

By default, after the NetEco 1000S is installed, the preconfigured certificates neteco.jks are saved in the software installation directory\WebRoot\WEB-INF\workspace directory.

The certificate password provided by the NetEco 1000S by default is **Changeme_123**.

Step 2 Open the DOS command interface and run the following commands to navigate to the keytool installation directory. Assume that the software is installed in the **D:\NetEco1000S** directory.

C:\Users>*D:*

D:\>*cd NetEco1000S\uninstall\jre\jre_win\bin*

Step 3 Run the following command to view the certificate information:

```
keytool -v -list -keystore neteco.jks -storepass Changeme_123 -storetype jks
```

----End

4.3.2 Replacing Certificates for the NetEco 1000S Client and Server

This section describes how to replace the HTTPS protocol certificates preconfigured for the web-based NetEco 1000S client and the server.

Prerequisites

- You have installed the NetEco 1000S.
- You are authorized to access the NetEco 1000S installation directory.
- You have applied for a new digital certificate from the Certificate Authority (CA).

  Device certificate: **NetEco.cer**

  Private key of the device certificate: **NetEco_Key.pem**

  Certificate issued by a subordinate CA: **NEPL_PKI.cer** (there may be multiple or no such certificates)

  Root CA certificate: **Huawei_Equipment_CA.cer**

  NOTE

  The name of a certificate applied for from the CA may be different from the preceding certificate name. Change the certificate name to be the same as the preceding certificate name.

  If a password has been configured for the private key of the device certificate, the password must also be obtained.

  Note: If the certificate is a **.p7b** file, you must export the certificate. That is, double-click **user.p7b** to open the certificate. Select the corresponding folder from the current user drop-down list to expand the folder. The folder may contain a few certificates. In normal cases, the file named the domain name or IP address is a server certificate. Right-click the certificate and choose all tasks from the shortcut menu. Then, click **Export** and then **Next**, and set the export format to base64 (that is, **.cer**) to export the preceding three certificates separately.

Context

- By default, after the NetEco 1000S is installed, the preconfigured certificates **neteco.jks** are saved in the **software installation directory\WebRoot\WEB-INF\workspace** directory.

  NOTE

  The certificate for enabling SSL has been incorporated to the **neteco.jks** certificate. When you enable SSL on the **5.2.7.3.1 Setting Parameters for the Email Server**, you do not need to replace the SSL certificate.
- To replace the digital certificates, you must manually prepare digital certificates, replace Huawei certificates with these certificates.
- The password of certificates must be set according to the following requirements:
  - The password contains 8 to 32 characters.
  - The password contains three of the following types of characters:
    - At least one lowercase letter
    - At least one uppercase letter
    - At least one digit

- The password proposal contain a special characters, special characters contains !"#$%&'()*+,-./:;<=>?@[\]^`{_|}~ and space.

Procedure

Step 1 Copy the certificates.

Copy the new digital certificates to the **NetEco software installation directory\tools\bin\generateCer\certificate** directory.

Step 2 Prepare new certificates.

1. Copy the contents of **NEPL_PKI.cer** and **Huawei_Equipment_CA.cer** to **NetEco.cer**.

   NOTE

   You can open **NEPL_PKI.cer**, **Huawei_Equipment_CA.cer**, and **NetEco.cer** in text mode to copy their contents.

2. Generate the certificate file **neteco.jks**.

   a. Run the script **NetEco 1000S software installation directory\tools\SSLTools.bat**, When the following information is displayed, type **1** and press **Enter**.

   ```
   1)Generate SSL certificate
   2)Update SSL certificate
   3)Change SSL certificate password
   4)Restore SSL certificate
   Please choose:
   ```

   b. When the following information is displayed, type **1** and press **Enter**.

   ```
   1)Generate Jetty ,Mail Certificate
   2)Generate Modbus/TCP, FTPs Certificate
   Please choose:
   ```

   c. When the following information is displayed, type the obtained private key password and press **Enter**.

   Enter pass phrase for .\tools\bin\generateCer\certificate\NetEco_Key.pem:*obtained password of the private key*

   d. When the following information is displayed, type the password of the new certificate and press **Enter**.

   Enter Export Password:*password of the new certificate*

   e. When the following information is displayed, type the password of the new certificate again and press **Enter**.

   Verifying - Enter Export Password:*confirm the password of the new certificate*

   f. When the following information is displayed, type the password of the new certificate and press **Enter**.

   Enter pass phrase for .\tools\bin\generateCer\keystore\neteco.p12:*password of the new certificate*

   g. When the following information is displayed, the certificate file **neteco.jks** is successfully create.

   Create keystore file success.

3. Replacing the certificate.

   a. Run the script **NetEco 1000S software installation directory\tools\SSLTools.bat**, When the following information is displayed, type **2** and press **Enter**.

   ```
   1)Generate SSL certificate
   2)Update SSL certificate
   3)Change SSL certificate password
   ```

```
4)Restore SSL certificate
Please choose:
```

b. When the following information is displayed, type **1** and press **Enter**.

```
1)Update Jetty ,Mail Certificate
2)Update Modbus/TCP, FTPs Certificate
Please choose:
```

c. When the following information is displayed, type the password of the current certificate and press **Enter**.

Please input current ssl key password:*password of the current certificate*

NOTE

The certificate password provided by the NetEco 1000S by default is Changeme_123.

d. When the following information is displayed, the certificate is successfully replaced.

```
Update certificate success.
The old keystore file was backed up in folder
.\tools\bin\generateCer\backup
```

NOTE

After the certificate is successfully replaced, the old certificate was backed up in folder **NetEco 1000S software installation directory\tools\bin\generateCer\backup**.

4. Effective the new certificate password.

a. Run the script **NetEco 1000S software installation directory\tools\SSLTools.bat**, When the following information is displayed, type **3** and press **Enter**.

```
1)Generate SSL certificate
2)Update SSL certificate
3)Change SSL certificate password
4)Restore SSL certificate
Please choose:
```

b. When the following information is displayed, type **1** and press **Enter**.

```
1)Change Jetty, Mail Certificate Key In Config
2)Change Modbus/TCP, FTPs Certificate Key In Config
Please choose:
```

c. When the following information is displayed, type the password of the old certificate and press **Enter**.

Please input old ssl key password:*password of the old certificate*

d. When the following information is displayed, type the new password of the certificate and press **Enter**.

Please input new ssl key password:*new password of the certificate*

e. When the following information is displayed, type the new password of the certificate again and press **Enter**.

Please confirm the new ssl key password:*new password of the certificate*

f. When the following information is displayed, the password is changed successfully.

```
Modification success, please restart the service to take effect.
```

Step 3 **Optional:** Restore the certificate.

When an exception occurs in the new certificate or the old certificate is required, you can run the following command to restore the certificate to the last status.

1. Run the script **NetEco 1000S software installation directory\tools\SSLTools.bat**, When the following information is displayed, type **4** and press **Enter**.

```
1)Generate SSL certificate
2)Update SSL certificate
```

```
3)Change SSL certificate password
4)Restore SSL certificate
Please choose:
```

2. When the following information is displayed, type **1** and press **Enter**.

```
1)Restore Jetty, Mail Certificate
2)Restore Modbus/TCP, FTPs Certificate
Please choose:
```

3. When the following information is displayed, type the password of the current certificate and press **Enter**.

   Please input current ssl key password:*password of the current certificate*

4. When the following information is displayed, the certificate is successfully restored.

```
Restore certificate success!
```

5. Restore the password of the old certificate.

   a. Run the script **NetEco 1000S software installation directory\tools\SSLTools.bat**, When the following information is displayed, type **3** and press **Enter**.

```
1)Generate SSL certificate
2)Update SSL certificate
3)Change SSL certificate password
4)Restore SSL certificate
Please choose:
```

   b. When the following information is displayed, type **1** and press **Enter**.

```
1)Change Jetty, Mail Certificate Key In Config
2)Change Modbus/TCP, FTPs Certificate Key In Config
Please choose:
```

   c. When the following information is displayed, type the password of the old certificate and press **Enter**.

      Please input old ssl key password:*password of the old certificate*

   d. When the following information is displayed, type the new password of the certificate and press **Enter**.

      Please input new ssl key password:*new password of the certificate*

   e. When the following information is displayed, type the new password of the certificate again and press **Enter**.

      Please confirm the new ssl key password:*new password of the certificate*

   f. When the following information is displayed, the password is changed successfully.

```
Modification success, please restart the service to take effect.
```

Step 4 Restart the NetEco 1000S for the settings to take effect.

If you can access NetEco 1000S services properly, the security certificate is replaced successfully. Otherwise, contact Huawei technical support.

----End

4.3.3 Replacing Certificates for the NE and Server

This section describes how to replace the Modbus/TCP protocol certificates preconfigured for the NE and server.

Prerequisites

- You have installed the NetEco 1000S.
- You are authorized to access the NetEco 1000S installation directory.

- You have applied for a new digital certificate from the Certificate Authority (CA).

  Device certificate: **NetEco.cer**

  Private key of the device certificate: **NetEco_Key.pem**

  Certificate issued by a subordinate CA: **NEPL_PKI.cer** (there may be multiple or no such certificates)

  Root CA certificate: **Huawei_Equipment_CA.cer**

  NOTE

  The name of a certificate applied for from the CA may be different from the preceding certificate name. Change the certificate name to be the same as the preceding certificate name.

  If a password has been configured for the private key of the device certificate, the password must also be obtained.

  Note: If the certificate is a **.p7b** file, you must export the certificate. That is, double-click **user.p7b** to open the certificate. Select the corresponding folder from the current user drop-down list to expand the folder. The folder may contain a few certificates. In normal cases, the file named the domain name or IP address is a server certificate. Right-click the certificate and choose all tasks from the shortcut menu. Then, click **Export** and then **Next**, and set the export format to base64 (that is, **.cer**) to export the preceding three certificates separately.

Context

- By default, after the NetEco 1000S is installed, the preconfigured certificates **server_keystore.jks** are saved in the **NetEco 1000S software installation directory\WebRoot\WEB-INF\workspace\neCert** directory.
- To replace the digital certificates, you must manually prepare digital certificates, replace Huawei certificates with these certificates.
- The password of certificates must be set according to the following requirements:
  - The password contains 8 to 32 characters.
  - The password contains three of the following types of characters:
    - At least one lowercase letter
    - At least one uppercase letter
    - At least one digit
  - The password proposal contain a special characters, special characters contains !"#$%&'()*+,-./:;<=>?@[\]^`{_|}~ and space.

Procedure

Step 1 Copy the certificates.

Copy the new digital certificates to the **NetEco 1000S software installation directory\tools\bin\generateCer\certificate** directory.

Step 2 Prepare new certificates.

1. Copy the contents of **NEPL_PKI.cer** and **Huawei_Equipment_CA.cer** to **NetEco.cer**.

   NOTE

   You can open **NEPL_PKI.cer**, **Huawei_Equipment_CA.cer**, and **NetEco.cer** in text mode to copy their contents.

2. Generate the certificate file **neteco_server.jks**.
   a. Run the script **NetEco 1000S software installation directory\tools\SSLTools.bat**, When the following information is displayed, type **1** and press **Enter**.
   ```
   1)Generate SSL certificate
   2)Update SSL certificate
   3)Change SSL certificate password
   4)Restore SSL certificate
   Please choose:
   ```
   b. When the following information is displayed, type **2** and press **Enter**.
   ```
   1)Generate Jetty ,Mail Certificate
   2)Generate Modbus/TCP, FTPs Certificate
   Please choose:
   ```
   c. When the following information is displayed, type the obtained private key password and press **Enter**.

      Enter pass phrase for .\tools\bin\generateCer\certificate \NetEco_Key.pem:*obtained password of the private key*
   d. When the following information is displayed, type the password of the new certificate and press **Enter**.

      Enter Export Password:*password of the new certificate*
   e. When the following information is displayed, type the password of the new certificate again and press **Enter**.

      Verifying - Enter Export Password:*confirm the password of the new certificate*
   f. When the following information is displayed, type the password of the new certificate and press **Enter**.

      Enter pass phrase for .\tools\bin\generateCer\keystore \neteco_server.p12:*password of the new certificate*
   g. When the following information is displayed, type **Y** and adding the certificate to keystore.

      Trust this certificate? [no]:
   h. When the following information is displayed, the certificate was added to keystore successfully.

      Certificate was added to keystore
   i. When the following information is displayed, type **Y** and press **Enter**.

      Trust this certificate? [no]:
   j. When the following information is displayed, the certificate file **server_keystore.jks** is successfully create.

      Create keystore file success.
3. Replace the certificates.
   a. Run the script **NetEco 1000S software installation directory\tools\SSLTools.bat**, When the following information is displayed, type **2** and press **Enter**.
   ```
   1)Generate SSL certificate
   2)Update SSL certificate
   3)Change SSL certificate password
   4)Restore SSL certificate
   Please choose:
   ```
   b. When the following information is displayed, type **2** and press **Enter**.
   ```
   1)Update Jetty ,Mail Certificate
   2)Update Modbus/TCP, FTPs Certificate
   Please choose:
   ```

c. When the following information is displayed, type the password of the current certificate and press **Enter**.

Please input current ssl key password:*password of the current certificate*

NOTE

The password of the old certificate is the password of the certificate to be replaced. The certificate password provided by the NetEco 1000S by default is NetEco123.

d. When the following information is displayed, the certificate is successfully replaced.

```
Update certificate success.
The old keystore file was backed up in folder
.\tools\bin\generateCer\backup
```

NOTE

After the certificate is successfully replaced, the old certificate was backed up in folder **NetEco 1000S software installation directory\tools\bin\generateCer\backup**.

4. Effective the new certificate password.

a. Run the script **NetEco 1000S software installation directory\tools\SSLTools.bat**, When the following information is displayed, type **3** and press **Enter**.

```
1)Generate SSL certificate
2)Update SSL certificate
3)Change SSL certificate password
4)Restore SSL certificate
Please choose:
```

b. When the following information is displayed, type **2** and press **Enter**.

```
1)Change Jetty, Mail Certificate Key In Config
2)Change Modbus/TCP, FTPs Certificate Key In Config
Please choose:
```

c. When the following information is displayed, type the password of the old certificate and press **Enter**.

Please input old ssl key password:*password of the old certificate*

d. When the following information is displayed, type the new password of the certificate and press **Enter**.

Please input new ssl key password:*new password of the certificate*

e. When the following information is displayed, type the new password of the certificate again and press **Enter**.

Please confirm the new ssl key password:*new password of the certificate*

f. When the following information is displayed, the password is changed successfully.

```
Modification success, please restart the service to take effect.
```

Step 3 **Optional:** Restore the certificate.

When an exception occurs in the new certificate or the old certificate is required, you can run the following command to restore the certificate to the last status.

1. Run the script **NetEco 1000S software installation directory\tools\SSLTools.bat**, When the following information is displayed, type **4** and press **Enter**.

```
1)Generate SSL certificate
2)Update SSL certificate
3)Change SSL certificate password
4)Restore SSL certificate
Please choose:
```

2. When the following information is displayed, type **2** and press **Enter**.

```
1)Restore Jetty, Mail Certificate
2)Restore Modbus/TCP, FTPs Certificate
Please choose:
```

3. When the following information is displayed, type the password of the current certificate and press **Enter**.

   Please input current ssl key password:*password of the current certificate*

4. When the following information is displayed, the certificate is successfully restored.

   ```
   Restore certificate success!
   ```

5. Restore the password of the old certificate.

   a. Run the script **NetEco 1000S software installation directory\tools\SSLTools.bat**, When the following information is displayed, type **3** and press **Enter**.

   ```
   1)Generate SSL certificate
   2)Update SSL certificate
   3)Change SSL certificate password
   4)Restore SSL certificate
   Please choose:
   ```

   b. When the following information is displayed, type **2** and press **Enter**.

   ```
   1)Change Jetty, Mail Certificate Key In Config
   2)Change Modbus/TCP, FTPs Certificate Key In Config
   Please choose:
   ```

   c. When the following information is displayed, type the password of the old certificate and press **Enter**.

   Please input old ssl key password:*password of the old certificate*

   d. When the following information is displayed, type the new password of the certificate and press **Enter**.

   Please input new ssl key password:*new password of the certificate*

   e. When the following information is displayed, type the new password of the certificate again and press **Enter**.

   Please confirm the new ssl key password:*new password of the certificate*

   f. When the following information is displayed, the password is changed successfully.

   ```
   Modification success, please restart the service to take effect.
   ```

Step 4 Restart the NetEco 1000S for the settings to take effect.

If you can access NetEco 1000S services properly, the security certificate is replaced successfully. Otherwise, contact Huawei technical support.

----End

4.4 Command Reference

This section describes commands for installing, running, and maintaining the NetEco 1000S system.

NOTE

For details about the functions of the commands in the third-party component **MySQL database**, **Java** and **Openssl** used in the NetEco 1000S system, see the corresponding official websites.

Command names, addresses, and functions of the NetEco 1000S system, as shown in Table 4-3, Table 4-4 and Table 4-5.

Table 4-3 Command reference (Software Installation)

Command Name	Command Address	Command Function
setup.bat	*NetEco 1000S Package Contents*\setup.bat	Used for installing the software.
setup_install.bat	*NetEco 1000S Package Contents*\scripts\setup_install.bat	Used for installing the software (system invocation).

Table 4-4 Command reference (manual execution is allowed)

Command Name	Command Address	Command Function
ConfigTools.bat	*NetEco 1000S software installation directory*\tools\ConfigTools.bat	Used for changing the database password or binding the IP of the server.
SSLTools.bat	*NetEco 1000S software installation directory*\tools\SSLTools.bat	Used for operating a certificate.
KeysTools.bat	*NetEco 1000S software installation directory*\tools\KeysTools.bat	Used for replacing keys.
Client.bat	*NetEco 1000S software installation directory*\Client.bat	Used for starting the NetEco 1000S client.
startup.bat	*NetEco 1000S software installation directory*\startup.bat	Used for starting all the service and system processes.
autoRecovery.bat	*NetEco 1000S software installation directory*\uninstall\scripts\autoRecovery.bat	Used for executing backup files for recovery after upgrading the NetEco 1000S fails.

Table 4-5 Command reference (system invocation)

Command Name	Command Address	Command Function
UninstallForWindowsControlPanel.bat	*NetEco 1000S software installation directory*\uninstall\UninstallForWindowsControlPanel.bat	Used for invoking the software uninstallation.
uninstall.bat	*NetEco 1000S software installation directory*\uninstall\uninstall.bat	Used for uninstalling the software.

Command Name	Command Address	Command Function
setup_uninstall.bat	*NetEco 1000S software installation directory*\uninstall\scripts\setup_uninstall.bat	
uninstallall.bat	*NetEco 1000S software installation directory*\uninstall\scripts\uninstallall.bat	
startup.bat	*NetEco 1000S software installation directory*\bin\startup.bat	Used for checking if there is an administrative authority, then invoking the **startup_NetEcoTray.bat**.
ClientInfo.exe	*NetEco 1000S software installation directory*\bin\ClientInfo.exe	Used for discovering the IP address of the remote execution of scripts.
NetEcoUPSService.exe	*NetEco 1000S software installation directory*\bin\NetEcoSUNService.exe	Used for starting the service-related **.exe** file.
startup_NetEcoTray.bat	*NetEco 1000S software installation directory*\bin\startup_NetEcoTray.bat	Used for starting the NetEcoTray service and the database service.
log4operation.bat	*NetEco 1000S software installation directory*\tools\bin\log4operation.bat	Used for recording logs.
7za.exe	*NetEco 1000S software installation directory*\uninstall\scripts\7za.exe	Used for compressing and decompressing files in .7z and .tar formats.
alluninstallInner.bat	*NetEco 1000S software installation directory*\uninstall\scripts\alluninstallInner.bat	Used for uninstalling all products.
copy_uninstallall.bat	*NetEco 1000S software installation directory*\uninstall\scripts\copy_uninstallall.bat	Used for copying scripts for one-click uninstallation to the software installation directory.

Command Name	Command Address	Command Function
copyCompInsEnv.bat	*NetEco 1000S software installation directory*\uninstall\scripts\copyCompInsEnv.bat	Used for copying extension packages to an extension repository and copying an installation disk framework to the software installation directory.
delete_files.bat	*NetEco 1000S software installation directory*\uninstall\scripts\delete_files.bat	Used for deleting unnecessary files after the software is installed.
delete_service.bat	*NetEco 1000S software installation directory*\uninstall\scripts\delete_service.bat	Used for deleting the NetEco 1000S and database services and the shortcut icon generated when installing or upgrading the NetEco 1000S.
prebackupfile.bat	*NetEco 1000S software installation directory*\uninstall\scripts\prebackupfile.bat	Used for copying source files to a target location.
process.bat	*NetEco 1000S software installation directory*\uninstall\scripts\process.bat	Used for checking whether any application is in use under the target installation directory.
setup_install.bat	*NetEco 1000S software installation directory*\uninstall\scripts\setup_install.bat	Used for installing the software (upgrade scene).
ChangeCerKeyPassword.bat	*NetEco 1000S software installation directory*\tools\bin\ChangeCerKeyPassword.bat	Used for changing the password of a certificate.
generateCer.bat	*NetEco 1000S software installation directory*\tools\bin\generateCer.bat	Used for generating a new certificate.
restoreCer.bat	*NetEco 1000S software installation directory*\tools\bin\restoreCer.bat	Used for restoring a certificate.
updateCer.bat	*NetEco 1000S software installation directory*\tools\bin\updateCer.bat	Used for replacing a certificate.

Command Name	Command Address	Command Function
run.vbs	*NetEco 1000S software installation directory*\uninstall\scripts\run.vbs	Used for obtaining more Windows 2008 rights.
NetEco1000S.exe	*NetEco 1000S software installation directory*\uninstall\jre\jre_win\bin\NetEco1000S.exe	Used for starting the NetEco 1000S process.
NetEcoSUNTray.exe	*NetEco 1000S software installation directory*\uninstall\jre\jre_win\bin\NetEcoSUNTray.exe	Used for starting the system tray.
hiddenKey.bat	*NetEco 1000S software installation directory*\tools\bin\hiddenKey.bat	Used for not showing passwords.
hiddenKey.exe	*NetEco 1000S software installation directory*\tools\bin\hiddenKey.exe	Used for not showing passwords. **hiddenKey.exe** is generated only after you manually execute **SSLTools.bat**.
delete_shortcut.vbs	*NetEco 1000S software installation directory*\uninstall\scripts\delete_shortcut.vbs	Invoked by the **delete_service.bat** script automatically to delete the shortcut icon after uninstalling the NetEco 1000S.
installNetEcoPost.bat	*NetEco 1000S software installation directory*\uninstall\scripts\installNetEcoPost.bat	Invoked by the system automatically to initialize databases after installing or upgrading the NetEco 1000S.

Command Name	Command Address	Command Function
dataBase_backup.bat	*NetEco 1000S software installation directory*\bin	**dataBase_backup.bat** script is executed by the NetEco 1000S automatically to back up databases and ***NetEco 1000S software installation directory*\WebRoot** directory at 04:00 every day. The automatic backup files are named as **YYYY-MM-DD.zip**, *YYYY-MM-DD* is the backup time. The automatic backup files are saved in ***the software installation directory*\backup\mysqlBackUp** directory.
fix_mysql.bat	*NetEco 1000S software installation directory*\mysql\oms_mysql\bin	Used for fixing database table index problems.

4.5 Planning Operating System Users and Their Initial Passwords

This section describes the user names and their initial passwords required during the operation of the NetEco 1000S system.

Table 4-6 lists the user names and initial passwords required during the installation and operation of the NetEco 1000S system, and their creation time.

Table 4-6 Planning of user names and passwords

System or Device	User Name	Initial User Password	Description	How to Change the Password
MySQL	administrator	NetEco_123	Administrator who managing the MySQL database.	You are advised to change the password after you install the NetEco 1000S for the first time, and change

System or Device	User Name	Initial User Password	Description	How to Change the Password
	dbuser	NetEco_123	User used for NetEco 1000S system access the MySQL database.	the password every three months. For details, see **5.1.1.1.2 Changing the Passwords of MySQL Users**.
NetEco 1000S	admin	Changeme123	User who operates and maintains the NetEco 1000S system. You can manage the NetEco 1000S users by creating users. **NOTE** When you log in to the NetEco 1000S for the first time, the system forces the user to change the password to make sure the security of visiting the system.	You are advised to change the password after you install the NetEco 1000S for the first time, and change the password every three months. For details, see **5.2.7.1.5 Modifying the Password of the Current User**.
	emscomm	/EzFp+2%r6@IxSCv	User used for the reauthentication of the device and NetEco 1000S.	You are advised to change the password after you install the NetEco 1000S for the first time, and change the password every three months. For details, see **5.2.3.11 Changing the Authentication Passwords of the SmartLogger and NetEco 1000S**.
	ftpuser	NetEco123	User ftpuser is used by the NetEco 1000S to transfer NetEco 1000S files. Normally, during the installation of the NetEco 1000S, user ftpuser is automatically created in the system, and therefore you need not create user ftpuser manually.	You are advised to change the password after you install the NetEco 1000S for the first time, and change the password every three months. For details, see **5.2.8.13 How Do I Change the Password of the ftpuser user?**.

System or Device	User Name	Initial User Password	Description	How to Change the Password
	plantcontroller	Modifyme123	User used for the Plant Controller devices to transfer files to the NetEco 1000S.	You are advised to change the password after you install the NetEco 1000S for the first time, and change the password every three months. For details, see **5.2.8.17 How Do I Change the Password of the plantcontroller user?**.

4.6 Communication Matrix

For details, see *iManager NetEco 1000S V100R002C20 Communication Matrix.xls*.

5 Operation and Maintenance

About This Chapter

5.1 NetEco 1000S Maintenance

This section describes how to manage NetEco 1000S users and logs.

5.1.1 Managing Users

This section describes how to manage the NetEco 1000S users, which involve MySQL users and NetEco 1000S users. You can manage the accounts and authority of these users and monitor user operations.

5.1.1.1 Managing MySQL Users

This section describes the MySQL users that are required for the NetEco 1000S and how to change the password of the MySQL administrator.

5.1.1.1.1 MySQL Users and User Authority

This section describes the MySQL users used by the NetEco 1000S and the related authority.

Only the MySQL user is authorized to use the MySQL database. After the MySQL database is installed, the system Create the default user **administrator** and **dbuser**.

For details about the MySQL user accounts, see **Table 5-1**.

Table 5-1 MySQL user accounts

User	Function	Authority
administrator	Management user of the MySQL database.	User **administrator** has the highest authority of the database.
dbuser	Operation user of the MySQL database.	User **dbuser** has the permission to the database.

5.1.1.1.2 Changing the Passwords of MySQL Users

Change the user passwords of the databases during routine maintenance, which ensures database user password security.

Prerequisites

- The old password of the MySQL user is available.
- The new password of the MySQL user is available.
- You have started the NetEco 1000S services. For details about how to start the services, see **5.2.1.1.1 Starting NetEco Services**.

Context

To ensure user password security, plan user passwords that meet password policy and change passwords periodically.

NOTE

- The password cannot be the same as the user name or the user name in a reversed order.
- The password contains 8 to 32 characters.
- The password contains three of the following types of characters:
  - At least one lowercase letter
  - At least one uppercase letter
  - At least one digit
- The password proposal contain a special characters, special characters contains !"#$%&'()* +,-./:;<=>?@[\]^` {_|}~ and space.

Procedure

Step 1 Changing the passwords of MySQL users: Run the script **NetEco software installation\tools \ConfigTools.bat**, When the following information is displayed, type **2** and press **Enter**.

```
1) Change FTPServer password
2) Change database password
3) Change Modbus SSL config
4) Change FTPS SSL config
5) Change external IP of the NetEco
6) Change local IP of the NetEco
7) Exit

Please choose 1-7:
```

Step 2 When the following information is displayed, type **database username** and press **Enter**.

Please input database username :*database username*

Step 3 When the following information is displayed, type **password of the database user** and press **Enter**.

Please input old database password : *password of the database user*

Step 4 When the following information is displayed, type **new password of the database user** and press **Enter**.

Please input new database password :*new password of the database user*

Step 5 When the following information is displayed, type **new password of the database user** again and press **Enter**.

Please confirm new database password:*new password of the database user*

Step 6 When the following information is displayed, the password is changed successfully.

Change succeeded.

Step 7 Restart the NetEco 1000S services.

When the password is changed successfull, you must restart the NetEco 1000S services. Otherwise, an exception may occur.

----End

5.1.1.2 Managing NetEco 1000S Users

This section describes the roles of NetEco 1000S users and the related authority.

For details about NetEco 1000S users and the related authority, see section **5.2.7.1 Managing User Information** under **Operation and Maintenance** > **Client Operations**.

5.1.2 Management Logs

This section describes management logs. You can learn about the NetEco 1000S running status and operations through management logs.

5.1.2.1 NetEco 1000S Log Types

NetEco 1000S logs record important user operations. You can view the log list or details about a log, or export operation logs, operation logs, or system logs. The NetEco 1000S provides information about logs with three levels (warning, minor, and critical).

Security Log

Security logs record the security operations that are performed on the eSight client, such as logging in to the client, changing the password, creating a user, and exiting the client.

You can query security logs to understand the information about NetEco 1000S security operations.

System Log

System logs record the events that occur on the NetEco 1000S. For example, NetEco 1000S running exceptions, network faults, and NetEco 1000S attacks. System logs help analyze the operating status of the NetEco 1000S and rectify faults.

You can query system logs to understand the information about NetEco 1000S system operations.

Operation Log

Operation logs record the operations that are performed on the NetEco 1000S, such as device addition and deletion.

You can query operation logs to understand the information about user operations.

5.1.2.2 Managing the Binary Log of the Database

The binary log of the database records the ciphertext information about database password changing, which may introduce security risks.

NOTE

The binary log of the MySQL database is a function of the MySQL database. It is used for storing data for database backup. For details, see the official website of the MySQL database **http://www.mysql.com/**.

Enabling the Binary Log of the Database

If you enable the binary log of the database, the system records the ciphertext information generated when you change the database password, which may introduce security risks. If the ciphertext information does not need to be recorded, you are advised to disable the binary log of the database.

- Use the Notepad to open the **NetEco 1000S installation directory\mysql\oms_mysql\my.ini** file.

- In the opened file, find the **log-bin** field, delete # before this field, and save and close the file. Then, restart the service.

  NOTE

  Press **Ctrl+F** to quickly locate the **log-bin** field.

Disabling the Binary Log of the Database

If you disable the binary log of the database, the system disables the function of saving the binary log. As a result, you cannot use the binary log to back up data.

- Use the Notepad to open the **NetEco 1000S installation directory\mysql\oms_mysql\my.ini** file.
- In the opened file, find the **log-bin** field, add # before this field, and save and close the file. Then, restart the service.

5.1.3 Data backup and restoration

dataBase_backup.bat script is executed by the NetEco 1000S automatically to back up databases and ***NetEco 1000S software installation directory*\WebRoot** directory at 04:00 every day. When NetEco 1000S data becomes abnormal, you can manually restore the backup file.

Backup

Table 5-2 lists the backup content, backup mode, backup file name, and backup file save path of the NetEco 1000S data.

NOTICE

You are obligated to take measures, in compliance with the laws of the countries concerned and the user privacy policies of your company, to ensure that the personal data of users is fully protected.

Table 5-2 Description of MySQL database backup

Item	Description
Backup content	● All data in the MySQL database. ● ***NetEco 1000S software installation directory*\WebRoot** folder.
Backup mode	Automatic backup: **dataBase_backup.bat** script is executed by the NetEco 1000S automatically to back up databases and ***NetEco 1000S software installation directory*\WebRoot** directory at 04:00 every day.. After the automatic backup, only two copies of the backup file in the backup directory are saved. When more than two copies exist, the earliest copies will be deleted.

Item	Description
Backup file name	YYYY-MM-DD.zip YYYY-MM-DD is the backup time, for example, **2015-09-16.zip**.
Backup file save path	The automatic backup files are saved in the following directories: ● MySQL database: ***NetEco 1000S software installation directory*\backup\mysqlBackUp\data** directory. ● **WebRoot** folder: ***NetEco 1000S software installation directory*\backup\mysqlBackUp\WebRoot** directory.

Restoration

When NetEco 1000S data becomes abnormal, you can perform the following operations to restore the backup file to restore the NetEco 1000S data to the status upon system backup:

NOTE

The restoration is recommended only when data is abnormal.

1. Stop NetEco 1000S services.

   Right-click the NetEco 1000S service icon in the lower right corner of the taskbar of the desktop and choose **Exit** from the shortcut menu.

2. Navigate to the ***NetEco 1000S software installation directory*\backup\mysqlBackUp** directory and decompress the backup file to be restored.

   The automatic backup files are named as **YYYY-MM-DD.zip**, *YYYY-MM-DD* is the backup time. The automatic backup files are saved in ***the software installation directory*\backup\mysqlBackUp** directory. The **WebRoot** and **data** folders are generated after the decompression.

   NOTE

   - The **WebRoot** folder contains data in the ***NetEco 1000S software installation directory*\WebRoot** directory.
   - The **data** folder contains MySQL database data.

3. Restore the backup file.
   - Restore the **WebRoot** file: Delete all files from the **NetEco 1000S software installation directory\WebRoot** directory and copy the files from the **WebRoot** folder generated after the decompression in **2** to the **NetEco 1000S software installation directory\WebRoot** directory.
   - Restore database data: Delete all files from the **NetEco 1000S software installation directory\mysql\oms_mysql\data** directory and copy the files from the **data** folder generated after the decompression in **2** to the **NetEco 1000S software installation directory\mysql\oms_mysql\data** directory.

4. Start NetEco 1000S services.

5.1.4 Performance Specifications

Table 5-3 Performance Specifications

Module	Function Description	Performance Specifications	Specification Description
Installation CD-ROM	Management capacity	● Number of devices: 1860 – Inverter: 1500 – SmartLogger: 300 – EMI: 30 – PID: 30 ● Number of PV plants: 300	Standard edition
		● Number of devices: 7200 – Inverter: 6000 – SmartLogger: 1000 – EMI and meter: 100 – PID: 100 ● Number of PV plants: 1000	Enterprise edition

Module	Function Description	Performance Specifications	Specification Description
Database	Performance data storage	The maximum number of devices whose data can be collected is as follows: ● Standard edition: 1860 – Inverter: 1500 – SmartLogger: 300 – EMI: 30 – PID: 30 ● Enterprise edition: 7200 – Inverter: 6000 – SmartLogger: 1000 – EMI: 100 – PID: 100 The relationships between collection period and data storage durations are as follows: ● 5-minute data of the EMIs is saved for one year. 5-minute data of other devices is saved for one month. ● Data collected on a 15-minute basis is saved for two years. ● Data collected by day, month, or year is saved for 20 years.	Size of a daily dumped file for each device: 10 KB **NOTE** ● The dumped file for 5-minute performance data of PV plants is saved to ***NetEco 1000S software installation directory*\backup\PowerdataTransfer**. The file is named **Plantdaydata_*timestamp*.zip**. ● The dumped files for 5-minute performance data of inverters are saved to ***NetEco 1000S software installation directory*\backup\PowerdataTransfer** and ***NetEco 1000S software installation directory*\backup\PMDataTransfer**. The files are named **Powerdaydata_*timestamp*.zip** and **InveterPmdata_*timestamp*.zip**. ● The dumped file for 5-minute performance data of other devices is saved to ***NetEco 1000S software installation directory*\backup\PMDataTransfer**. The file is named ***device type*Pmdata_*timestamp*.zip**.

Module	Function Description	Performance Specifications	Specification Description
	Alarm data storage	Historical alarm log storage specification: 1,000,000 logs	The system checks data every early morning. If the number of data records reaches 1,000,000, the database will dump the earliest 50,000 records. The dumped records cannot be queried on the client.
		Active alarm storage specification: 30,000 logs	The system checks alarms upon the reporting. If the number of alarms reaches the upper limit, the earliest 1000 alarms will be automatically cleared.
	Audit log storage	Audit log storage specification: 1,00,000 logs	If the number of logs exceeds 1,00,000, 20% of the logs are automatically dumped.
	Number of database connections	● Performance module: 32 ● Log module: 16 ● Configuration module: 8 ● Common module: 8 ● Alarm module: 16	It indicates the maximum number of databases that can be connected with each module.

Module	Function Description	Performance Specifications	Specification Description
	User management	● Maximum number of users: 2000 ● Maximum number of concurrent online users: 100 **NOTE** If multiple users need to log in to the client, you are advised to use the following mode of the browser for login. Otherwise, an error may occur. ● Internet Explorer: Create a session. ● Chrome 50: Open a new incognito window. ● Number of IP address whitelists: 500	-
Browser	Browser of the following version is supported:	● Internet Explorer 11 ● Chrome 50	-
Monitor resolution	Optimal resolution	1280*1024	The display effect is the best in this resolution.
	Minimum resolution	1024*768	All functions are available in the resolution higher than this one.

5.1.5 Customizing the Logo on the Home Page of the NetEco 1000S Client

This section describes how to customize the logo on the home page of the NetEco 1000S client based on the actual project information.

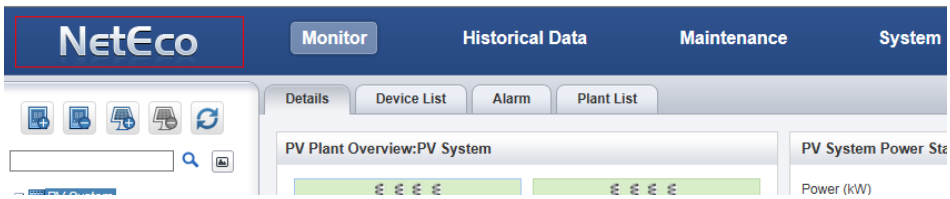
Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- You have the permission to read and write **NetEco 1000S installation path** on the NetEco 1000S server host.
- You have prepared the customized logo.

Context

The logo in the red box in **Figure 5-1** is the default logo on the home page of the NetEco 1000S. You can customize a new logo as required.

Figure 5-1 Default logo



Procedure

Step 1 Archive the customized logo picture to the **NetEco 1000S software installation path \WebRoot\common\userLogo** directory.

NOTE

The logo picture customized for the NetEco 1000S must meet the following requirements:

- The pixel is 234 x 60.
- The size of the logo picture cannot exceed 5 MB.
- The logo picture supports only the **jpg**, **jpeg**, **png**, and **gif** formats. You can archive at most one picture in each format, and the four formats are sorted by priority in descending order. For example, when the logo pictures in **jpeg** and **png** formats are archived at the same time, replace the logo in **jpeg** format preferentially.

Step 2 Rename the file archived in the **Step 1** **LOGO**.

The **jpeg** file is used as an example. The new name of the customized picture is **LOGO.jpeg**.

Step 3 Refresh the NetEco 1000S client and observe whether the logo in the upper-left corner is updated.

----End

5.2 NetEco 1000S Web Client Operation

This section describes how to log in to the NetEco 1000S and how to perform the operations to the NetEco 1000S on the web client.

You are not allowed to change the OS time whereas the software is running. When you need to change the OS time, you must log out the NetEco service first, for details, see **5.2.1.2 Logging Out of the NetEco 1000S**.

5.2.1 Getting Started

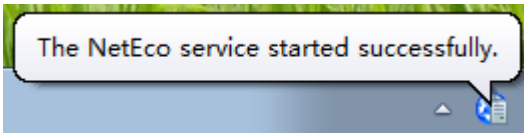
5.2.1.1 Logging In to the NetEco 1000S

5.2.1.1.1 Starting NetEco Services

This section describes how to start the NetEco 1000S services. Before logging in to the NetEco 1000S, you need to start the NetEco 1000S services. Otherwise, the login will be fail.

Procedure

Step 1 Choose **Start** > **All Program** > **NetEco 1000S** > **NetEco 1000S Service** to start the NetEco 1000S services in the operating system.

- When the service is starting, the icon  is displayed in the lower right corner of the taskbar of the desktop.
- After being started, the icon 

is displayed in the lower right corner of the taskbar of the desktop.

----End

Related Operations

Stop NetEco 1000S services.

Right-click the NetEco 1000S service icon in the lower right corner of the taskbar of the desktop and choose **Exit** from the shortcut menu.

5.2.1.1.2 Logging In to the NetEco 1000S Client

This section describes how to log in to the NetEco 1000S before using the service functions supported by NetEco 1000S.

Prerequisites

- You have started the NetEco 1000S services. For details about how to start the services, see **5.2.1.1.1 Starting NetEco Services**.
- You have obtained the user name and password for logging in to the NetEco 1000S.

Procedure

Step 1 Log in to the NetEco 1000S client in a correct mode as required.

NOTICE

The web browser must be Internet Explorer 11 or Chrome 50. Otherwise, some browser problems may occur when users query data.

Login Mode	Procedure
Local login	Use either of the following methods to log in to the NetEco 1000S client: ● Choose **Start** > **All Program** > **NetEco 1000S** > **NetEco 1000S Client** in the operating system. ● Double-click the NetEco 1000S client icon on the desktop of a PC that running a Windows operating system.
Remote login	1. Open the web browser. 2. Enter **http://IP address:8010** in the address bar, and press **Enter**. **NOTE** – HTTPS login is used by default. In this mode, you are redirected to **https://IP address:8443**. – HTTP login takes effect only after you manually enable it. For details, see **5.2.8.20 How Do I Enable or Disable the HTTP Mode for Logging In to the NetEco Client?**. The HTTP mode is not a secure connection mode and may reduce the NetEco system security. Exercise with caution when using the HTTP mode.

If you have selected **Use Security Web Service** during NetEco 1000S installation, the GUI shown in **Figure 5-2** or **Figure 5-3** will be displayed when you start the client.

Figure 5-2 Website Security Certificate window (Internet Explorer)

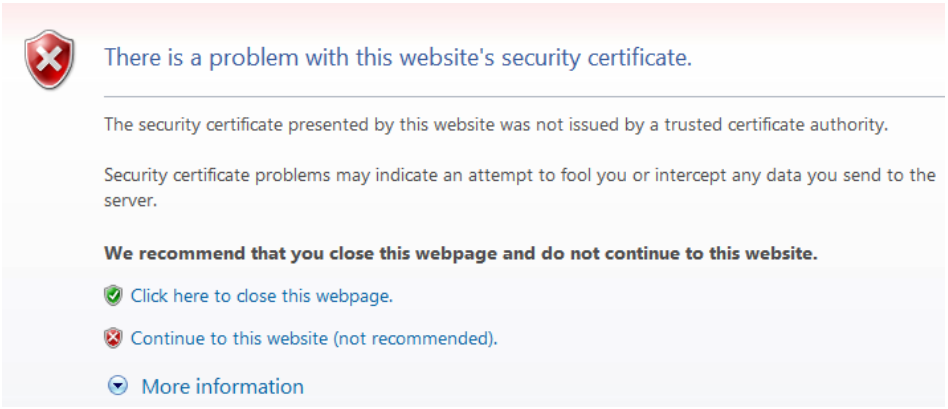
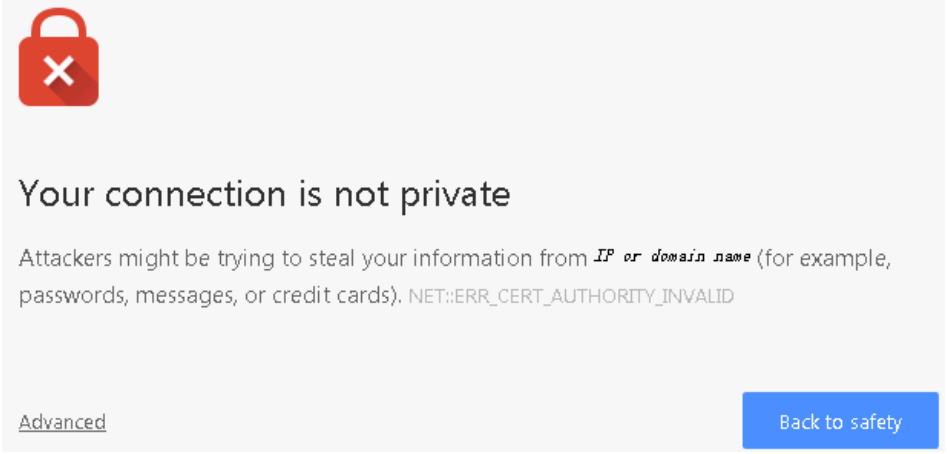


Figure 5-3 Website Security Certificate window (Chrome 50)



NOTE

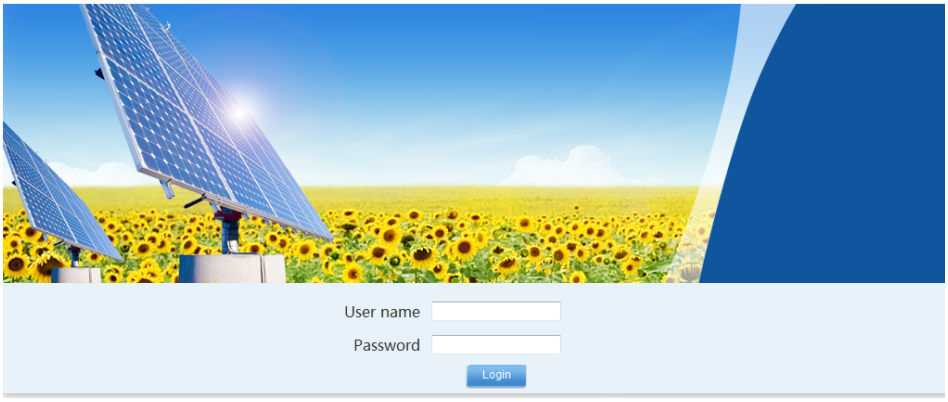
The HTTPS secure communication channel between the NetEco 1000S browser and the server is set up to ensure that sensitive data (such as passwords) is transmitted securely. A security certificate is required when the HTTPS channel is set up. A default security self-signed certificate is provided by the NetEco 1000S, but this default certificate is not issued by a Certificate Authority (CA). As a result, the message `there is a problem with this website's security certificate` is displayed. To replace the certificate, see **4.3.2 Replacing Certificates for the NetEco 1000S Client and Server**.

Between the browser and the server using TLSv1.1 or TLSv1.2 way connection, these two ways are safe connection mode.

When using the Internet Explorer, click **Continue to this website (not recommended)** in **Figure 5-2**. When using the Chrome, choose **Advanced** > **Proceed to *IP or domain name* (unsafe)** in **Figure 5-3**.

The **Login** window is displayed, as shown in **Figure 5-4**.

Figure 5-4 Login



Step 2 Set **User Name** and **Password** when you log in to the NetEco 1000S for the first time, and click **Login**.

The **System Initial Password** page is automatically displayed after the password expires. Change the password and log in to the NetEco 1000S client using the new password.

NOTICE

- Use the system administrator user when you log in to the NetEco 1000S for the first time. This user has the highest operation rights.
- To improve system security, you are advised to change the initial keys set before product delivery in a timely manner and periodically (at an interval of 3 months) change the user key to avoid security risks, such as violent key cracking.
- The password cannot the user name or the reversed user name.
- The length ranges from 8 to 32 characters.
- The password contains three of the following types of characters:
  - At least one lowercase character
  - At least one uppercase letter
  - At least one digit
- The password proposal contains a special character. Special characters include !"#$%&'()*+,-./:;<=>?@[\]^` {_|}~ and space.

----End

Exception Handling

When user B logs in to the client after user A logs in to it, the following problems may occur:

- After user B enters the login address in the address box of the browser, the login window for user A is displayed but that for user B is not displayed.
- After user B logs in to the client, user A's session window is automatically switched to user B's login window and user A is logged out.

The preceding problems are caused by the browser mechanism. They can be prevented using the following methods:

- When using the Internet Explorer, choose **File** > **New Session** from the menu bar.

  In the displayed session window, enter the login address. You can log in to the client as user B successfully.
- When using the Chrome, open the menu and choose **New incognito window**.

  In the displayed incognito window, enter the login address. You can log in to the client as user B successfully.

----End

5.2.1.2 Logging Out of the NetEco 1000S

5.2.1.2.1 Logging Out of the NetEco 1000S Client

Prerequisites

You have logged in to the NetEco 1000S client.

Procedure

Step 1 Click in the upper right corner from the main menu to log out. The **Login** page is displayed.

----End

5.2.1.2.2 Logging Out of the NetEco 1000S Services

Prerequisites

You have logged out of the NetEco 1000S client. For detailed operations, see **5.2.1.2.1 Logging Out of the NetEco 1000S Client**.

Procedure

Step 1 Right-click the NetEco 1000S service icon in the lower right corner of the task bar of the desktop and choose **Exit** from the shortcut menu.

NOTE

If the icon is not displayed in the lower right corner in the Windows operating system, perform the following steps to stop the NetEco 1000S services:

1. Start the task manager.
2. Click the **Services** tab.
3. Stop the **NetEcoSUNService** Service.
4. Stop the **NetEcoSUNMysql** Service.

----End

5.2.1.3 Getting to Know the NetEco 1000S Home Page

This section describes the NetEco 1000S home page. Getting familiar with the NetEco 1000S home page helps you quickly find the entry for an operation and improve operation efficiency.

Figure 5-5 shows the home page of the NetEco 1000S client after the login. **Table 5-4** describes items on the home page.

Figure 5-5 NetEco 1000S home page

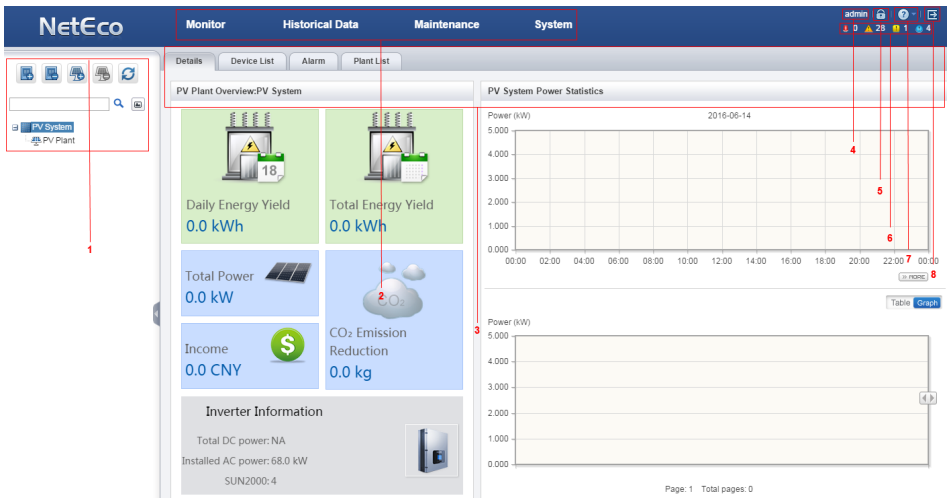


Table 5-4 Items on the NetEco home page

No.	Name	Description
1	Device navigation tree	You can choose the device to be operated.
2	Menu bar	Indicates the main menu of the system.
3	Operation display area	Displays the GUI of the selected function.
4	Current logged-in user	Displays the name of the current logged-in user.
5	Password changing icon	You can click this icon to change the current user name.
6	Alarm board icon	Displays the number of the current alarms. Alarms of different alarm severities are marked in different colors. You can click this icon to enter the **Current Alarms** window. Table 5-5 lists the icon meaning.
7	Help icon	You can click **Help** under this icon to open the online help. You can click **About** under this icon to check the version information.
8	Exit icon	You can click this icon to exit the client.

Table 5-5 Alarm status images

Image	Status
	Normal
	Critical
	Disconnected
	Minor
	Being upgraded
	Major
	Channel is blocked
	Warning

Image	Status
	Inverter status abnormal
	Obtaining device files

5.2.2 Managing the PV Plants

5.2.2.1 Browsing the PV Plant List

This section describes how to browse the PV Plant list to learn the overview of all PV plants connected to the NetEco 1000S.

Prerequisites

You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.

Procedure

Step 1 Choose **Monitor** from the main menu.

Step 2 Choose **PV System** in the navigation tree on the left.

Step 3 Choose the **Plant List** tab in the operation display area.

The **Plant List** page is displayed, as shown in **Figure 5-6**.

Figure 5-6 Plant List

You can view data, such as the current status and performance ratio, of each PV plant on the **Plant List** page. For details, see **Table 5-6**.

Table 5-6 Parameter description

Parameter	Description
PV plant name	Name of a PV plant. **NOTE** ● You can click a PV plant name to switch to the **Details** page of the PV plant. ● You can click next to the **PV plant name** column to sort PV plants by name in ascending or descending order. ● PV plant names are sorted in Unicode mode. The priority of PV plants whose names contain -, digits, uppercase letters, _, lowercase letters, and Chinese characters decreases in sequence.

Parameter	Description
Status	Alarm with the highest severity in a PV plant. **NOTE** ● You can click next to the **Status** column to sort alarms by severity in ascending or descending order. ● If is displayed, no devices are connected in the current PV plant or the inverter is faulty.
Performance Ratio	Energy generation performance ratio of a PV plant.
Total Power	Total power of a PV plant.
Total Energy Yield	Total energy yield of a PV plant.

NOTE

The PV plant list displayed on the **Plant List** page varies according to the logged-in user. The details are as follows:

- **admin**: displays all PV plants connected to the NetEco 1000S.
- system operators or guest users: displays only PV plants that the current user can access.

----End

5.2.2.2 Creating a PV Plant

This section describes how to create a plant. After the NetEco 1000S is installed, a default plant is available. You can also create another plant as required.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator or system operators.

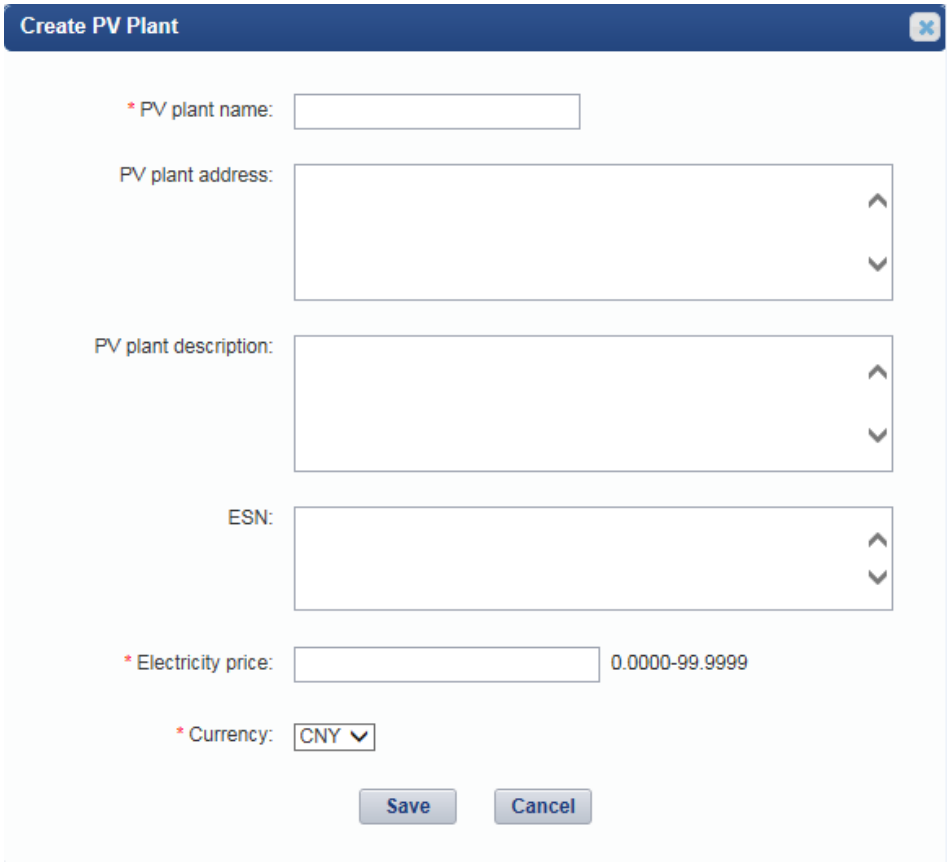
Procedure

Step 1 Choose **Monitor** from the main menu.

Step 2 Click in the navigation tree on the left.

The **Create PV Plant** window is displayed, as shown in **Figure 5-7**.

Figure 5-7 Create PV Plant



Step 3 Set plant parameters by referring to **Table 5-7**.

Table 5-7 PV Plant parameters

Parameter name	Mandatory (Yes/No)	Description
plant name	Yes	Name of a plant.
plant address	No	Address of a plant. You can set this parameter as required.
plant description	No	Description of a plant. You can enter utility information about the plant.

Parameter name	Mandatory (Yes/No)	Description
ESN	No	ESN of the inverters directly connected to the FE or SmartLogger. Multiple ESNs are separated by semicolons (;). You can enter the ESN of the inverters directly connected to the FE or SmartLogger. After a PV plant is created on the NetEco 1000S, the inverters directly connected to the FE or SmartLogger automatically mounts the SmartLogger and devices connected to the SmartLogger to the PV plant.
Electricity price	Yes	Price of the power. Value range: 0.0000-99.9999
Currency	Yes	Price unit. You can set the unit in the **Income Settings** dialog box by choosing **System** > **System Settings** > **Income Settings**.

Step 4 Click **Save**.

----End

5.2.2.3 Obtaining an Overview of a PV Plant

This section describes how to browse the device list of a plant to learn the devices in the plant.

Prerequisites

You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.

Procedure

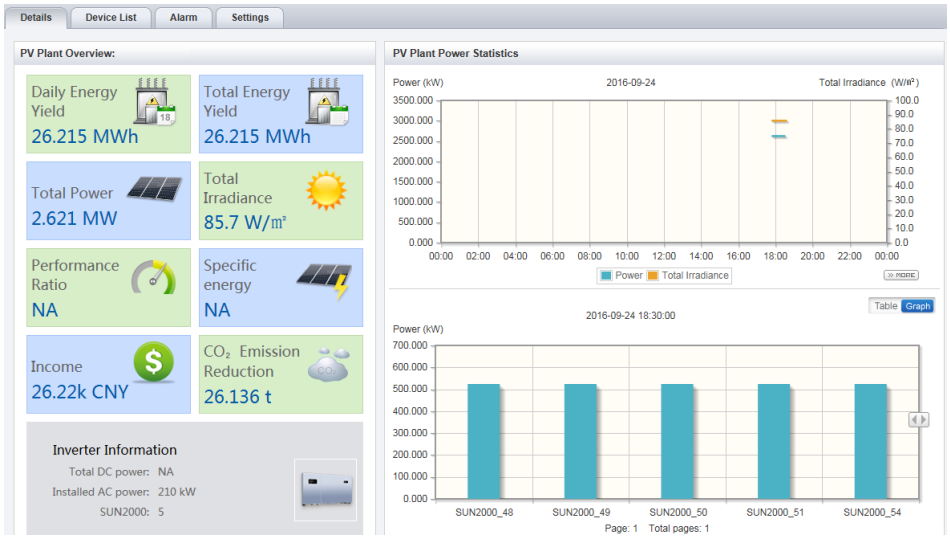
Step 1 Choose **Monitor** from the main menu.

Step 2 Choose **PV System** or a user-defined plant in the navigation tree on the left.

Step 3 Click the **Details** tab in the operation display area.

Running status information about the selected plant is displayed on the **Details** tab page, such as power generation efficiency and cumulative generated power, as shown in **Figure 5-8**.

Figure 5-8 Overview of a PV Plant



NOTE

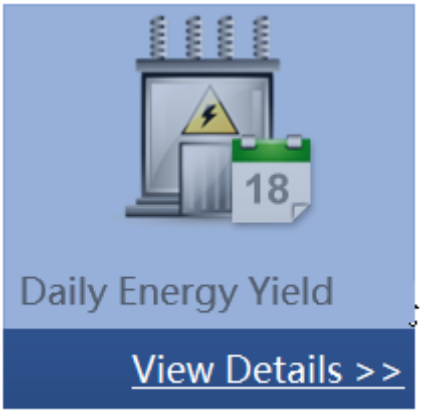
If the PC on which the NetEco 1000S is installed uses the time zone adopting the DST, the following situations may occur:

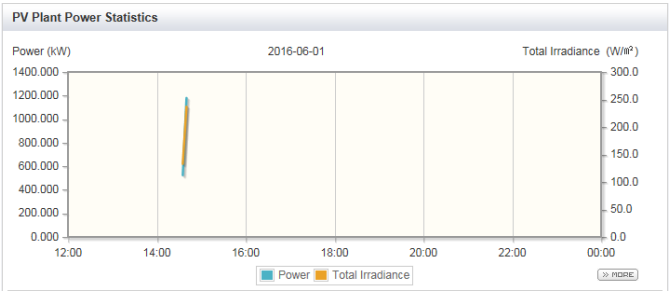
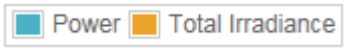
- When users query data generated on the date shifting to the DST, the queried graph or table has no data on this time segment.
- When users query data generated on the date shifting out of the DST, the queried graph or table displays only the latest one data record on this time segment.

----End

Follow-up Procedure

Perform the following operations on the **Details** tab page:

Procedure	Step
View details about **Daily Energy Yield**, **Total Energy Yield**, **Performance Ratio**, **CO_2 Emission Reduction**, **Total Power**, **Specific energy**, **Income**, and **Total Irradiance**. **NOTE** ● You can view details about **Income** only on the **Details** page of the PV system. ● **Performance Ratio**, **Specific energy** and **Total Irradiance** are not displayed on the **Details** tab page of the PV System. ● **Performance Ratio** and **Total Irradiance** are displayed on the **Details** tab page of the plant only when devices in the plant contain environment monitors. ● If multiple EMIs are connected to the PV plant, values of **Performance Ratio** and **Total Irradiance** are calculated according to data reported by the EMI selected on the **Setting** tab page of the PV plant.	The way of viewing each running information about a plant is the same. Viewing information about **Daily Energy Yield** is used as an example: 1. Move the mouse pointer to the pane displaying the information about **Daily Energy Yield**. The **View Details** link is displayed. **Figure 5-9** View Details  2. Click **View Details**. Information about **Daily Energy Yield** for each device is displayed in the **Details** window. **NOTE** In the PV System, information about **Daily Energy Yield** for each plant will be displayed.

Procedure	Step
View the PV plant power and total irradiance curve.	View the PV plant power and total irradiance curve in the **PV Plant Power Statistics** area, as shown in **Figure 5-10**. **Figure 5-10** PV plant power and total irradiance curve  Each coordinate is defined as follows: ● Left vertical coordinate: PV plant power ● Right vertical coordinate: total irradiance The PV plant power and total irradiance are displayed only when an EMI is connected to the PV plant. Values of the vertical coordinates are calculated based on the EMI selected on the **Setting** page for the PV plant. ● Horizontal coordinate: data collection period. The interval is two hours. The value of **Collection time** configured in **5.2.2.6 Modifying the Information About a PV Plant** is used as the value of the horizontal coordinate. **NOTE** The start time of the horizontal coordinate is an even number. If the data collection start time configured in **5.2.2.6 Modifying the Information About a PV Plant** is an odd number, use the previous one even number as the start time of the horizontal coordinate. For example, if the start time for **Collection time** is set to **01:00**, the start time of the horizontal coordinate is **00:00**. Click **Power** or **Total Irradiance** on  to close the corresponding curve and click them again to display the curve.
Switch to the **Performance Data** page.	Click **MORE** on the right of **Details**.

Procedure	Step
Switch the mode for displaying power statistics.	Click **Table** or **Graph** in the lower area of the **PV Plant Power Statistics** column. ● Table Graph: The power statistics are displayed in a table. ● Table Graph: The power statistics are displayed in a line chart. **NOTE** The power statistics are displayed in a line chart by default.

5.2.2.4 Browsing the Device List of a PV Plant

This section describes how to browse the device list of a plant to learn the devices in the plant.

Prerequisites

You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.

Procedure

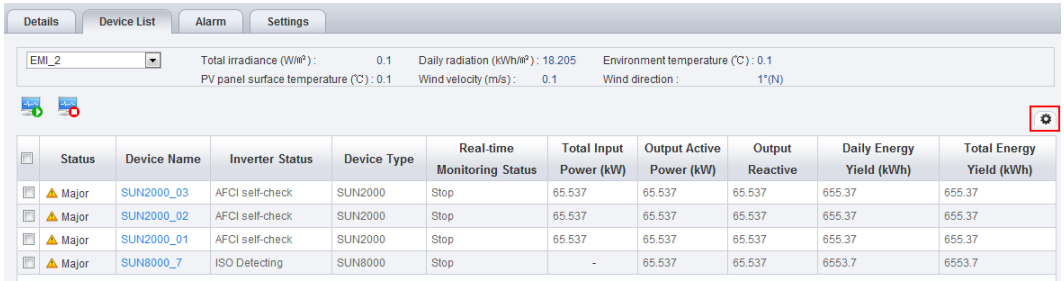
Step 1 Choose **Monitor** from the main menu.

Step 2 Choose **PV System** or a user-defined plant in the navigation tree on the left.

Step 3 Click the **Device List** tab in the operation display area.

Key information about all devices under the selected plant is displayed on the **Device List** tab page, as shown in **Figure 5-11**.

Figure 5-11 Overview of Device Information



NOTE

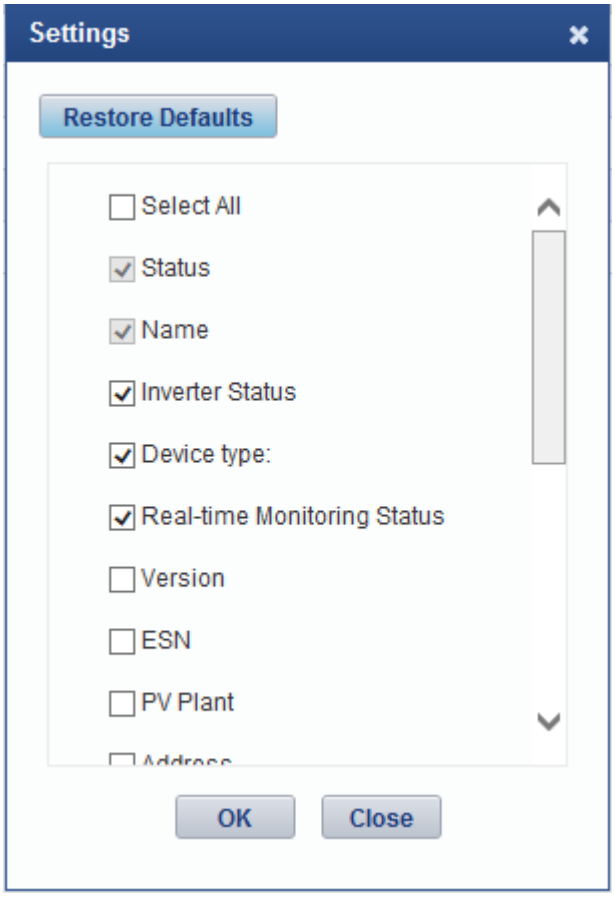
If multiple environmental monitoring instruments (EMIs) are connected to the PV plant, you can select the EMI to be checked from the **EMI** drop-down list in the upper left corner. Coefficients, such as **Total irradiance**, **Daily radiation**, and **Environment temperature**, of the EMI are displayed.

in the upper right corner provides the function of displaying only specified columns in the table on the **Device List** tab page. To display specified columns, perform the following steps:

1. Click .

   The **Settings** dialog box is displayed, as shown in **Figure 5-12**.

   Figure 5-12 Settings dialog box



2. Select the names of the columns that need to be displayed. Then, click **OK**.

----End

Follow-up Procedure

System administrator and system operators can also perform the following operations on the **Device List** tab page:

Operation	Steps
Start the real-time data collection task	1. Select one or more devices for which you want to start the real-time data collection task. 2. Click  . 3. In the displayed dialog box, click **OK**. **NOTE** The period with which the SmartLogger collects real-time data of devices vary with its version. ● The SmartLogger of an old version (earlier than V100R001C95SPC020) collects real-time data of devices every minute. ● The SmartLogger of a new version (V100R001C95SPC020 or later) collects real-time data of devices using the value of **Real-time data collection period** on the **Settings** tab page of a PV plant as the period. If you modify **Real-time data collection period** after starting the real-time data collection task mounted under the SmartLogger of a new version, you need to stop the task and then start it again. In this way, the SmartLogger can collect real-time data using the new **Real-time data collection period** value as the period.
Stop the real-time data collection task	1. Select one or more devices for which you want to stop the real-time data collection task. 2. Click  . 3. In the displayed dialog box, click **OK**.

5.2.2.5 Browsing Alarm Information About a PV Plant

This section describes how to browse alarm information about a plant to learn about the current alarms for all devices under the plant.

Prerequisites

You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.

Procedure

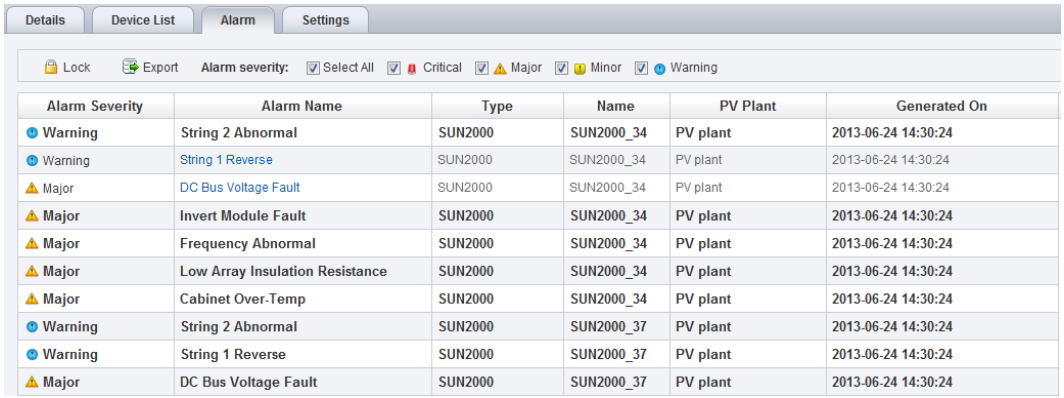
Step 1 Choose **Monitor** from the main menu.

Step 2 Choose **PV System** or a user-defined plant in the navigation tree on the left.

Step 3 Click the **Alarm** tab in the operation display area.

The current alarms for all devices under the selected plant is displayed on the **Alarm** tab page, as shown in **Figure 5-13**.

Figure 5-13 Overview of Alarm Information about a PV Plant



Alarm Severity	Alarm Name	Type	Name	PV Plant	Generated On
Warning	String 2 Abnormal	SUN2000	SUN2000_34	PV plant	2013-06-24 14:30:24
Warning	String 1 Reverse	SUN2000	SUN2000_34	PV plant	2013-06-24 14:30:24
Major	DC Bus Voltage Fault	SUN2000	SUN2000_34	PV plant	2013-06-24 14:30:24
Major	Invert Module Fault	SUN2000	SUN2000_34	PV plant	2013-06-24 14:30:24
Major	Frequency Abnormal	SUN2000	SUN2000_34	PV plant	2013-06-24 14:30:24
Major	Low Array Insulation Resistance	SUN2000	SUN2000_34	PV plant	2013-06-24 14:30:24
Major	Cabinet Over-Temp	SUN2000	SUN2000_34	PV plant	2013-06-24 14:30:24
Warning	String 2 Abnormal	SUN2000	SUN2000_37	PV plant	2013-06-24 14:30:24
Warning	String 1 Reverse	SUN2000	SUN2000_37	PV plant	2013-06-24 14:30:24
Major	DC Bus Voltage Fault	SUN2000	SUN2000_37	PV plant	2013-06-24 14:30:24

Step 4 **Optional:** Click an alarm name in the **Alarm Name** column to view the details.

NOTE

Alarms that have not been browsed are highlighted in bold.

Step 5 **Optional:** Click **Export** to export the queried alarm information into a CSV file.

----End

Follow-up Procedure

Click **Lock**. Alarms are no longer automatically updated on the **Alarm** page. In this way, you can view the alarms reported only before the lock. To enable the automatic update function again and view newly reported alarms, click **Scroll Unlock**.

NOTE

If excessive alarms are generated, these alarms are displayed on multiple pages. In this case, pages except the first one are locked and the **Scroll Unlock** button is unavailable for you to unlock those pages.

By default, the alarm lock function on the **Alarm** page is disabled.

5.2.2.6 Modifying the Information About a PV Plant

This section describes how to modify the information about a plant on the NetEco 1000S if the information is inconsistent with that about the actual plant.

Prerequisites

NOTE

The **Setting** tab page is unavailable in the PV System.

You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.

Procedure

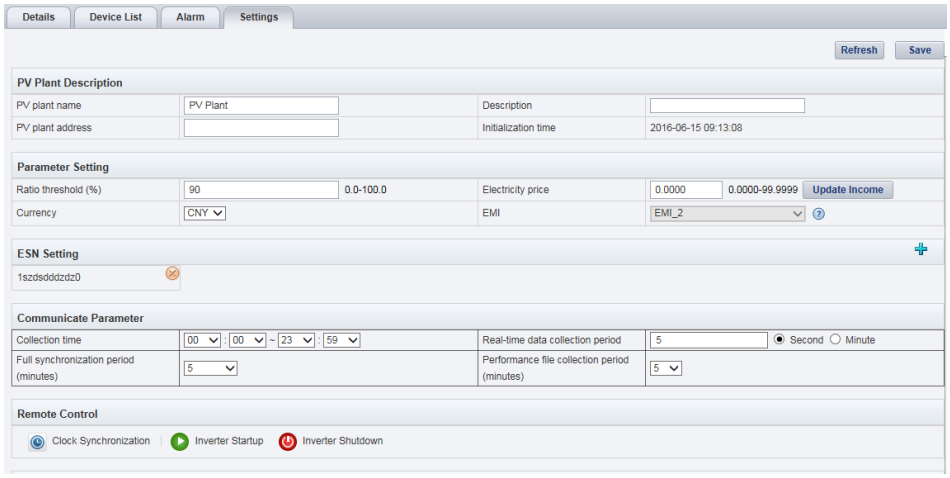
Step 1 Choose **Monitor** from the main menu.

Step 2 Select the plant whose information is to be changed in the navigation tree on the left.

Step 3 Click the **Setting** tab in the operation display area.

Information about the selected plant is displayed on the **Setting** tab page, as shown in **Figure 5-14**.

Figure 5-14 PV Plant Information



Step 4 **Optional:** If you have performed operations on multiple clients, click **Refresh** in the upper right corner to refresh the parameter information.

Step 5 Modify basic information about a plant.

Modify the following parameters as required. For details, see **Table 5-8**.

Table 5-8 Parameters of the PV plant

Parameter Type	Parameter	Description
PV Plant Description	PV plant name	Enter a PV plant name.
	Description	Enter the description of a PV plant.
	PV plant address	Enter the PV plant address.
Parameter Setting	Ratio threshold	Set the ratio threshold as required.
	Electricity price	Set the electricity price as required. **NOTE** After modifying the electricity price, you can click **Update Income** or **Save** in the upper right corner to save the modification. The functions of the two buttons are as follows: ● **Update Income**: After clicking this button, you can select the time range in which income is to be updated, and income in the selected time range can be calculated according to the new electricity price. ● **Save**: After you click this button, income will be calculated again according to the new electricity price. The calculated income does not include historical income.

Parameter Type	Parameter	Description
	Currency	Set the currency as required.
	EMI	● **EMI** is displayed in the **Parameter Setting** area only when the EMI is connected to the current PV plant. ● **Mean Value** in the **EMI** drop-down list indicates that the average value is used for calculation. The **Mean Value** option is displayed only when multiple **EMI**s access the PV plant. If only one EMI is connected to the PV plant, set this parameter to the connected EMI by default. ● Values of the **Performance Ratio** and **Total Irradiance** are calculated according to data reported by the selected **EMI**.
ESN Setting **NOTE** This operation requires that the current user is the system administrator or system operators.	-	Set ESN as required. ● To delete an ESN that has been connected to the plant, click  in the upper right area of the ESN. ● To add anESN to the current plant, click  .
Communicate Parameter **NOTE** This operation requires that the current user is the system administrator or system operators.	Collection time	**Collection time** indicates that the SmartLogger or the inverter directly connected to the FE in the current plant needs to collect device performance data of this period on a day.
	Real-time data collection period	**Real-time data collection period** indicates that the SmartLogger in the current plant needs to collect changed device performance data by this period in real time.
	Full synchronization period (minutes)	**Full synchronization period (minutes)** indicates that the SmartLogger in the current plant needs to collect all device performance data by this period in real time.
	Performance file collection period (minutes)	**Performance file collection period (minutes)** indicates that the SmartLogger or the inverter directly connected to the FE in the current plant needs to collect historical device performance data by this period.

Step 6 Modify the plant image.

1. Click **Upload**.
2. Select a plant image and click **Open**.

NOTE

The size of the plant image must be less than 5 MB, and the image can be saved only in **jpg**, **png**, or **gif** format. Otherwise, the image fails to be uploaded.

Step 7 **Optional:** Remotely control devices.

- Click  to synchronize time. The NetEco 1000S performs time synchronization to synchronize time from the NetEco 1000S server to devices in the current plant.

  NOTE

  You can synchronize time only as system administrator.
- Power on or off inverters, see **5.2.3.8 Remotely Controlling an Inverter**.

----End

5.2.2.7 Deleting a PV Plant

This section describes how to delete a plant that is created incorrectly or do not need to be managed after network adjustment from the NetEco 1000S.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator or system operators.

Procedure

Step 1 Choose **Monitor** from the main menu.

Step 2 Select the plant to be deleted in the navigation tree on the left.

Step 3 Click  .

A confirmation dialog box containing the message **Are you sure you want to delete?** is displayed.

NOTE

A plant can be deleted only when no device exists under it. Otherwise,  is dimmed.

Step 4 Click **Yes**.

A dialog box containing the message **Deletion succeeded** is displayed.

Step 5 Click **OK**.

----End

5.2.3 Managing Devices

5.2.3.1 Accessing Devices Through the SmartLogger

This section describes how to enable devices to access the NetEco 1000S through the SmartLogger, helping manage and monitor devices through the NetEco 1000S.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- Devices access NetEco 1000S through SmartLogger. SmartLogger and NetEco 1000S must be in the same time zone. For details on how to set the time zone of SmartLogger, see **5.2.3.6.1 Modifying the Information About the SmartLogger** or *Smart Logger User Manual*.
- You have set the IP address of NetEco 1000S on the web page of the SmartLogger. For detailed operations, see *Smart Logger User Manual*.
- You have obtained the authentication passwords of the SmartLogger and NetEco 1000S and the ESN of the SmartLogger.
- You have created the target plant. For detailed operations, see **5.2.2.2 Creating a PV Plant**.

Context

- If the NetEco 1000S or SmartLogger is powered on and started before the inverter, the device list displayed on the NetEco 1000S is different from that on the SmartLogger, or the device list is incomplete. You need to manually search for devices on the SmartLogger.
- After devices are added or replaced, you also need to manually search for devices on the SmartLogger or restart the SmartLogger, and then search for devices on the NetEco 1000S again.
- The TLS protocol is used for the NetEco 1000S to communicate with the SmartLogger.

NOTICE

The TLS protocol provides the following three versions:

- TLS1.0: This version has security risks.
- TLS1.1: This version is secure.
- TLS1.2: This version is secure.

In order to be compatible with the low version of the device, the NetEco 1000S supports all of the preceding protocol versions by default. TLS1.0 has security risks. For security purposes, you are advised to use TLS1.1 or TLS1.2. For details, see **5.2.8.14 How Do I Modify the Data or File Transmission Protocol?**.

The SmartLogger may not support TLS1.1/1.2. You are advised to replace the SmartLogger with the one supporting TLS1.1/1.2 or upgrade the SmartLogger to the version supporting TLS1.1/1.2.

Procedure

- **If the SmartLogger has accessed the NetEco 1000S, perform the following operations to add the SmartLogger to the plant:**

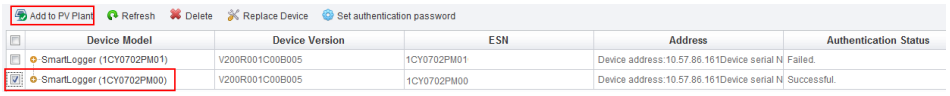
  NOTE

  This operation requires that the current user is the system administrator.

  a. Choose **Maintenance** > **Device Access** from the main menu.

  b. In the **Device Access** page, select the target SmartLogger and click **Add to PV plant**, as shown in **Figure 5-15**.

  Figure 5-15 Selecting the SmartLogger

  NOTE

  The SmartLogger and NetEco 1000S are connected through password authentication. **Authentication Status** may be any of the following values:

  - Successful: indicates that the authentication passwords on both sides are the same. Then, perform **c**.
  - Failed: You can perform the following operations to reconfigure the authentication password:
    1. Click **Set Authentication Password** in **Figure 5-15**.
    2. Enter the authentication password same as the SmartLogger side and click **OK**.

       NOTE

       The authentication passwords on the SmartLogger and NetEco 1000S sides are **/EzFp +2%r6@IxSCv** by default.

       You are advised to change the password every three months. For details, see **5.2.3.11 Changing the Authentication Passwords of the SmartLogger and NetEco 1000S**.
    3. Click **Refresh** on the **Device Access** page. When **Authentication Status** changes to **Successful**, perform **c**.
  - Not authenticated: perform **c**.
    - Not authenticated: It indicates the current version of SmartLogger is too early and does not support authentication. When you perform the next step, a security risk may occur. To ensure connection security, you are advised to upgrade SmartLogger to a version supporting authentication.
    - The NetEco 1000S allows you to set whether to allow the access of the SmartLogger that does not support authentication. For details, see **5.2.7.4.3 Setting Communication Parameters**.

  c. On the **Select Power Station** page, select the target plant and click **OK**.

  d. Click **OK** in the **Confirm** dialog box.

  e. View operation results.

     i. Choose **Monitor** from the main menu.

     ii. Select the target PV plant and expand to view the added SmartLogger and devices mounted under it.

- **If the SmartLogger does not access the NetEco 1000S, perform the following operations to add the SmartLogger to the plant:**

NOTE

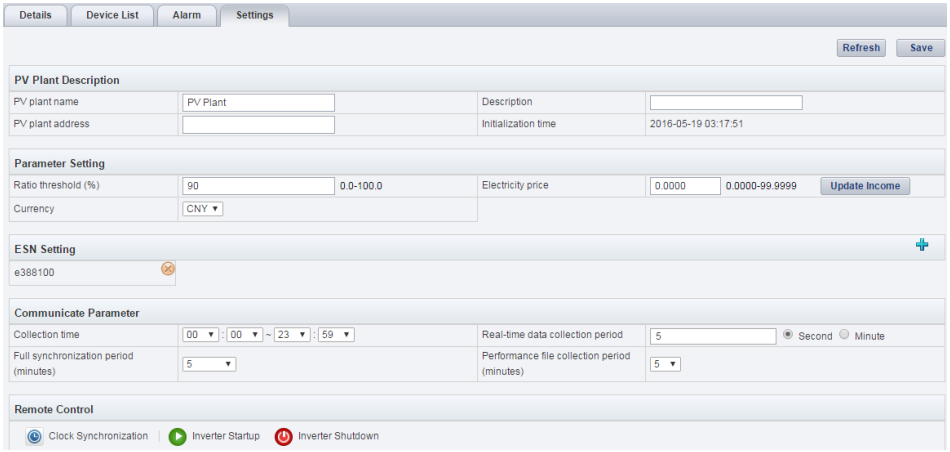
This operation requires that the current user is the system administrator or system operators.

a. Choose **Monitor** from the main menu.

b. Select the target plant in the navigation tree on the left.

c. Click the **Setting** tab in the operation display area, and then click  in the row of the **ESN Setting**, as shown in **Figure 5-16**.

Figure 5-16 Adding the **ESN Setting**



d. On the **Add Device ESN** page, perform the following operations to add the SmartLogger:

NOTE

The SmartLogger and the NetEco 1000S are connected through password authentication. If the SmartLogger does not support password authentication, enable **Compatible Access only supports SSL authentication NEs**. For details, see **5.2.7.4.3 Setting Communication Parameters**. Then the SmartLogger can automatically connect to the PV plant by referring to the following instructions.

i. Enter the ESN of the SmartLogger to be added to the current PV plant and click **Advanced Settings**.

ii. Enter the authentication password same as the SmartLogger side and click **OK**.

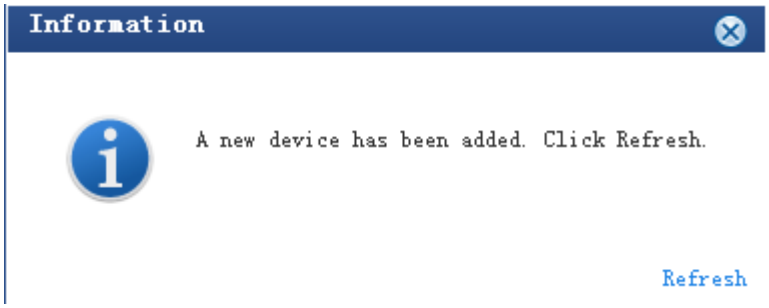
NOTE

The authentication passwords on the SmartLogger and NetEco 1000S sides are **/EzFp +2%r6@IxSCv** by default.

You are advised to change the password every three months. For details, see **5.2.3.11 Changing the Authentication Passwords of the SmartLogger and NetEco 1000S**.

When the SmartLogger added to the PV plant accesses the NetEco 1000S, the following prompt is displayed in the lower right corner of the NetEco 1000S.

Figure 5-17 Device access prompt



e. Click **Refresh** in Figure 5-17 or re-select the target PV plant in in the navigation tree on the left to view the added SmartLogger and devices mounted under it.

----End

5.2.3.2 Accessing the Directly Connected Inverter

This section describes how to enable the inverter directly connected to the FE to access the NetEco 1000S, helping manage and monitor devices through the NetEco 1000S.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The inverter to be accessed has accessed the NetEco 1000S in FE direct connection mode.
- You have set the IP address of NetEco 1000S on the inverter. For detailed operations, see Inverter *User Manual*.
- You have obtained the authentication password between the inverter and NetEco 1000S and the ESN of the inverter.
- You have created the target plant. For detailed operations, see **5.2.2.2 Creating a PV Plant**.

Context

The TLS protocol is used for the NetEco 1000S to communicate with the inverter.

NOTICE

The TLS protocol provides the following three versions:

- TLS1.0: This version has security risks.
- TLS1.1: This version is secure.
- TLS1.2: This version is secure.

In order to be compatible with the low version of the device, the NetEco 1000S supports all of the preceding protocol versions by default. TLS1.0 has security risks. For security purposes, you are advised to use TLS1.1 or TLS1.2. For details, see **5.2.8.14 How Do I Modify the Data or File Transmission Protocol?**.

The inverter may not support TLS1.1/1.2. You are advised to replace the inverter with the one supporting TLS1.1/1.2 or upgrade the inverter to the version supporting TLS1.1/1.2.

Procedure

- **If the inverter has accessed the NetEco 1000S, perform the following operations to add the inverter to the plant:**

  NOTE

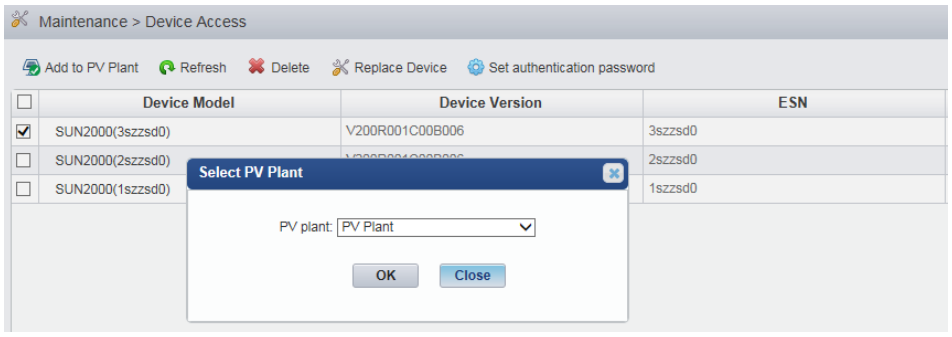
  This operation requires that the current user is the system administrator.

  a. Choose **Maintenance** > **Device Access** from the main menu.

     The **Device Access** page is displayed.

  b. Select the target inverter and click **Add to PV plant**, as shown in **Figure 5-18**.

  Figure 5-18 Accessing the inverter



NOTE

The inverter and NetEco 1000S are connected through password authentication. **Authentication Status** may be any of the following values:

- Successful: indicates that the authentication passwords on both sides are the same. Then, perform **c**.
- Failed: You can perform the following operations to reconfigure the authentication password:
  1. Click **Set Authentication Password** in **Figure 5-18**.
  2. Enter the authentication password same as the inverter side and click **OK**.

     NOTE

     The authentication passwords on the inverter and NetEco 1000S sides are **/EzFp +2%r6@IxSCv** by default.

     You are advised to change the password every three months. For details, see **5.2.3.11 Changing the Authentication Passwords of the SmartLogger and NetEco 1000S**.
  3. Click **Refresh** on the **Device Access** page. When **Authentication Status** changes to **Successful**, perform **c**.
- Not authenticated: perform **c**.
  - Not authenticated: It indicates the current version of inverter is too early and does not support authentication. When you perform the next step, a security risk may occur. To ensure connection security, you are advised to upgrade SmartLogger to a version supporting authentication.
  - The NetEco 1000S allows you to set whether to allow the access of the inverter that does not support authentication. For details, see **5.2.7.4.3 Setting Communication Parameters**.

c. On the **Select Power Station** page, select the target plant and click **OK**.

d. Click **OK** in the **Confirm** dialog box.

e. View operation results.

   i. Choose **Monitor** from the main menu.

   ii. Select the target PV plant and expand to view the added inverter and devices mounted under it.

- **If the inverter does not access the NetEco 1000S, perform the following operations to add the inverter to the plant:**

  NOTE

  This operation requires that the current user is the system administrator or system operators.

  a. Choose **Monitor** from the main menu.

  b. Select the target plant in the navigation tree on the left.

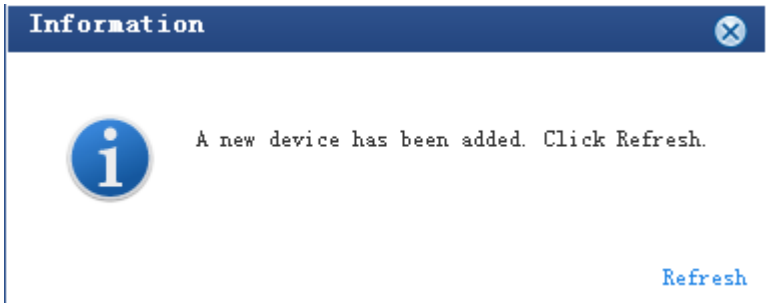
  c. Click the **Setting** tab in the operation display area, and then click  in the row of the **ESN Setting**.

  d. Enter the ESN of the inverter to be added to the current PV plant and click **Advanced Settings**.

  e. Enter the authentication password same as the inverter side and click **OK**.

     When the inverter added to the PV plant accesses the NetEco 1000S, the following prompt is displayed in the lower right corner of the NetEco 1000S.

Figure 5-19 Device access prompt



f. Click **Refresh** in Figure 5-19 or re-select the target PV plant in in the navigation tree on the left to view the added inverter.

----End

5.2.3.3 Searching Devices Based on Serial Port Addresses

This section describes how to search Inverter devices based on serial port addresses when Inverters are connected to the monitoring PC using serial cables. The NetEco 1000S can automatically identify and add new devices after the search.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator.
- You have obtained the serial port number, start bus address, and end bus address for an Inverter.
- The Inverter is in the same time zone as the NetEco 1000S. If they are not in the same time zone, change the time zone of the Inverter by following instructions provided in *User Manual on the monitored device side*.
- You have enabled the function of serial ports.

NOTICE

To ensure NetEco 1000S system security, the NetEco 1000S shields the function of serial ports by default. After completing the operation, disable this function immediately.

Perform the following operations to enable and disable the function:

- Enable the function: Navigate to the **NetEco 1000S installation directory \WebRoot\WEB-INF\classes** directory, open the **userManagement.properties** file, change the value of **isStartCom** to 1, and save the change result. Then, restart the NetEco 1000S.
- Disable the function: Navigate to the **NetEco 1000S installation directory \WebRoot\WEB-INF\classes** directory, open the **userManagement.properties** file, change the value of **isStartCom** to 0, and save the change result. Then, restart the NetEco 1000S.

Context

If one of the following changes occurs on a device that has been added to the NetEco 1000S, you need to search the device again so that information about the device can be updated on the NetEco 1000S.

- The connection mode between the device and the NetEco 1000S is changed: Network cable-based connection is changed to the RS232 cable-based direct connection.
- The **RS485 Com Address** of the device is changed.

NOTICE

The serial-port connection mode applies to local commissioning and is not recommended for remote connection.

Currently, the serial-port connection mode does not support security authentication, which may introduce certain security risks. You are advised to use network cables for connection. For details, see **5.2.3.1 Accessing Devices Through the SmartLogger**.

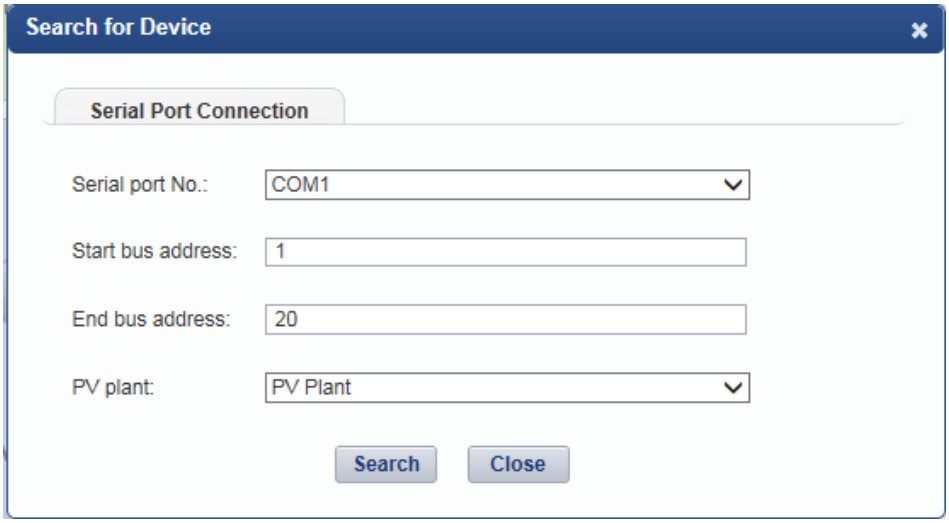
Procedure

Step 1 Choose **Monitor** from the main menu.

Step 2 Click  in the navigation tree on the left.

The **Search for devices** dialog box is displayed, as shown in **Figure 5-20**.

Figure 5-20 Search for devices



Step 3 Enter the serial port number, start bus address, and end bus address for the Inverter device and select the PV Plant to which the device belongs by referring to **Table 5-9**.

Table 5-9 Parameters for searching devices based on serial port addresses

Parameter	Description
Serial port No.	Serial port number for connecting the device to the monitoring PC.
Start bus address	Start bus address of the **RS485 Com Address**. The default value is **1**.
End bus address	End bus address of the **RS485 Com Address**. The default value is **20**.
PV Plant	Name of the PV Plant to which the device belongs.

Step 4 Click **Search**.

The added devices are displayed in the navigation tree on the left after the search.

Step 5 (Optional) Click **Search completed. Click here to query the search result.** to view the search result.

----End

5.2.3.4 Browsing the Details About a Device

On the **Monitor** tab page of the NetEco 1000S client, you can view and configure the information about the SmartLogger, inverter, EMI, and PID device. This section describes how to browse the details about a device to learn about its running status, such as the basic information and real-time performance data.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- You have added a device to the NetEco 1000S and the device state is normal. For detailed opterations, see **5.2.3.1 Accessing Devices Through the SmartLogger**, **5.2.3.2 Accessing the Directly Connected Inverter** or **5.2.3.3 Searching Devices Based on Serial Port Addresses**.

Procedure

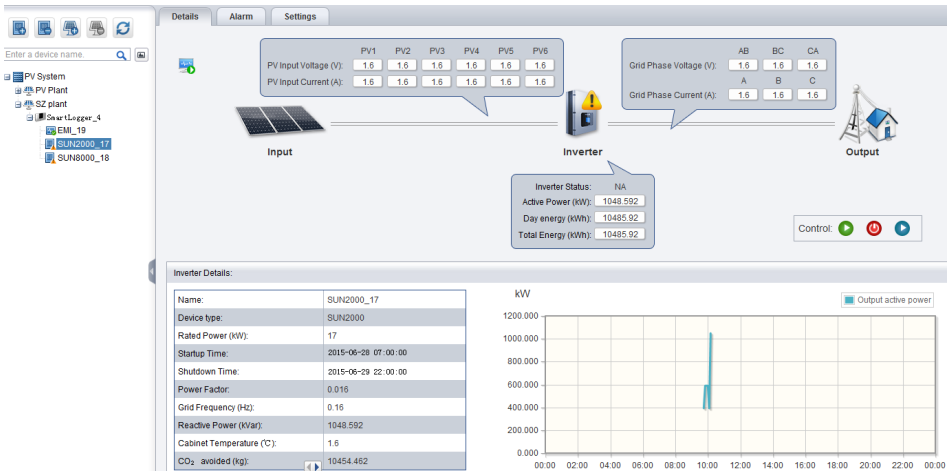
Step 1 Choose **Monitor** from the main menu.

Step 2 Choose the target device in the navigation tree on the left.

Step 3 Click the **Details** tab in the operation display area.

Basic information and real-time performance data of the selected device is displayed on the **Details** tab page. **Figure 5-21** shows the details about an inverter.

Figure 5-21 Details about a device



NOTE

If the PC on which the NetEco 1000S is installed uses the time zone adopting the DST, the following situations may occur:

- When users query data generated on the date shifting to the DST, the queried graph or table has no data on this time segment.
- When users query data generated on the date shifting out of the DST, the queried graph or table displays only the latest one data record on this time segment.

----End

Follow-up Procedure

System administrator and system operators can also perform the following operations on the device **Details** tab page:

Operation	Steps
Start the real-time data collection task **NOTE** You can start the real-time data collection task when its status is .	Click . **NOTE** The period with which the SmartLogger collects real-time data of devices vary with its version. ● The SmartLogger of an old version (earlier than V100R001C95SPC020) collects real-time data of devices every minute. ● The SmartLogger of a new version (V100R001C95SPC020 or later) collects real-time data of devices using the value of **Real-time data collection period** on the **Settings** tab page of a PV plant as the period. If you modify **Real-time data collection period** after starting the real-time data collection task mounted under the SmartLogger of a new version, you need to stop the task and then start it again. In this way, the SmartLogger can collect real-time data using the new **Real-time data collection period** value as the period.

Operation	Steps
Stop the real-time data collection task **NOTE** You can stop the real-time data collection task when its status is  .	Click  .

5.2.3.5 Browsing Alarm Information About a Device

On the **Monitor** tab page of the NetEco 1000S client, you can view and configure the information about the SmartLogger, inverter, EMI, and PID device. This section describes how to browse alarm information about a device to learn about the current alarms for the device.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- You have added a device to the NetEco 1000S and the device state is normal. For detailed opterations, see **5.2.3.1 Accessing Devices Through the SmartLogger**, **5.2.3.2 Accessing the Directly Connected Inverter** or **5.2.3.3 Searching Devices Based on Serial Port Addresses**.

Procedure

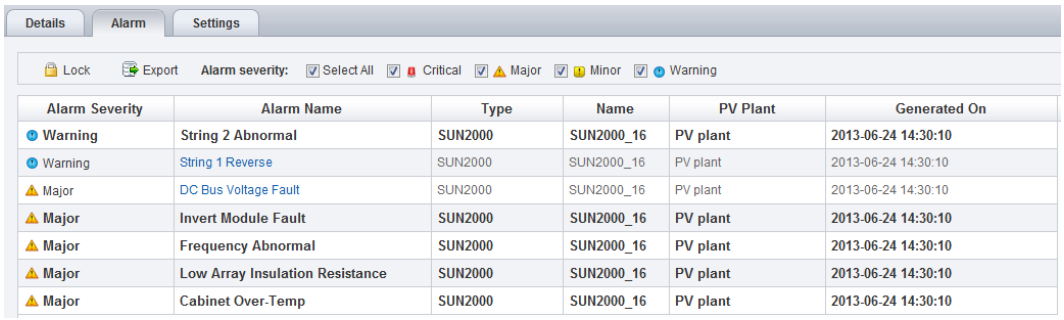
Step 1 Choose **Monitor** from the main menu.

Step 2 Choose the target device in the navigation tree on the left.

Step 3 Click the **Alarm** tab in the operation display area.

The information about all the current alarms of the target device is displayed in the **Alarm** tab page. **Figure 5-22** shows the information about all the current alarms of an inverter.

Figure 5-22 The information about all the current alarms of the target device



Step 4 **Optional:** Click an alarm name in the **Alarm Name** column to view the details.

NOTE

Alarms that have not been browsed are highlighted in bold.

Step 5 **Optional:** Click **Export** to export the queried alarm information into a CSV file.

----End

Follow-up Procedure

Click **Lock**. Alarms are no longer automatically updated on the **Alarm** page. In this way, you can view the alarms reported only before the lock. To enable the automatic update function again and view newly reported alarms, click **Scroll Unlock**.

NOTE

If excessive alarms are generated, these alarms are displayed on multiple pages. In this case, pages except the first one are locked and the **Scroll Unlock** button is unavailable for you to unlock those pages.

By default, the alarm lock function on the **Alarm** page is disabled.

5.2.3.6 Modifying the Information About a Device

On the **Monitor** tab page of the NetEco 1000S client, you can configure the information about the SmartLogger, inverter, EMI, and PID device.

5.2.3.6.1 Modifying the Information About the SmartLogger

This section describes how to modify SmartLogger information and adjust SmartLogger parameters.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- You have added the SmartLogger to the NetEco 1000S and the SmartLogger state is normal. For detailed opterations, see **5.2.3.1 Accessing Devices Through the SmartLogger**.
- The current user is system administrator or system operators.

Procedure

Step 1 Choose **Monitor** from the main menu.

Step 2 Choose the target device in the navigation tree on the left.

Step 3 Click the **Setting** tab in the operation display area.

Configuration information about the selected device is displayed on the **Setting** tab page.

Step 4 **Optional:** Click **Refresh** in the upper right corner of the page.

The latest parameter values will be displayed on the NetEco 1000S for the SmartLogger.

Step 5 Modify configuration information about the selected SmartLogger by referring to **Table 5-10**.

Table 5-10 Modifying device configuration information

If You Need To...	Then...
Change the name and description of a device	1. Enter the new name and description in the corresponding text boxes. 2. Click **Save** in the upper right corner of the **Setting** page. After the device name and description are changed, the device name is delivered to the device side.
Modify the communications parameters of the SmartLogger	To reset the NetEco 1000S for connecting to the SmartLogger, perform the following steps: 1. On the **Settings** tab page of the SmartLogger, click **NetEco Communications Parameters**. 2. Enter the server IP address of the NetEco 1000S to be connected.
Modify the time zone or power control parameters of the SmartLogger	1. Click **Time zone parameter** or **Power control parameter**. 2. In the displayed dialog box, set parameters as required. **NOTE** To synchronize parameter values on the device side to the NetEco 1000S, click **Synchronize** in the displayed dialog box. 3. Click **Save**. After the modification is successful, the modification result is delivered to the device side.

----End

5.2.3.6.2 Modifying the Information About an EMI

This section describes how to modify EMI information and adjust EMI parameters.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- You have added an EMI to the NetEco 1000S and the EMI state is normal. For detailed opterations, see **5.2.3.1 Accessing Devices Through the SmartLogger**.
- The current user is system administrator or system operators.

Procedure

Step 1 Choose **Monitor** from the main menu.

Step 2 Choose the target device in the navigation tree on the left.

Step 3 Click the **Setting** tab in the operation display area.

Configuration information about the selected device is displayed on the **Setting** tab page.

Step 4 **Optional:** Click **Refresh** in the upper right corner of the page.

The latest parameter values will be displayed on the NetEco 1000S for the EMI.

Step 5 Modify configuration information about the selected device by referring to **Table 5-11**.

Table 5-11 Modifying EMI configuration information

If You Need To...	Then...
Change the name and description of a device	1. Enter the new name and description in the corresponding text boxes. 2. Click **Save** in the upper right corner of the **Setting** page.
Correct the irradiance quantity and performance ratio data **NOTE** You can perform this operation only when the environmental monitoring instrument (EMI) is connected to the PV plant.	If the irradiance quantity data collected and reported by the EMI is incorrect, the performance ratio calculated by the NetEco 1000S may have a big deviation. In this case, set **Radiation correction factor** of the EMI to correct the irradiance quantity and performance ratio data. 1. Enter a new value in the **Radiation correction factor** text box. **NOTE** After Radiation correction factor is modified, the queried irradiance quantity and performance ratio data is corrected accordingly. 2. Saves Radiation correction factor after the modification. After modifying Radiation correction factor, you can click **Update PR** or **Save** in the upper right corner to save the modification. The functions of the two buttons are as follows: - **Update PR**: After you click this button, the irradiance quantity and performance ratio are recalculated according to Radiation correction factor. All historical data is included. In the **Warning** dialog box, click **OK**. - **Save**: After you click this button, the irradiance quantity and performance ratio are recalculated according to Radiation correction factor. However, historical data is not included.

----End

5.2.3.6.3 Modifying the Information About a PID

This section describes how to modify device information and adjust device parameters.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- You have added a PID to the NetEco 1000S and the PID state is normal. For detailed opterations, see **5.2.3.1 Accessing Devices Through the SmartLogger**.
- The current user is system administrator or system operators.

Procedure

Step 1 Choose **Monitor** from the main menu.

Step 2 Choose the target device in the navigation tree on the left.

Step 3 Click the **Setting** tab in the operation display area.

Configuration information about the selected device is displayed on the **Setting** tab page.

Step 4 **Optional:** Refresh the parameter information.

Before modifying parameters for a PID, you can click **Refresh** in the upper right corner of the page.

Step 5 Modify configuration information about the selected device by referring to **Table 5-12**.

Table 5-12 Modifying device configuration information

If You Need To...	Then...
Change the name and description of a device	1. Enter the new name and description in the corresponding text boxes. 2. Click **Save** in the upper right corner of the **Setting** page. After the device name and description are changed, the device name is delivered to the device side.
Modify Advanced Parameters.	1. Click **Advanced Parameters**. 2. In the displayed dialog box, set parameters as required. **NOTE** – For details about the parameters, see the *User Manual on the monitored device side*. – To synchronize parameter values on the device side to the NetEco 1000S, click **Synchronize** in the displayed dialog box. 3. Click **Save**. After the modification is successful, the modification result is delivered to the device side.

----End

5.2.3.6.4 Modifying the Information About an inverter

This section describes how to modify device information and adjust inverter parameters.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- You have added a device to the NetEco 1000S and the device state is normal. For detailed opterations, see **5.2.3.1 Accessing Devices Through the SmartLogger**, **5.2.3.2 Accessing the Directly Connected Inverter** or **5.2.3.3 Searching Devices Based on Serial Port Addresses**.

- The current user is system administrator or system operators.

Procedure

Step 1 Choose **Monitor** from the main menu.

Step 2 Choose the target device in the navigation tree on the left.

Step 3 Click the **Setting** tab in the operation display area.

Configuration information about the selected inverter is displayed on the **Setting** tab page.

Step 4 **Optional:** Click **Synchronize** in the upper right corner of the page.

Inverter parameter values will be synchronized to the NetEco 1000S.

Step 5 Modify configuration information about the selected inverter by referring to **Table 5-13**.

Table 5-13 Modifying device configuration information

If You Need To...	Then...
Change the name and description of a device	1. Enter the new name and description in the corresponding text boxes. 2. Click **Save** in the upper right corner of the **Setting** page. After the device name and description are changed, the device name is delivered to the device side.
Change the total DC power of inverters	1. Enter the target value in the **Total DC power** text box. **NOTE** To change the value of **Total DC power** for multiple inverters to the same one, click **Batch Apply**. Then, select the target devices in the displayed dialog box and click **OK**. 2. Click **Save** in the upper right corner of the **Setting** page.
Modify Grid Standards Code, Power Grid Parameters, or Advanced Parameters.	1. Click **Grid Standards Code**, **Power Grid Parameters**, or **Advanced Parameters**, respectively. 2. In the displayed dialog box, set parameters as required. **NOTE** – For details about the parameters, see the *User Manual on the monitored device side*. – To synchronize parameter values on the device side to the NetEco 1000S, click **Synchronize** in the displayed dialog box. 3. Click **Save**. After the modification is successful, the modification result is delivered to the device side.
Correct the total energy yield of the SUN2000 inverter	1. Click **Adjust total energy yield**. 2. In the displayed dialog box, set the total energy yield. 3. Click **OK**. After the modification is successful, the modification result is delivered to the device side.

----End

5.2.3.7 Deleting Devices

This section describes how to delete devices that have been connected to the NetEco 1000S and that do not need to be managed or have been damaged from the NetEco 1000S.

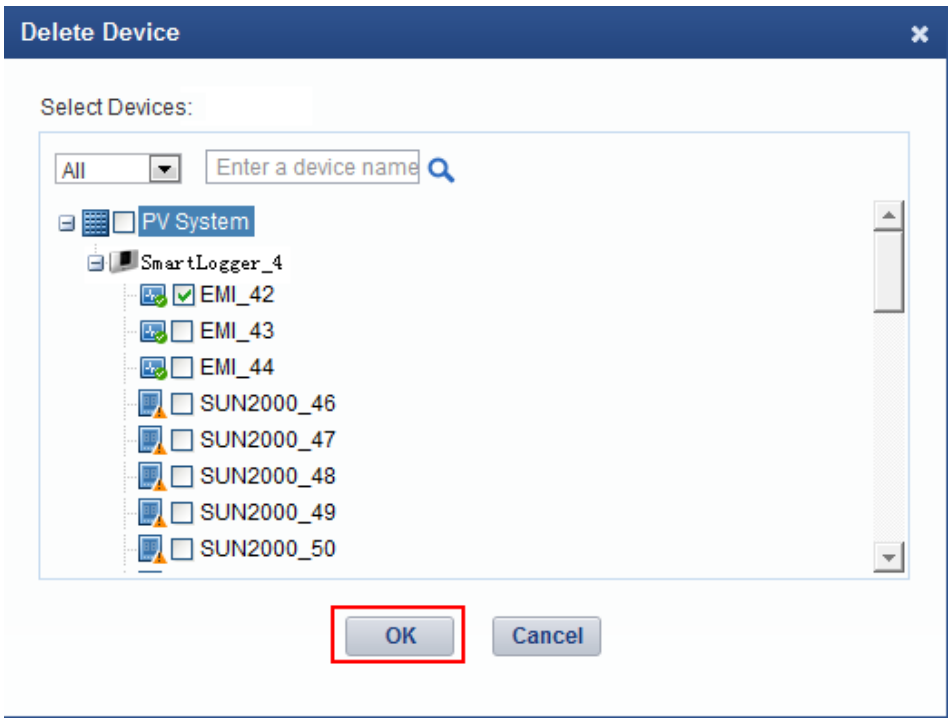
Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- You have added a device to the NetEco 1000S and the device state is normal. For detailed opterations, see **5.2.3.1 Accessing Devices Through the SmartLogger**, **5.2.3.2 Accessing the Directly Connected Inverter** or **5.2.3.3 Searching Devices Based on Serial Port Addresses**.
- The current user is system administrator or system operators.

Procedure

- **Delete devices connecting to the plant:**
  a. Choose **Monitor** from the main menu.
  b. Click  in the upper part of the navigation tree.
  c. In the displayed **Delete Device** window, select the target devices and click **OK**, as shown in **Figure 5-23**.

Figure 5-23 Delete Devices



d. Click **Yes** in the **Warning** dialog box.

The **Deletion succeeded** dialog box is displayed.

e. Click **OK**.

- **Delete devices that have been connected to the NetEco 1000S but are not connected to a specific plant:**
  a. Choose **Maintenance** > **Device Access** from the main menu.
  b. In the displayed Device Access page, select the check box corresponding to the SmartLogger you want to delete and click **Delete**.
  c. Click **Yes** in the **Warning** dialog box.

  The **Deletion succeeded** dialog box is displayed.
  d. Click **OK**.

----End

5.2.3.8 Remotely Controlling an Inverter

This section describes how to control an inverter that has been connected to the NetEco 1000S, including powering on and off the inverter, restarting the inverter and starting the arc-fault circuit interrupter (AFCI) self-check.

Prerequisites

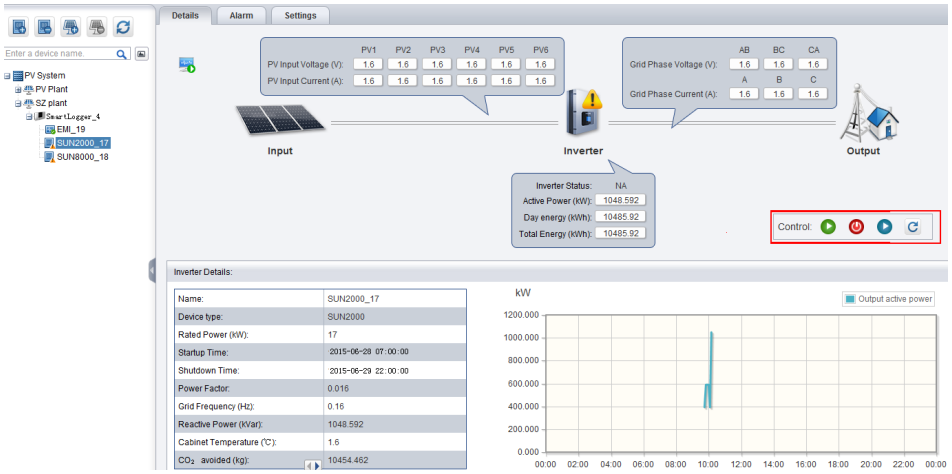
- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- You have added a device to the NetEco 1000S and the device state is normal. For detailed opterations, see **5.2.3.1 Accessing Devices Through the SmartLogger**, **5.2.3.2 Accessing the Directly Connected Inverter** or **5.2.3.3 Searching Devices Based on Serial Port Addresses**.
- The current user is system administrator or system operators.

Procedure

- **Control one inverter:**
  a. Choose **Monitor** from the main menu.
  b. Select the target inverter in the navigation tree on the left.
  c. Click the **Details** tab in the operation display area.

  Figure 5-24 shows the window for displaying details about the inverter.

Figure 5-24 Inverter details



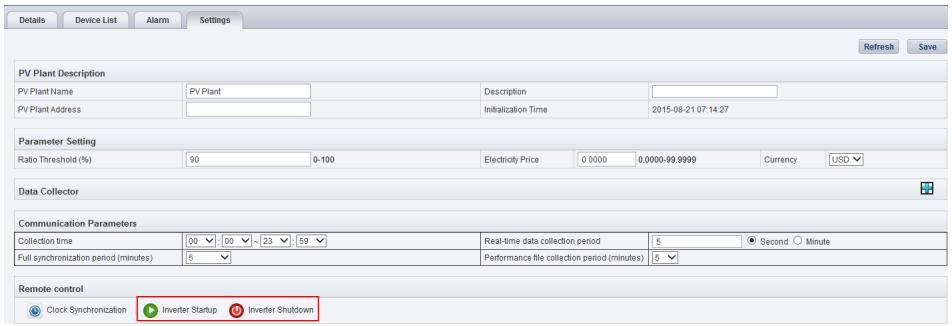
d. Issue the control commands to the inverter according to **Table 5-14**.

Table 5-14 Controlling one inverter

If You Need To...	Then...
Power on the inverter	Click  in the **Figure 5-24**.
Power off the inverter	Click  in the **Figure 5-24**.
Start the AFCI self-check	Click  in the **Figure 5-24**. **NOTE** ● If the AFCI controller ID on the inverter side is set to 0, this button is not displayed in the **Details** window. ● Only the inverter SUN2000 V2 supports the AFCI self-check function.
Restart the inverter	Click  in the**Figure 5-24**. **NOTE** The inverter SUN2000 of some versions supports the restart function.

- **Power on or off all inverters in the same plant in batches:**
  a. Choose **Monitor** from the main menu.
  b. Select the target plant in the navigation tree on the left.
  c. Click the **Setting** tab in the operation display area.
  Figure 5-25 shows the window for setting the plant.

Figure 5-25 PV plant information



d. Issue the control commands to all inverters in the current plant according to **Table 5-15**.

NOTE

If the inverters are connected to the plant through the SmartLogger, issue the control commands to the SmartLogger in the plant.

Table 5-15 Controlling inverters in batches

If You Need To...	Then...
Power on all inverters	Click  in the **Figure 5-25**.
Power off all inverters	Click  in the **Figure 5-25**.

----End

5.2.3.9 Remotely Controlling a SmartLogger

This section describes how to control a SmartLogger connected to the NetEco1000S, including restarting the SmartLogger, starting the SmartLogger to search for mounted devices, and deleting devices mounted under the SmartLogger.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- You have added a device to the NetEco1000S and the device state is normal. For detailed operations, see **5.2.3.1 Accessing Devices Through the SmartLogger**.
- The current user is system administrator or system operators.

Procedure

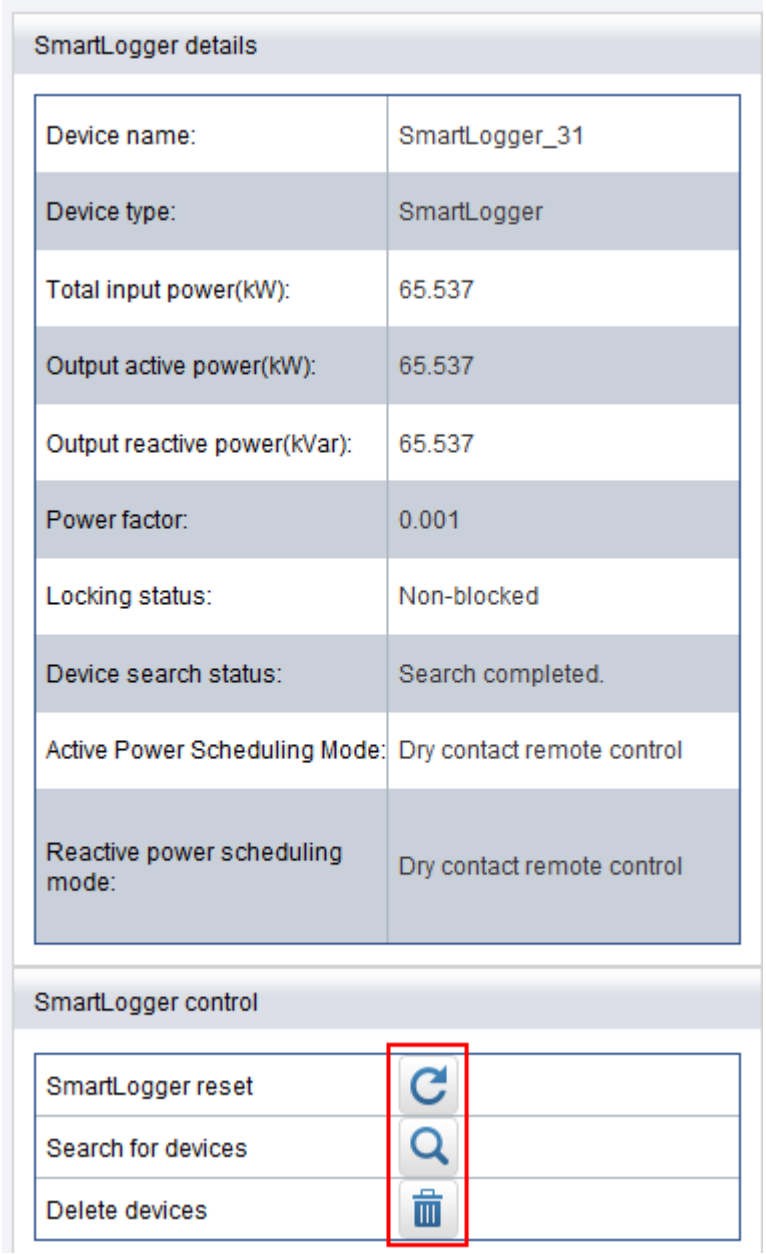
Step 1 Choose **Monitor** from the main menu.

Step 2 Select the target SmartLogger in the navigation tree on the left.

Step 3 Click the **Details** tab in the operation display area.

Figure 5-26 shows the window for displaying details about the SmartLogger.

Figure 5-26 SmartLogger details



Step 4 Issue the control commands to the SmartLogger according to Table 5-16.

Table 5-16 Remotely controlling the SmartLogger

If You Need To...	Then...
Restart the SmartLogger	If the SmartLogger needs to restart due to a fault, you can perform the following operation: Click  in the **Figure 5-26**.
Start the SmartLogger to search for mounted devices	If the number of inverters mounted under the SmartLogger is different from the actual one on the NetEco1000S, you can start the SmartLogger on the NetEco1000S to search for devices to ensure that the number of inverters on the NetEco1000S is the same as the actual one. Click  in the **Figure 5-26**.
Delete devices mounted under the SmartLogger	If the device mounted under the SmartLogger needs to be deleted due to a fault or aging, you can perform the following operation: Click  in the **Figure 5-26**.

----End

5.2.3.10 Remotely Controlling a PID Device

This section describes how to control a Potential Induced Degradation (PID) device that has been connected to the NetEco 1000S, including powering on and off the PID device.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- You have added a device to the NetEco 1000S and the device state is normal. For detailed operations, see **5.2.3.1 Accessing Devices Through the SmartLogger**.
- The current user is system administrator or system operators.

Procedure

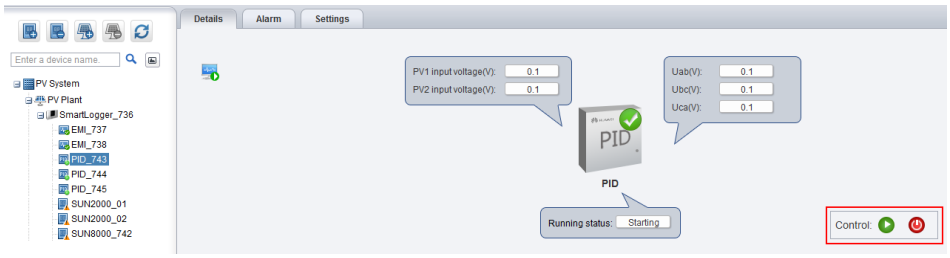
Step 1 Choose **Monitor** from the main menu.

Step 2 Select the target PID device in the navigation tree on the left.

Step 3 Click the **Details** tab in the operation display area.

Figure 5-27 shows the window for displaying details about the PID device.

Figure 5-27 PID details



Step 4 Issue the control commands to the PID device according to **Table 5-17**.

Table 5-17 Controlling the PID device

If You Need To...	Then...
Power on the PID device	Click  in the **Figure 5-27**.
Power off the PID device	Click  in the **Figure 5-27**.

----End

5.2.3.11 Changing the Authentication Passwords of the SmartLogger and NetEco 1000S

The SmartLogger and NetEco 1000S are connected through password authentication. To ensure connection security, you are advised to change the authentication passwords of the SmartLogger and NetEco 1000S periodically (for example, every three months).

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator or system operators.
- The SmartLogger has accessed the PV plant. For detailed operations, see **5.2.3.1 Accessing Devices Through the SmartLogger**.
- The connection between the SmartLogger and NetEco 1000S is normal.

Context

- The authentication passwords on the SmartLogger and NetEco 1000S sides are **/EzFp +2%r6@IxSCv** by default.
- The password must comply with the following rules:

  The password cannot be the same as the account name.

  The password contains 16 characters, and it must contain following four types of characters:

  - At least one lowercase letter

- At least one uppercase letter
- At least one digit
- At least one special character

NOTE

You can change the authentication password between the inverter directly connected to the FE and the NetEco 1000S by referring to this section.

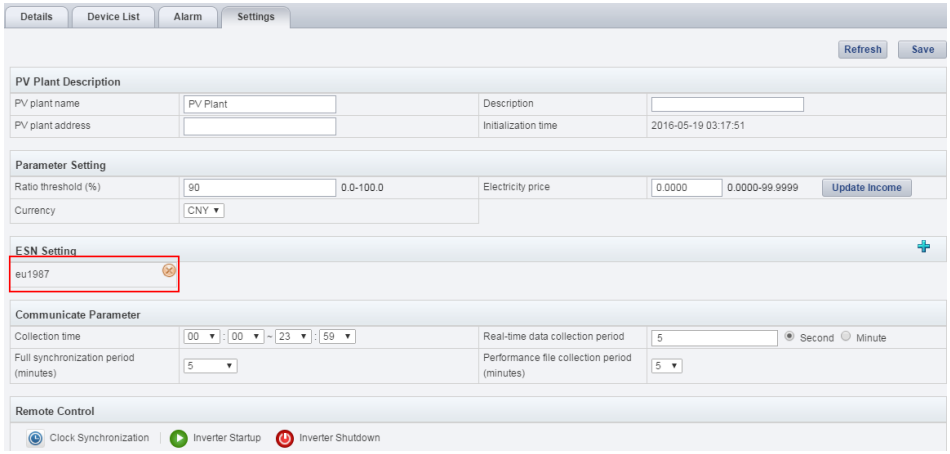
Procedure

Step 1 Choose **Monitor** from the main menu.

Step 2 Select the target plant in the navigation tree on the left.

Step 3 Click the **Setting** tab in the in the operation display area area, and then click the ESN of the SmartLogger in the **SmartLogger** area, as shown in **Figure 5-28**.

Figure 5-28 Selecting the SmartLogger whose password you want to change



Step 4 On the **Set Device Authentication Password** page, use the following methods to change the authentication password:

- If you want to change the authentication passwords on the SmartLogger and NetEco 1000S sides at the same time to ensure connection security:

  Select **Issue new authentication password to device**, reset **Password** and **Confirm Password**, and click **OK**.

- If the connection between the SmartLogger and NetEco 1000S fails due to authentication password inconsistency, and if you only need to change the authentication password on the NetEco 1000S side:

  Deselect **Issue new authentication password to device**, enter the password same as the SmartLogger side, and click **OK**.

----End

5.2.4 Managing Other Devices

This section describes how to use the NetEco 1000S to manage other devices. Other devices are non-Huawei-developed devices, such as Plant Controller, Power Meter, and Electricity Meter.

5.2.4.1 Enabling the Other Device Access Menu

After the NetEco 1000S is installed, the Other Device Access menu is not enabled by default. When adding other devices to the NetEco 1000S, you need to manually enable this menu.

Context

Other devices are non-Huawei-developed devices, such as Plant Controller, Power Meter, and Electricity Meter, Power Meter, and Electricity Meter is restricted. For detailed technical solutions, contact Huawei technical support engineers.

Procedure

Step 1 Navigate to the following directory:

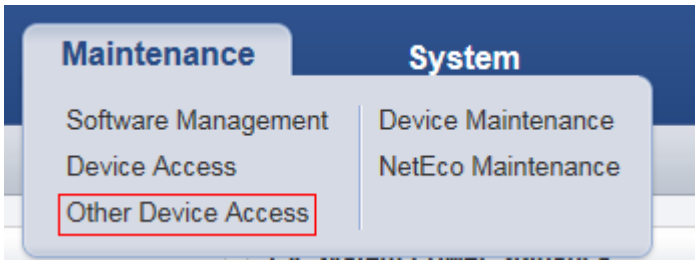
***NetEco 1000S installation directory*\WebRoot\WEB-INF\classes**

Step 2 Open the **userManagement.properties** file, change the value of **isShowThirdEquipment** to **1**, and save the change result.

Step 3 Restart the NetEco 1000S services and log in to the NetEco 1000S client.

Choose **Maintenance** from the main menu. The **Other Device Access** menu is displayed, as shown in **Figure 5-29**.

Figure 5-29 Other Device Access Menu



----End

5.2.4.2 Adding Other Devices

This section describes how to add other devices to the NetEco 1000S so that you can check performance data of other devices through the NetEco 1000S. Other devices are non-Huawei-developed devices, such as Plant Controller, Power Meter, and Electricity Meter

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator.

- You have enabled the Other Device Access menu. For details, see **5.2.4.1 Enabling the Other Device Access Menu**.
- Communication between the Plant Controller and NetEco 1000S is normal.

Procedure

Step 1 Choose **Maintenance** > **Other Device Access** from the main menu.

Step 2 In the **Other Device Access** window, click **Add Device**.

Step 3 In the displayed **Add Device** dialog box, set related parameters.

- To add the Plant Controller, set related parameters according to **Table 5-18**.

  NOTE

  Before adding the Plant Controller, ensure that you have created a target PV plant, for detailed operations, see **5.2.2.2 Creating a PV Plant**.

  Table 5-18 Plant Controller parameters

Parameter	Description
Device Type	Set this parameter to **PlantControl**.
Device Name	Set this parameter as required. The specified name is displayed in the **Other Device Access** page.
PV Plant	Set this parameter to the PV plant to which the Plant Controller belongs.
Device Mark	Set this parameter to the value of **PV Plant name** configured on the Plant Controller.

- To add the Electricity Meter or Power Meter, set related parameters according to **Table 5-19**.

  NOTE

  Before adding the Electricity Meter or Power Meter, ensure that you have added the target Plant Controller.

  Table 5-19 Electricity Meter or Power Meter parameters

Parameter	Description
Device Type	Set this parameter to **ElectricityMeter** or **PowerMeter**.
Device Name	Set this parameter as required. The specified name is displayed in the **Other Device Access** page.
Plant Controller	Set this parameter to the name of the Plant Controller on which the Electricity Meter or Power Meter needs to be mounted.

Step 4 Click **OK**.

The window shown in **Figure 5-30** is displayed after the setting is saved.

Figure 5-30 Device list

Perform the following operations in the **Figure 5-30** as required.

Operation	Procedure
Change the name, mark, or description of a device. **NOTE** Only the Plant Controller supports the changing of device mark.	Click  in the row of the target device.
Delete an added device.	Click  in the row of the target device.

----End

Follow-up Procedure

After the device is added, you can query the performance data of the device.

1. Choose **Historical Data** > **Performance Data** from the main menu.
2. Choose an Electricity Meter orPower Meter to be queried in the navigation tree on the left.
3. Set query conditions in the operation display area, and then click **Query**.

   The performance parameters of Electricity Meter or Power Meter are displayed, the specific parameters are as follows:

   - Power Meter: **Active power**, **Reactive power**, **Power factor**, **Voltage Uab**, **Voltage Ubc**, **Voltage Uca**, **Current Ia**, **Current Ib**, **Current Ic**, **Set value reactive power limitation**, **Set value cos phi**, **Set value Q**.
   - Electricity Meter: **Time**, **Energy Yield**, **Self-Consumed Energy**.

5.2.5 Historical Data Query

5.2.5.1 Querying Alarm Logs

This section describes how to query alarm logs on the NetEco 1000S. You can set query criteria to obtain the required alarm logs.

Prerequisites

You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.

Procedure

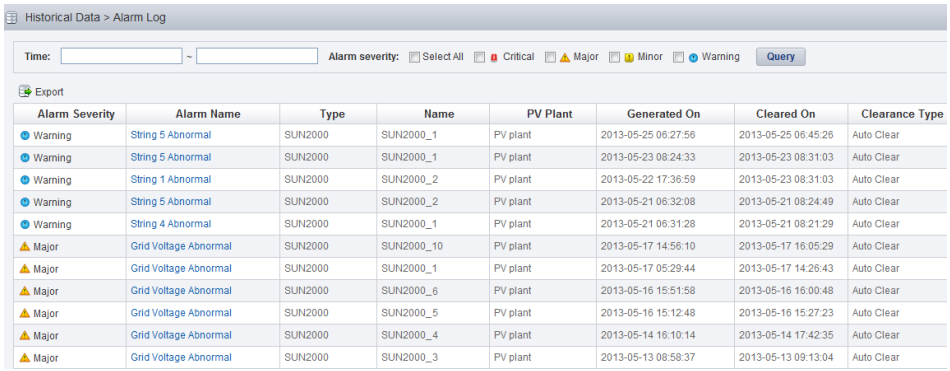
Step 1 Choose **Historical Data** > **Alarm Log** from the main menu.

Step 2 Choose an target device to be queried in the navigation tree on the left.

Step 3 Set query conditions in the operation display area, and then click **Query**.

All the alarm records that meet the query conditions are displayed in one or more pages, as shown in **Figure 5-31**.

Figure 5-31 Alarm Log



Clearance Type includes **Automatic clear**, **NetEco recovery** and **Cleared by the system**.

Alarms corresponding to different clearance types are as follows:

- **Clearance Type**: The value of **Clearance Type** for an automatically cleared alarm on the device side is **Automatic clear**.
- **Cleared by the system**: When devices reports active alarms to the NetEco 1000S again after reporting 30,000 active alarms to the NetEco 1000S, the NetEco 1000S automatically clears the earliest 1000 alarms and **Clearance Type** of these cleared alarms is **Cleared by the system**.
- **NetEco recovery**: After you enable the automatic active alarm synchronization function, the NetEco 1000S automatically compares alarms reported from the device side with alarms cached in the NetEco 1000S. When an alarm is different from the cached alarm, the NetEco 1000S clears this alarm and considers it as the historical alarm, that is, alarm of the **NetEco recovery** type.

NOTE

Alarms of the **NetEco recovery** type can be queried only when you enable the automatic active alarm synchronization function. The function enabling and disabling methods are as follows:

- Enable the function: Navigate to the **NetEco 1000S software installation path\WebRoot\WEB-INF\classes** directory and change the value of **isAutoActiveAlarm** in the **struts.properties** file to **1**. Then, restart the NetEco 1000S services.
- Disable the function: Change the value of **isAutoActiveAlarm** in the **struts.properties** file to **0** and restart the NetEco 1000S services.
- Set the synchronization start time: Modify **activeCurrentAlarm_Time** in the **struts.properties** file and restart the NetEco 1000S services.

  The default value of **activeCurrentAlarm_Time** is **23:00** on the NetEco 1000S, indicating that active alarms are synchronized at 23:00 everyday.

The automatic active alarm synchronization function is enabled on the NetEco 1000S by default.

Step 4 **Optional:** Click **Export** to export the queried alarm records into a CSV file.

----End

5.2.5.2 Querying Performance Data

This section describes how to query performance data on the NetEco 1000S.

5.2.5.2.1 Querying the Performance Data of the PV System

This section describes how to query the performance data of the PV System. You can set query criteria to obtain the required performance data.

Prerequisites

You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.

Procedure

Step 1 Choose **Historical Data** > **Performance Data** from the main menu.

Step 2 Choose the **PV System** to be queried in the navigation tree on the left.

Step 3 Set search criteria and click **Query** in the operation display area. The window shown in **Figure 5-32** is displayed.

NOTE

You can set search criteria to query performance data by **Day**, **Month**, **Year**, or **Total**.

- You can view the accumulated power of all PV plants in the PV system in the **PV System Power Statistics** line chart.
- You can view power of five PV plants in the **PV Plant Power Statistics** line chart by default. To view the power of a specific PV plant, click **Select PV Plants** to select the target PV plant.

NOTE

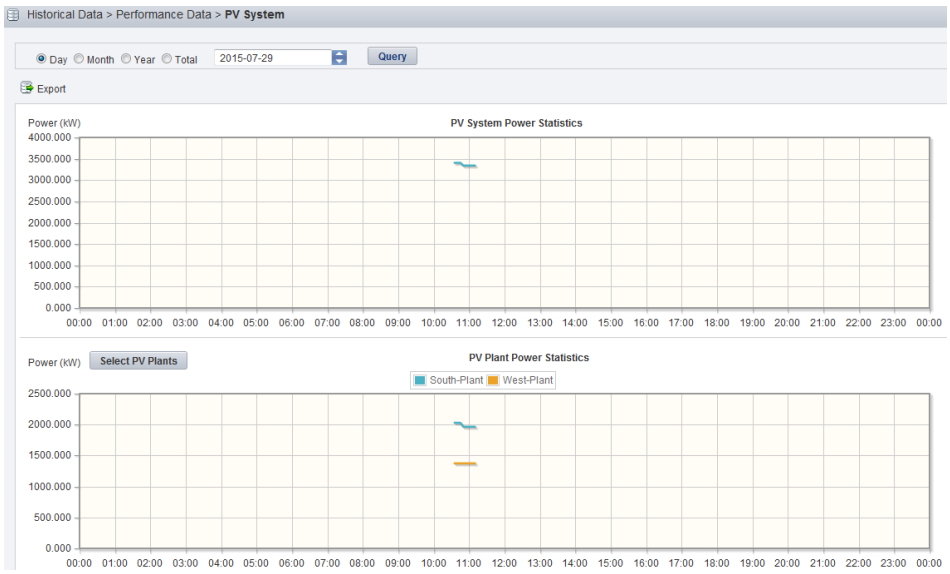
When you query performance data by **Day**, queried data is displayed based on the following rules:

- Within one month: The line chart displays 5-minute data.
- Greater than one month and less than three years: The line chart displays 15-minute data.

If the PC on which the NetEco 1000S is installed uses the time zone adopting the DST, the following situations may occur:

- When users query data generated on the date shifting to the DST, the queried graph or table has no data on this time segment.
- When users query data generated on the date shifting out of the DST, the queried graph or table displays only the latest one data record on this time segment.

Figure 5-32 Power statistics line chart



Step 4 **Optional:** To export queried data to the PC for viewing, click **Export** and save the file to the PC.

NOTICE

When a third-party editing tool is used to open the exported file, the tool should support UCS-2 Decoding Mode. Otherwise, data cannot be decoded.

----End

5.2.5.2.2 Querying the Performance Data of a PV Plant

This section describes how to query the performance data of a plant. You can set query criteria to obtain the required performance data.

Prerequisites

You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.

Procedure

Step 1 Choose **Historical Data** > **Performance Data** from the main menu.

Step 2 Choose a plant to be queried in the navigation tree on the left.

Step 3 Set query conditions according to the following table and click **Query** in the operation display area.

Table 5-20 Setting query conditions

Query Conditions	Queried Data
Select **Day** and set the query date.	● The **PV Plant Power Statistics** line chart displays power of the selected PV plant. ● The **Inverter Power Statistics in PV Plant** line chart displays power of five inverters in the selected PV plant by default. To view power of a specific inverter, click **Select Inverters** to select the target inverter. **NOTE** If the PC on which the NetEco 1000S is installed uses the time zone adopting the DST, the following situations may occur: ● When users query data generated on the date shifting to the DST, the queried graph or table has no data on this time segment. ● When users query data generated on the date shifting out of the DST, the queried graph or table displays only the latest one data record on this time segment.

Query Conditions	Queried Data
1. Select **Month**, **Year**, or **Total**, and set the query month or query year separately. 2. Select the query counter **Energy yield**, **Specific energy**, **Performance ratio** or **Meter Measurement**. **NOTE** – The **Performance ratio** option is displayed only when the environmental monitoring instrument (EMI) accesses the PV plant. When a PV plant is connected with multiple EMIs, if you do not specify a EMI, the performance ratio is calculated based on the value of the first connected EMI by default. If you need to configure a EMI, see **5.2.2.6 Modifying the Information About a PV Plant**. – The **Meter Measurement** option is displayed only when the Electricity Meter accesses the PV plant. For detailed operations to accesse a Electricity Meter to PV plant, see **5.2.4.2 Adding Other Devices**.	● PV plant power generation statistics and inverter power generation statistics ● PV plant Performance ratio and inverter Performance ratio **NOTE** If the irradiance quantity data collected and reported by the EMI is incorrect, the performance ratio calculated by the NetEco 1000S may have a big deviation. In this case, set **Radiation correction factor** of the EMI to correct the irradiance quantity and performance ratio data. For detailed operations, see **5.2.3.6.2 Modifying the Information About an EMI**. ● PV plant equivalent power generation duration and inverter equivalent power generation duration ● Generated power in a electric meter of a PV plant and Meter Statistics Performance Ratio **NOTE** If the Electricity Meter accesses the PV Plant, but the EMI have not accessed the PV Plant, you cannot query certain data about **Meter Statistics Performance Ratio** of **Meter Measurement**. **NOTE** If the value of **Performance ratio** or **Specific energy** cannot be queried, total DC power may not be configured for inverters. To solve this problem, perform the following operations: 1. Configure total DC power for the target inverter. For details, see **5.2.3.6.4 Modifying the Information About an inverter**. 2. Re-collect historical data of the latest 30 days for the target inverter. For details, see **5.2.5.4 Synchronizing Historical Performance Data**. 3. Query the value of **Specific energy** or **Performance ratio** again.

Figure 5-33 Daily query result

Step 4 **Optional:** To export queried data to the PC for viewing, click **Export** and save the file to the PC.

NOTICE

When a third-party editing tool is used to open the exported file, the tool should support UCS-2 Decoding Mode. Otherwise, data cannot be decoded.

----End

5.2.5.2.3 Querying the Performance Data of a Device

This section describes how to query the performance data of a device. You can set query criteria to obtain the required performance data.

Prerequisites

You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.

Procedure

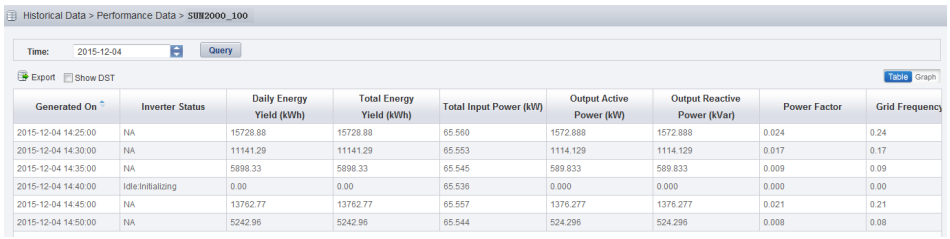
Step 1 Choose **Historical Data** > **Performance Data** from the main menu.

Step 2 Choose a device to be queried in the navigation tree on the left.

Step 3 Set query conditions in the operation display area, and then click **Query**.

All qualified performance data is displayed on one or more pages. **Figure 5-34** shows the inverter performance data.

Figure 5-34 Querying the performance data of a device



Step 4 **Optional:** To export queried data to the PC for viewing, click **Export** and save the file to the PC.

NOTICE

When a third-party editing tool is used to open the exported file, the tool should support UCS-2 Decoding Mode. Otherwise, data cannot be decoded.

----End

Follow-up Procedure

You can also perform the following operations on the **Querying the performance data of a device** page:

Operation	Steps	Description
Display performance data in a line chart	In the operation display area, click **Graph**.	Display the queried performance data in a line chart.
Set the vertical coordinate of the line chart	1. Click ⚙. The **Select Counters** dialog box is displayed. 2. Enter the values for the Y1 and Y2 coordinates. **NOTE** `The preceding two values must be different.` 3. Click **OK**.	View the performance data based on different performance counters in the line chart by setting the vertical coordinate.
Display daylight saving time (DST)	Select **Show DST**.	After DST starts, DST marks are displayed behind each time in the **Generated On** column. For example, 2013-09-17 09:40:00 DST.

5.2.5.3 Querying Report Data

You can query the power generation statistics and power generation performance ratio of the plant and the index values of the inverters in the NetEco 1000S system for data analysis.

Context

NOTE

If the PC on which the NetEco 1000S is installed uses the time zone adopting the DST, the following situations may occur:

- When users query data generated on the date shifting to the DST, the queried graph or table has no data on this time segment.
- When users query data generated on the date shifting out of the DST, the queried graph or table displays only the latest one data record on this time segment.

5.2.5.3.1 Querying the Energy Yield of the PV Plant

This section describes how to query the energy yield of the PV plant to learn data, such as the energy generated in a certain period, active power, and irradiation strength.

Prerequisites

You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.

Procedure

Step 1 Choose **Historical Data** > **Data Analysis** from the main menu.

Step 2 Choose **PV Plant Analysis** > **Energy Yield** in the navigation tree on the left

Step 3 Click  to select the target plant in the operation display area.

Step 4 Set query conditions according to the following table and click **Query**.

Table 5-21 Setting query conditions

Query Conditions	Queried Data
Querying data by **Day**	● Active power and total irradiance of every 15 minutes from 00:00 on the current day ● Radiation, Max.Iirradiance, Energy Yield, and Max.Active power of the current day
Querying data by **Week**	● Active power and total irradiance of every hour from 00:00 on each day in the current week ● Accumulated radiation, accumulated energy yield, Max. irradiance, and Max. active power of the current week **NOTE** The current week is not the natural week. It considers the current date as the last day of the current week.
Querying data by **Month**	● energy yield and accumulated radiation of each day in the current month ● Accumulated radiation, accumulated energy yield, Max. daily radiation, and Max. daily energy yield of the current month
Querying data by **Year**	● energy yield and accumulated radiation of each month in the current year ● Accumulated radiation, accumulated energy yield, Max. monthly radiation, and Max. monthly energy yield of the current year

Query Conditions	Queried Data
Querying data by **Total**	● energy yield and accumulated radiation of the each year ● Accumulated radiation, accumulated energy yield, Max. annual radiation, and Max. annual energy yield of all years

Step 5 Select the data display style.

To display queried data in a chart, click **Graph**. To display queried data in a table, click **Table**.

Step 6 **Optional:** To export queried data to the PC for viewing, click **Export** on the **Table** tab page and save the file to the PC.

NOTICE

When a third-party editing tool is used to open the exported file, the tool should support UCS-2 Decoding Mode. Otherwise, data cannot be decoded.

----End

5.2.5.3.2 Querying the Energy Yield Performance Ratio of the PV Plant

This section describes how to query the energy yield performance ratio of the PV plant to learn the power energy efficiency of the PV plant in a certain period.

Prerequisites

You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.

Context

The PV plant performance ratio indicates the rated output loss of the PV plant array caused by the following reasons: the temperature and irradiation are not fully used, or system components are invalid or faulty. The performance ratio reflects the overall operation of devices in the PV plant system from the PV module side to the box-type input substation side in the recording time period.

Performance ratio = Final equivalent power generation duration of the PV plant system/ Standard equivalent power generation duration. That is, PR = Y_F/Y_R.

Y_F indicates the final equivalent power generation duration of the PV plant system. Its value is the energy provided by each kW array in the PV plant system for the box-type input substation. The calculation formula is as follows: $Y_F = E_{AC}/P_O$. Unit: kW/h.

NOTE

- E_{AC} indicates the total energy yield generated by the PV plant.
- P_O indicates the total string power of the PV plant. You can set this counter by referring to **5.2.3.6.4 Modifying the Information About an inverter**.

Y_R indicates the standard equivalent power generation duration of the PV plant. The calculation formula is as follows: $Y_R = H/G_{STC}$. Unit: h.

NOTE

H indicates the total irradiance on the inclined plane of the PV plant array. The formula for calculating the total increased irradiance in the recording period is as follows: $H_T = \sum_{time}(H_k \times \varepsilon)$.

- Σ_{time} indicates that the sum is calculated by recording time.
- H_k indicates the Kth 5-minute increased irradiance of the current day monitored by the EMI. The unit is kWh.
- ε indicates the temperature correction coefficient. $\varepsilon = 1 - (T_k - 25) \times 0\%$
  - $\mathbf{T_k}$ indicates the Kth 5-minute component surface temperature monitored by the EMI.
  - **0%** indicates the empirical value of the temperature coefficient. To change the value of this parameter, enter the **software installation directory\WebRoot\WEB-INF\classes** directory and change the value of **ediTemperature** in the **struts.properties** file.

G_{STC} indicates the standard irradiation strength of the PV panel. The default value is 1 kW/m^2.

Procedure

Step 1 Choose **Historical Data** > **Data Analysis** from the main menu.

Step 2 Choose **PV Plant Analysis** > **Performance Ratio** in the navigation tree on the left.

Step 3 Click  to select the target plant in the operation display area.

Step 4 Set query conditions according to the following table and click **Query**.

Table 5-22 Setting query conditions

Query Conditions	Queried Data
Querying data by **Month**	● Energy yield and performance ratio of each day in the current month ● Accumulated radiation, accumulated energy yield, Max. daily radiation, and Max. daily energy yield of the current month
Querying data by **Year**	● Energy yield and performance ratio of each month in the current year ● Accumulated radiation, accumulated energy yield, Max. monthly radiation, and Max. monthly energy yield of the current year

Query Conditions	Queried Data
Querying data by **Total**	● Energy yield and performance ratio of the each year ● Accumulated radiation, accumulated energy yield, Max. annual radiation, and Max. annual energy yield of all years

NOTE

Since energy loss may occur when energy is transferred using wires, the actually queried performance ratio of the PV plant deducts the line loss coefficient. PR (actual) = $Y_F/Y_R - 0$. **0** indicates the default value of **line loss coefficient**. To change this value, enter the **software installation directory\WebRoot\WEB-INF\classes** directory and change the value of **lossfactor** in the **struts.properties** file.

If the irradiance quantity data collected and reported by the EMI is incorrect, the performance ratio calculated by the NetEco 1000S may have a big deviation. In this case, set **Radiation correction factor** of the EMI to correct the irradiance quantity and performance ratio data. For detailed operations, see **5.2.3.6.2 Modifying the Information About an EMI**.

When a PV plant is connected with multiple EMIs, if you do not specify a EMI, the performance ratio is calculated based on the value of the first connected EMI by default. If you need to configure a EMI, see **5.2.2.6 Modifying the Information About a PV Plant**.

Step 5 Select the data display style.

To display queried data in a chart, click **Graph**. To display queried data in a table, click **Table**.

Step 6 **Optional:** To export queried data to the PC for viewing, click **Export** on the **Table** tab page and save the file to the PC.

NOTICE

When a third-party editing tool is used to open the exported file, the tool should support UCS-2 Decoding Mode. Otherwise, data cannot be decoded.

----End

5.2.5.3.3 Querying Index Values of the Inverters

You can query values of some indexes for some inverters as required to learn the running status of these indexes in a certain period.

Prerequisites

You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.

Procedure

Step 1 Choose **Historical Data** > **Data Analysis** from the main menu.

Step 2 Choose **Inverter Analysis** > **Comparative Analysis** in the navigation tree on the left.

Step 3 In the operation area, click Select Inverters to select the inverters to be queried and click Select Indexes to select the indexes to be queried.

NOTE

A maximum of 50 inverters can be selected.

When selecting indexes, you can select only one index for the Y1 and Y2 coordinates separately, and indexes selected for the Y1 and Y2 coordinates must be different.

Step 4 Set query conditions according to the following table and click **Query**.

Table 5-23 Setting query conditions

Query Conditions	Queried Data
Querying data by **Day**	Values of the selected indexes for the selected inverters of every 15 minutes on the current day
Querying data by **Week**	Values of the selected indexes for the selected inverters of each hour on each day in the current week **NOTE** The current week is not the natural week. It considers the current date as the last day of the current week.
Querying data by **Month**	Values of the selected indexes for the selected inverters of each day in the current month
Querying data by **Year**	Values of the selected indexes for the selected inverters of each month in the current year
Querying data by **Total**	Values of the selected indexes for the selected inverters of a year

NOTE

If the value of **Performance ratio** or **Specific energy** cannot be queried, total DC power may not be configured for inverters. To solve this problem, perform the following operations:

1. Configure total DC power for the target inverter. For details, see **5.2.3.6.4 Modifying the Information About an inverter**.
2. Re-collect historical data of the latest 30 days for the target inverter. For details, see **5.2.5.4 Synchronizing Historical Performance Data**.
3. Query the value of **Specific energy** or **Performance ratio** again.

Step 5 Select the data display style.

To display queried data in a chart, click **Graph**. To display queried data in a table, click **Table**.

NOTE

If you use the Chrome browser to view a large number of curves, a layout error may occur on the page. To solve this problem, perform the following operations:

1. Access **chrome://flags/** using the Chrome browser.
2. Set **Display list 2D canvas** to **Disabled**.
3. Click **RELAUNCH NOW**.

Step 6 **Optional:** To export queried data to the PC for viewing, click **Export** on the **Table** tab page and save the file to the PC.

NOTICE

When a third-party editing tool is used to open the exported file, the tool should support UCS-2 Decoding Mode. Otherwise, data cannot be decoded.

----End

5.2.5.4 Synchronizing Historical Performance Data

This section describes how to synchronize historical performance data from a device to the NetEco 1000S by creating a synchronization task on the NetEco 1000S. This solves the problem that historical performance data cannot be automatically synchronized to the NetEco 1000S after the device is disconnected from the NetEco 1000S for more than 6 hours.

Prerequisites

- The device has been connected to the NetEco 1000S through the SmartLogger and the version of the SmartLogger is SmartLogger1000 V100R001C91 or later.
- The inverter directly connected to the FE has been connected to the NetEco 1000S.

  NOTE

  The preceding requirement needs to be met only when the inverter directly connected to the FE exists.
- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator or system operators.

Context

If the inverter directly connected to the FE is connected to the NetEco 1000S for the first time, and if it has been running before the connection and stores performance files, you can start the historical performance data synchronization task to synchronize historical performance data of the inverter before it is connected to the NetEco 1000S to the NetEco 1000S.

If the device is connected to the NetEco 1000S for the first time using the SmartLogger, and if it has been running before the connection and stores performance files on the SmartLogger, you can start the historical performance data synchronization task to synchronize historical performance data of the device before it is connected to the NetEco 1000S to the NetEco 1000S.

In normal cases, the inverter directly connected to the FE saves historical performance data of the latest one year, the SmartLogger saves historical performance data of the latest one month. The synchronization on the NetEco 1000S succeeds only when the SmartLogger or the inverter directly connected to the FE stores historical performance data that needs to be synchronized.

NOTICE

You can create only one historical performance data synchronization task for one device at a time.

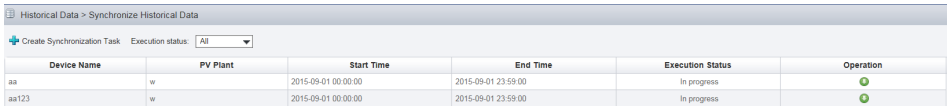
When historical performance data is being synchronized on the device, if you create another synchronization task for the device, the creation fails.

Procedure

Step 1 Choose **Historical Data** > **Synchronize Historical Data** from the main menu.

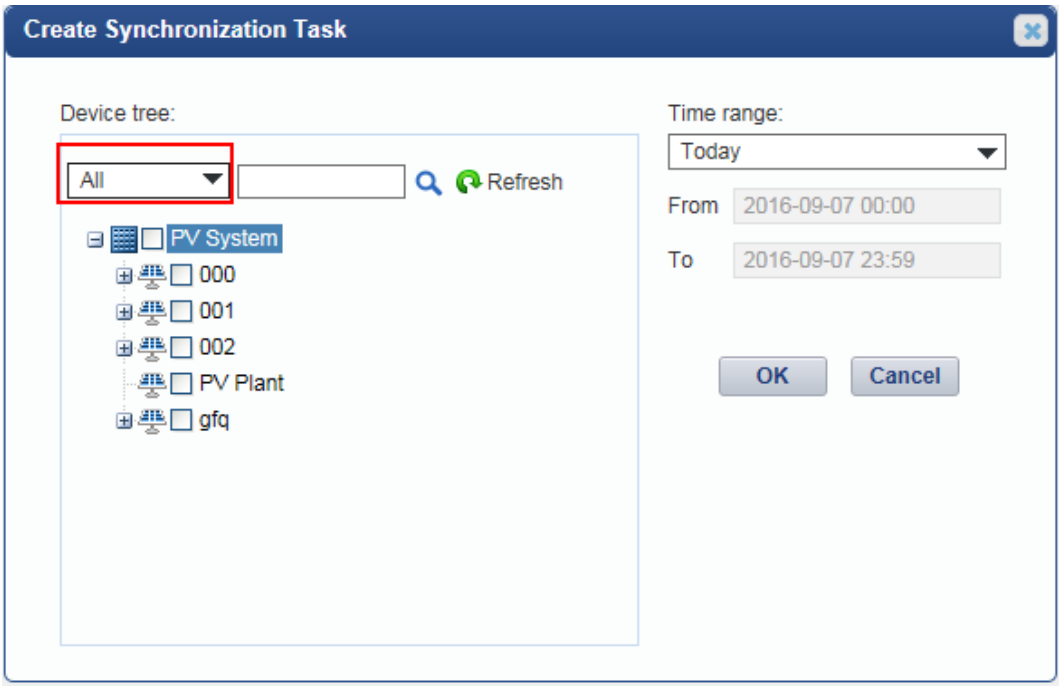
The **Synchronizing historical data** page is displayed, as shown in **Figure 5-35**.

Figure 5-35 Synchronizing historical data



Step 2 Click **Create Synchronization Task**.

Figure 5-36 Creating a synchronization task



Step 3 Choose a device for which you want to create a supplementary collection task from the device navigation tree.

NOTE

By clicking the drop-down box in **Figure 5-36** red area, you can quickly filter device type.

Step 4 Set the time range as required.

The time range can be set to **Today**, **Last three Days**, **Last seven Days**, or **Customize**.

NOTE

The time range of the **Customize** cannot exceed 7 days

Step 5 Click **OK**.

The supplementary collection task is performed automatically after the task is created.

----End

Follow-up Procedure

If the supplementary collection task fails to be executed, click to execute the task again.

5.2.5.5 Exporting Historical Data

This section describes how to export 5-minute historical data of a PV plant in the recent one month on the NetEco 1000S. The data includes data of inverters and EMIs in a PV plant.

Prerequisites

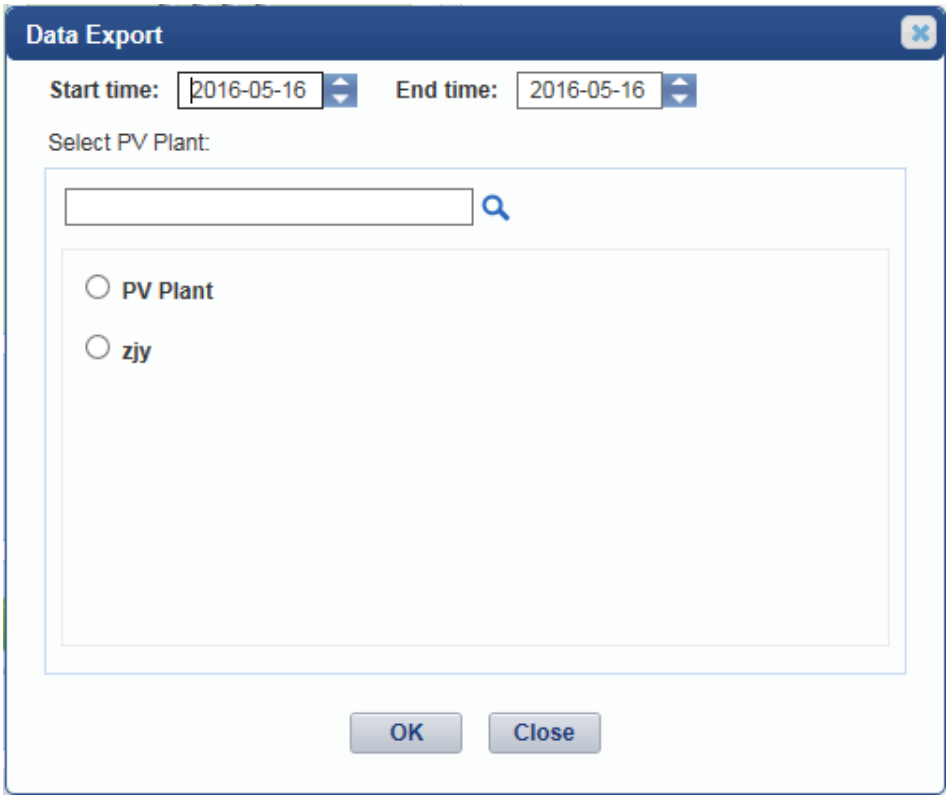
You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.

Procedure

Step 1 Choose **Historical** > **Data Export** from the main menu.

The **Data Export** dialog is displayed, as shown in **Figure 5-37**.

Figure 5-37 Data Export



Step 2 Select **Start time**.

NOTE

Start time cannot be one week earlier than **End time**. Otherwise, `The time range cannot exceed 7 days` is displayed.

Step 3 Select **End time**.

NOTE

End time cannot be earlier than **Start time**. Otherwise, `The Start time must be earlier than the end time.` is displayed when you click **OK**.

Step 4 Select the PV plant whose data needs to be exported in the **Select PV Plant** area.

When there are multiple PV plants, enter the PV plant name in the text box and click to search for the PV plant whose data needs to be exported.

Step 5 Click **OK**.

A message asking you whether to open or save data is displayed at the bottom of the browser.

Step 6 Open or save historical data as required.

NOTICE

When a third-party editing tool is used to open the exported file, the tool should support UCS-2 Decoding Mode. Otherwise, data cannot be decoded.

----End

5.2.6 Device Maintenance

5.2.6.1 Upgrading a Device

This section describes how to upload a software package and remotely upgrade a device through the NetEco 1000S.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- You have added a device to the NetEco 1000S and the device state is normal. For detailed opterations, see **5.2.3.1 Accessing Devices Through the SmartLogger**, **5.2.3.2 Accessing the Directly Connected Inverter** or **5.2.3.3 Searching Devices Based on Serial Port Addresses**.
- The current user is system administrator.
- You have contacted Huawei technical support engineers to obtain the software package required for device upgrade and have checked the integrity of the software package.

  NOTE

  You can check the integrity of the software package by referring to **5.2.8.7 Verifying OpenPGP Signature**.

  Software package integrity check is related to the software security. You must perform the check to ensure the software security.

Procedure

Step 1 Choose **Maintenance** > **Software Management** from the main menu.

Step 2 Click the **Device Upgrade Management** or **Batch Upgrade Management** tab.

NOTE

- To upgrade some specified devices (for example, SmartLogger, inverter or PID), you can perform related operations on the **Device Upgrade Management** tab page.
- To upgrade all SUN2000-inverters under the same SmartLogger (the version of the SmartLogger must be V100R001C95SPC030 or later) at the same time, you can perform related operations on the **Batch Upgrade Management** tab page. This function applies only to the scenario where the device accesses the NetEco 1000S through the SmartLogger.

Step 3 Upload the device software package to be upgraded.

NOTE

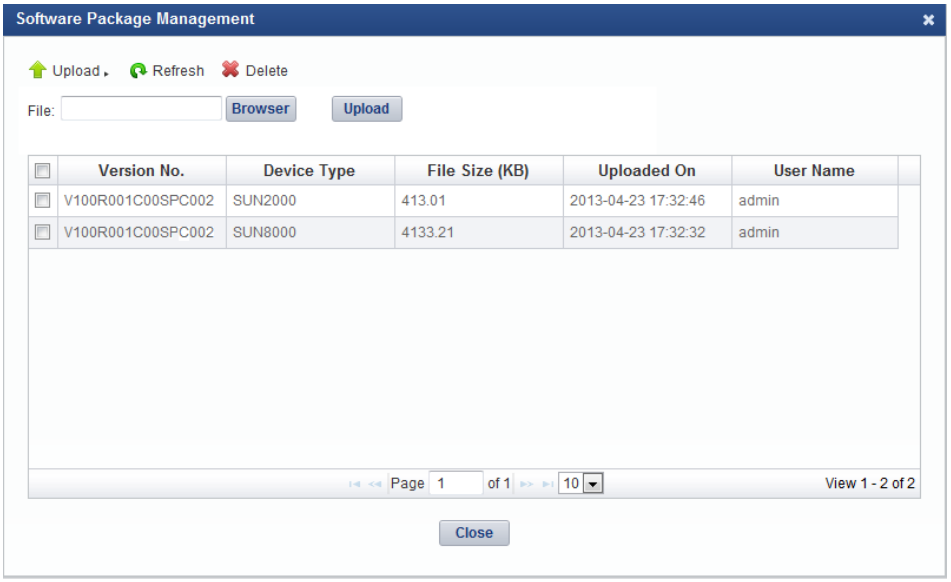
If the device software package to be upgraded has been uploaded, skip **Step 3** and perform **Step 4**.

1. Click **Software Package Management**.

2. Click **Upload** on the **Software Package Management** page.

   The **Software Package Management** page is displayed, as shown in **Figure 5-38**.

   Figure 5-38 Software Package Management



3. Click **Browser** to select the software package, and then click **Upload**.

   After the upload is complete, information about the new software package is displayed in the software package list.

   NOTE

   To delete the uploaded software package, select the software version in the software package list and click **Delete**, as shown in **Figure 5-38**.

4. Click **Close**.

   The system returns to the **Device Upgrade Management** or **Batch Upgrade Management** tab page.

Step 4 Upgrade the software package of the device.

1. If you click the **Device Upgrade Management** tab in **Step 2**, select the devices to be upgraded in the device list. If you click the **Batch Upgrade Management** tab in **Step 2**, select the SmartLogger to which the inverters to be upgraded belong in the device list.

   NOTE

   Set **Device Name**, **PV plant**, **Device type**, **ESN**, or **Current version**, and click **Search**. Target devices meeting the preset condition are filtered out.

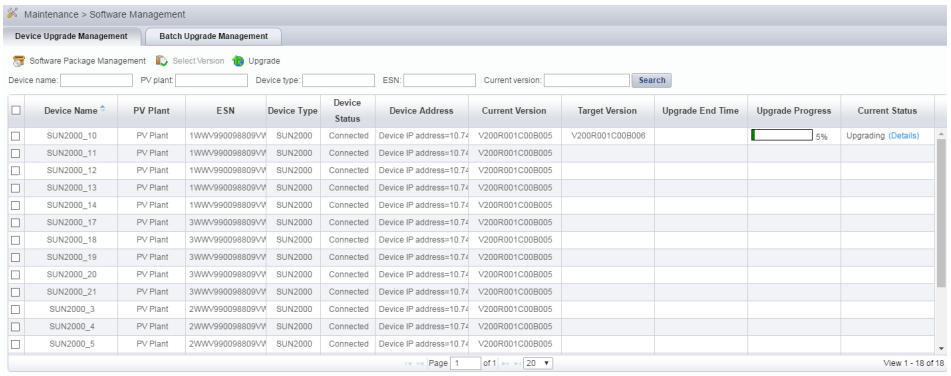
2. Click **Select Version**.

   The **Select Target Version** dialog box is displayed, showing all upgrade software packages for the device type.

3. Select the target version in the **Select Target Version** window and click **OK**.
4. Click **Upgrade** above the device list.

   The upgrade progress is displayed in the **Upgrade Progress** column of the device list, as shown in **Figure 5-39**.

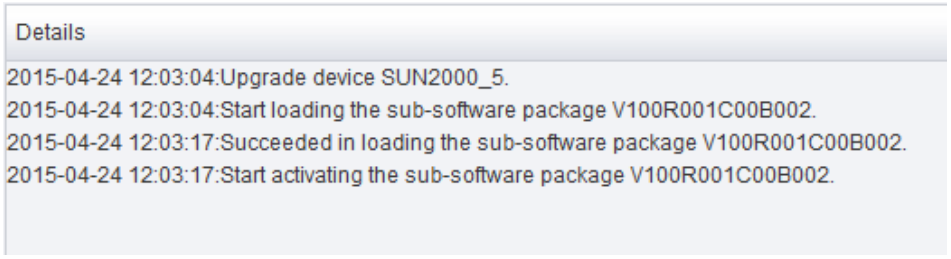
Figure 5-39 Upgrade Progress



You can click next to the **Device Name** column to display all devices in ascending or descending order.

Click **Details** under **Current Status**. Details about the Inverter upgrade are displayed, as shown in **Figure 5-40**.

Figure 5-40 Inverter upgrade details



NOTE

When **Loading completed.** is displayed, the NetEco automatically activates the inverter, and **The inverter is going to activate automatically** is displayed. If the device does not meet activation requirements, the NetEco automatically activates the device after activation requirements are met. After the device is activated successfully, the NetEco displays the latest device version.

----End

5.2.6.2 Obtaining Device Logs

This section describes how to obtain device logs for device analysis and maintenance.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- You have added a device to the NetEco 1000S and the device state is normal. For detailed opterations, see **5.2.3.1 Accessing Devices Through the SmartLogger**, **5.2.3.2 Accessing the Directly Connected Inverter** or **5.2.3.3 Searching Devices Based on Serial Port Addresses**.

- The current user is system administrator or system operators.

Context

Remotely obtaining device logs applies SmartLogger, inverters and PID.

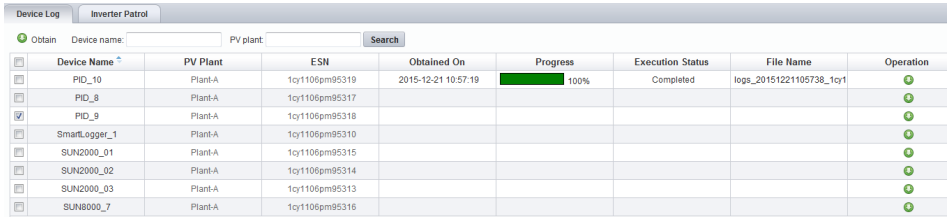
Procedure

Step 1 Choose **Maintenance** > **Device Maintenance** from the main menu.

Step 2 Click the **Device Log** tab.

The **Device Log** window is displayed, as shown in **Figure 5-41**.

Figure 5-41 Devices list



NOTE

You can filter out the list of target devices by device name or plant name.

You can click next to the **Device Name** column to display all devices in ascending or descending order.

Step 3 Select a device in the device list, and click **Obtain**.

When **Finish** is displayed in the **Execution Status** column, device logs are synchronized to the NetEco 1000S.

NOTE

You can click in the **Operation** column to stop obtaining device logs.

Step 4 Click the corresponding file name in the **File Name** column to download the device log file to the local PC.

----End

5.2.6.3 Obtaining the Inverter Patrol Report

This section describes how to obtain the inverter patrol report to help technical support engineers learn the running counter values and state of health (SOH) of inverters and to provide reference for device maintenance and exception location.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- You have added a device to the NetEco 1000S and the device state is normal. For detailed opterations, see **5.2.3.1 Accessing Devices Through the SmartLogger**, **5.2.3.2**

Accessing the Directly Connected Inverter or **5.2.3.3 Searching Devices Based on Serial Port Addresses**.

- The current user is system administrator or system operators.

Procedure

Step 1 Choose **Maintenance** > **Device Maintenance** from the main menu.

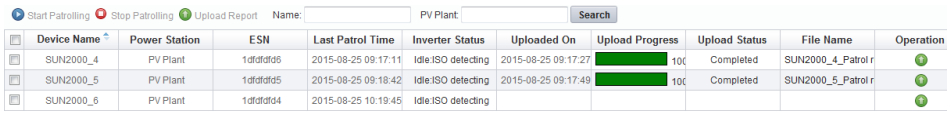
Step 2 Click the **Inverter Patrol** tab.

The **Inverter Patrol** tab page is displayed, as shown in **Figure 5-42**.

NOTE

You can filter out the list of target devices by device name or plant name.

Figure 5-42 Device list



You can click next to the **Device Name** column to display all devices in ascending or descending order.

Step 3 Start the inverter patrol.

1. Select the target inverter in the device list and click **Start Patrolling**.
2. When the following information is displayed, click **OK**:

```
Are you sure you want to execute the task
```

Step 4 Obtain the inverter patrol report.

1. Select the target inverter for which a patrol report has been generated and click **Upload Report** or in the **Operation** column.

   A message asking you whether to open or save data is displayed at the bottom of the browser.
2. Click the file name to download the patrol report to the local PC.

----End

5.2.6.4 Obtaining NetEco Logs

This section describes how to obtain NetEco logs. The logs help you learn the operating status of the NetEco 1000S and locate problems when the NetEco 1000S is not running properly.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator.

Context

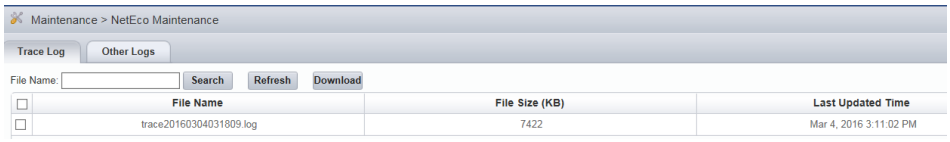
The NetEco records run logs automatically every day. When the system becomes abnormal, the system administrator quickly obtains the corresponding logs through the client to locate the problem.

Procedure

Step 1 Choose **Maintenance** > **NetEco Maintenance** from the main menu.

The **NetEco Maintenance** page is displayed, as shown in **Figure 5-43**.

Figure 5-43 NetEco Maintenance



Step 2 Obtain the trace log.

The trace log records the system run log. When the system becomes abnormal, you can obtain the trace log to locate the problem.

1. Click the **Trace Log** tab.
2. Click **Refresh**. The latest log information is displayed.
3. Select the log to be obtained.

   NOTE

   You can enter the log name keyword, such as the date, in the **File Name** text box and click **Search** to search for all logs whose names contain this keyword.
4. Click **Download**.

   A message asking you whether to open or save the log is displayed at the bottom of the browser. You can open or save the log as required.

Step 3 Obtain other logs.

Other logs record all logs except the trace log. These logs include database error logs, configuration file modification logs, attack logs, FTP logs, and script logs. When problems cannot be located using the trace log, you can obtain other logs to facilitate problem location.

1. Click the **Other Logs** tab.
2. Click **Refresh**. The latest log information is displayed.
3. Select the log to be obtained.

   NOTE

   You can enter the log name keyword, such as the date, in the **File Name** text box and click **Search** to search for all logs whose names contain this keyword.
4. Click **Download**.

   A message asking you whether to open or save the log is displayed at the bottom of the browser. You can open or save the log as required.

----End

5.2.6.5 Replacing a Device

This section describes how to replace a device. If the device connecting to the NetEco 1000S needs to be replaced due to a fault or aging, you can replace it with a new one.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator.
- The new device has been connected to the NetEco 1000S. For detailed operations, see **5.2.3.1 Accessing Devices Through the SmartLogger**, **5.2.3.2 Accessing the Directly Connected Inverter** or **5.2.3.3 Searching Devices Based on Serial Port Addresses**.
- The old device has been deleted or is disconnected from the NetEco 1000S.

Context

Devices supporting the replacement include the inverter.

Procedure

Step 1 Choose **Maintenance** > **Device Access** from the main menu.

The **Device Access** page is displayed.

Step 2 Click **Replace Device**.

The **Replace Device** dialog box is displayed.

Step 3 Enter the **Old device ESN**, **New device ESN** and **Device name**.

NOTE

Device name specified here is the name of the new device to be displayed in the NetEco 1000S. You can set **Device name** as required. The name of the new device must be different from the names of the existing devices.

Device name specified here is the name of the new device to be displayed in the NetEco 1000S. You can set **Device name** as required. The name of the new device must be different from the names of the existing devices.

Step 4 Click **OK**.

The **Confirm** dialog box is displayed.

Step 5 Click **OK**.

The **Information** dialog box containing Modification succeeded is displayed.

Step 6 Click **OK** to complete the device replacement.

NOTE

After the replacement, the new device will inherit performance data from the old device, the old disconnected device will be removed.

----End

5.2.7 System Management

5.2.7.1 Managing User Information

This section describes how to manage user information. The user management function allows you to manage the information about and operation rights of users.

5.2.7.1.1 User Categories

This section describes user categories. You need to familiarize yourself with these user categories before managing users.

Software users are system administrator, system operators, and guest users.

Operation rights vary by user. **Table 5-24** lists the software users and their operation rights.

Table 5-24 User operation rights

User Category	Operation Rights
System administrator **NOTICE** ● The system administrator cannot be deleted or modified. ● To improve system security, you are advised to change the initial keys set before product delivery in a timely manner and periodically (at an interval of 3 months) change the user key to avoid security risks, such as violent key cracking.	System administrator have all the operation rights, including: ● PV plant management: creates, modifies, and deletes PV plants, and settings information of PV plants, browses information about PV plants, device lists, and current alarms. ● Device management: accesses devices, searches, modifies, and deletes devices, and settings information of devices, browses information about devices and current alarms, remotely controls a Smartlogger and PID. ● Managing Other Devices: adds other devices. ● Historical data: queries alarm logs, performance data and data analysis; synchronizes historical performance data, and export data. ● Device maintenance: upgrades devices, replaces devices, manages devices, patrol to the inverter, obtains NetEco logs and obtains device logs. ● System management: manages users, sets remote notification, queries user logs, and sets the system parameters.

User Category	Operation Rights
System operators	● PV plant management: creates, modifies, and deletes PV plants, and settings information of PV plants, browses information about PV plants, device lists, and current alarms. ● Device management: accesses devices, modifies and deletes devices, and settings information of devices, browses information about devices and current alarms, remotely controls a Smartlogger and PID. ● Historical data query: queries alarm logs, performance data and data analysis; synchronizes historical performance data, and export data. ● Device maintenance: patrol to the inverter and obtains device logs. ● System management: manages users, sets remote notification rules.
Guest users	● PV plant management: modifies descriptions and parameters of PV plants, browses information about PV plants, device lists, and current alarms, and uploads and deletes PV plant images. ● Device management: browses information, settings and current alarms about devices. ● Historical data query: queries alarm logs, performance data and data analysis; exports data.

5.2.7.1.2 Adding a User

This section describes how to add a user on the NetEco 1000S. You can add users as required. The operation rights of users vary according to user categories.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator or system operators.

Procedure

Step 1 Choose **System** > **User Management** from the main menu.

The **User Management** window is displayed. Choose **User** from the menu bar on the left, as shown in **Figure 5-44**.

Figure 5-44 User

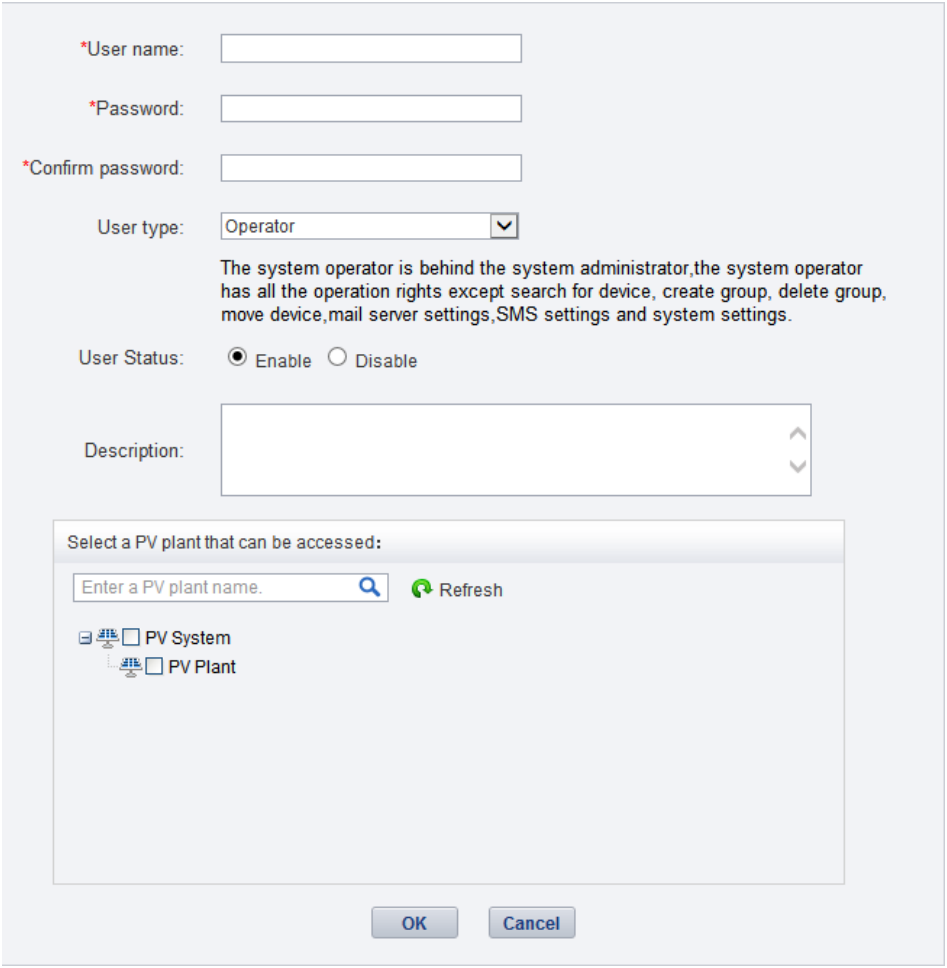
NOTE

System operators can see only their own information and information about guest users they have created.

Step 2 Click **Create User**.

The **Create User** window is displayed, as shown in **Figure 5-45**.

Figure 5-45 Create User



Step 3 Set the user parameters according to **Table 5-25** and then click **OK**.

Table 5-25 Parameter description

Parameter	Description
User name	Name of the new user. The user name can only contain English characters (A to Z and a to z), digits, hyphens, or underlines. **NOTE** The user name cannot be **null** or **NULL**. ● System operators can only create guest users and bind PV Plant with guest users. Guest users can manage only PV Plants bound with them after the login. ● When the system administrator adds the permission of a device for the access users created by the system operator, the system operator has no permission of this device. ● When the system administrator cancels the permission of a device managed by the system operator, access users created by the system operator still have the permission of this device. See **5.2.7.1.6 Setting an Account Policy** to set the username length.
Password	Password of the new user. The password must comply with the following rules: ● The password cannot be the same as the user name or the user name in a reversed order. ● The password contains 8 to 32 characters. ● The password contains three of the following types of characters: – At least one lowercase letter – At least one uppercase letter – At least one digit ● The password proposal contain a special characters, special characters contains `~!@#$%^&*()-_=+|[{}];:'",<.>/? and space. **NOTE** The system administrator can set the password complexity policy on the NetEco 1000S client. For details, see **5.2.7.1.7 Setting a Password Policy**.
User type	Type of the user. The type can be **Operator** or **Guest**.
Description	Description of the user. The description cannot contain more than 255 characters.
User status	Status of the user. The status includes: ● Disable: The user is disabled and cannot log in to the NetEco 1000S. ● Enable: The user can log in to the NetEco 1000S.
Select a PV plant that can be accessed	Permission for the user to access the PV plant.

The added user is displayed in the user list in the **User Management** window.

----End

5.2.7.1.3 Modifying User Information

This section describes how to modify user information. If information about a user needs to changed,the password of the user is forgotten or the account is locked, you can modify information about the user as an administrator.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator or system operators.

Procedure

Step 1 Choose **System** > **User Management** from the main menu.

The **User Management** window is displayed. Choose **User** from the menu bar on the left, as shown in **Figure 5-46**.

Figure 5-46 User

NOTE

System operators can see only their own information and information about guest users they have created.

Step 2 Set parameters in the **User Management** window according to **Table 5-26**.

NOTE

The system operators can manage only users created by it.

Table 5-26 GUI parameters

Parameter	Description
User Name	Displays names of all accounts in the system.
User Type	Displays the type of an account. The type includes **Administrator**, **Operator**, and **Guest**.
Description	Displays the description of an account.

Parameter	Description
Status	Displays the status of an account. The status includes: ● normal: indicates that the account is properly used, you can click to disable the account. ● invalid: indicates that the account is currently not used, you can click to enable the account. **NOTE** – The admin user can enable all disabled accounts. – System operators can enable only the guest users created by the user. ● lock: When an account is automatically locked by the system after the user enters the incorrect password for multiple times or disobeys the password policy, you can click to unlock the account.
Edit	Click to modify the use status, description and control permission of an account.
Password reset	When a user forgets the password for logging in to the NetEco 1000S, the user can reset the password, and then use the new password to log in to the NetEco 1000S. **NOTE** The password of the system administrator cannot be reset. Therefore, you have to remember the password of this user. ● The password cannot be the same as the user name or the user name in a reversed order. ● The password contains 8 to 32 characters. ● The password contains three of the following types of characters: – At least one lowercase letter – At least one uppercase letter – At least one digit ● The password proposal contain a special characters, special characters contains `~!@#$%^&*()-_=+\\[{}];:'",<.>/? and space. 1. Click . 2. In the displayed window, set **New password** and **Confirm password**. 3. Click **OK**.
Delete	Click . In the displayed window, click **OK** to delete the account.

----End

5.2.7.1.4 Querying PV Plants to Which a User Belongs

This section describes how to query PV plants to which a user belongs. This helps learn the PV plants that the user can operate and user information recorded in the PV plants, facilitating the PV plant administrator's management operation.

Prerequisites

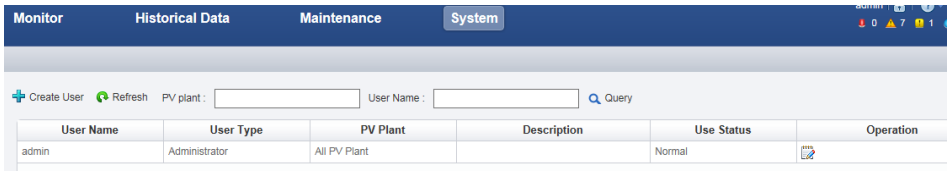
- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator or system operators.

Procedure

Step 1 Choose **System** > **User Management** from the main menu.

The **User Management** window is displayed. Choose **User** from the menu bar on the left, as shown in **Figure 5-47**.

Figure 5-47 User



NOTE

System operators can see only their own information and information about guest users they have created.

Step 2 Set search criteria.

- **PV plant**: Enter the name of the to-be-queried PV plant. You can enter names of multiple PV plants and separate them by semicolon (**;**).
- **User Name**: Enter the to-be-queried user name.

NOTE

You can set **PV plant** or **User Name** as required.

Step 3 Click **Query**.

----End

5.2.7.1.5 Modifying the Password of the Current User

This section describes how to modify the password of the current user. You are advised to modify user password regularly to ensure system security.

Prerequisites

You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.

Procedure

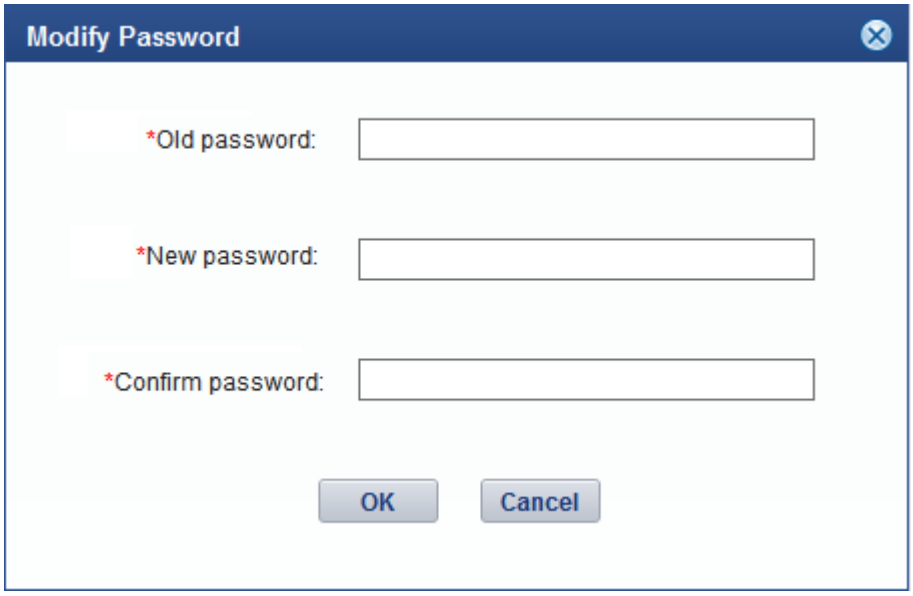
Step 1 Click  from the main menu.

The **Modify Password** dialog box is displayed, as shown in **Figure 5-48**.

NOTICE

To improve system security, you are advised to change the initial keys set before product delivery in a timely manner and periodically (at an interval of 3 months) change the user key to avoid security risks, such as violent key cracking.

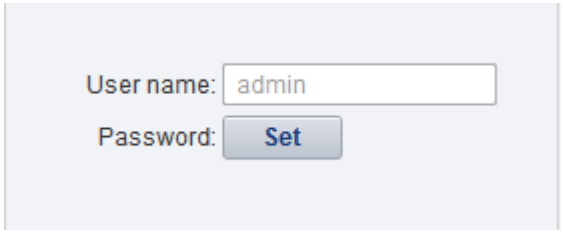
Figure 5-48 Modify Password



Step 2 **Optional:** The current user is system administrator or system operators can change the password in the following way.

1. Choose **System** > **User Management** from the main menu;
2. The **User Management** dialog box is displayed, Choose **Modify Password** from the menu bar on the left,as shown in **Figure 5-49**;
3. Click **Set** in **Figure 5-49**, The **Modify Password** dialog box is displayed, as shown in **Figure 5-48**.

Figure 5-49 Modify admin Password



Step 3 Enter the old password and new password and confirm the new password.

NOTE

- The password cannot be the same as the user name or the user name in a reversed order.
- The password contains 8 to 32 characters.
- The password contains three of the following types of characters:
  - At least one lowercase letter
  - At least one uppercase letter
  - At least one digit
- The password proposal contain a special characters, special characters contains !"#$%&'()*+,-./:;<=>?@[\]^` {_|}~ and space.

Step 4 Click **OK**.

----End

5.2.7.1.6 Setting an Account Policy

This topic describes how to set an account policy to improve access security of the NetEco. The account policy settings include the length of the user name and the policies related to user login.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator.

Context

- The account policy applies to the following users after the account policy is successfully set:
  - New users.
  - Users whose information is modified.
- Account policies apply to all accounts except system administrator.
- The NetEco provides the default account policy, and you can modify it as required.

The current login account will be locked if the number of consecutive failed login attempts exceeds the preset value within a certain period. The locking policy is as follows:

- system administrator: The current login IP address will be locked. You can use another IP address to log in to the NetEco 1000S.
- system operators or guest users: The current login account will be locked. For details about how to unlock the account, see **5.2.7.1.3 Modifying User Information**.

Procedure

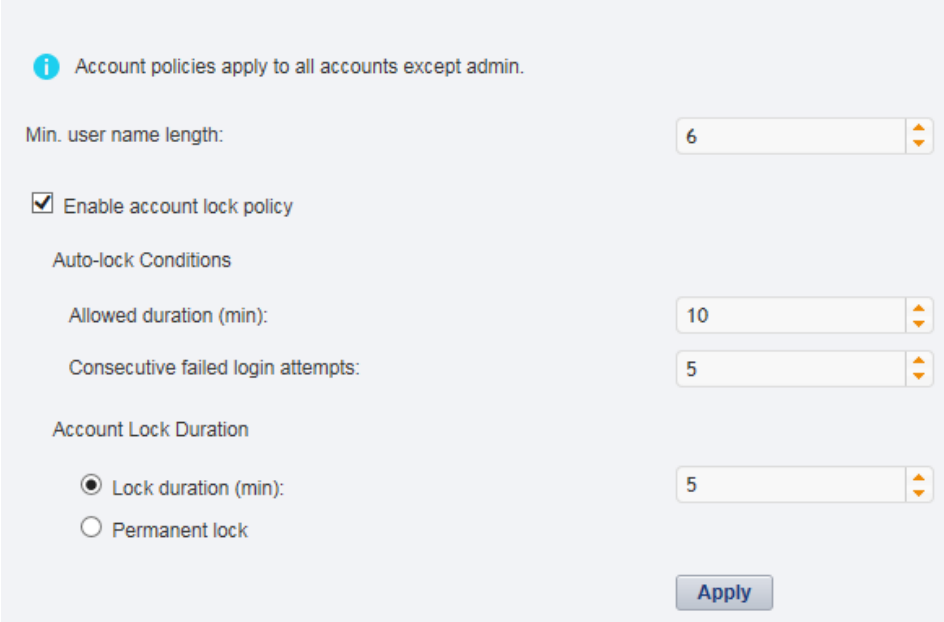
Step 1 Choose **System** > **User Management** from the main menu.

Step 2 In the navigation tree on the left, choose **Account Policy**.

- system operators or guest users:The current login account will be locked if the number of consecutive failed login attempts exceeds the preset value within a certain period. For details about how to unlock the account, see **5.2.7.1.3 Modifying User Information**.
- system administrator: The current login IP address will be locked 5 minutes if the number of consecutive failed login attempts more than 5 within 10 minutes.

NOTICE

Restart the service will make the lock failed, please use caution.



Step 3 On the **Account Policy** page, set the account policy as required.

Step 4 Click **Apply**.

----End

5.2.7.1.7 Setting a Password Policy

You can set a password policy to improve access security of the NetEco. The password policy settings include the user password complexity rules, password change interval, and character restriction.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator.

Context

- A password policy applies to all users once it is configured. After the minimum length of the user password is specified and validated, if an online user wants to change the password, the user needs to set the new password based on the specified minimum password length requirements.
- You need to set a password based on the password policy when you create a user.
- A new password policy does not affect the configured password.
- The NetEco provides the default password policy, and you can modify it as required.

NOTICE

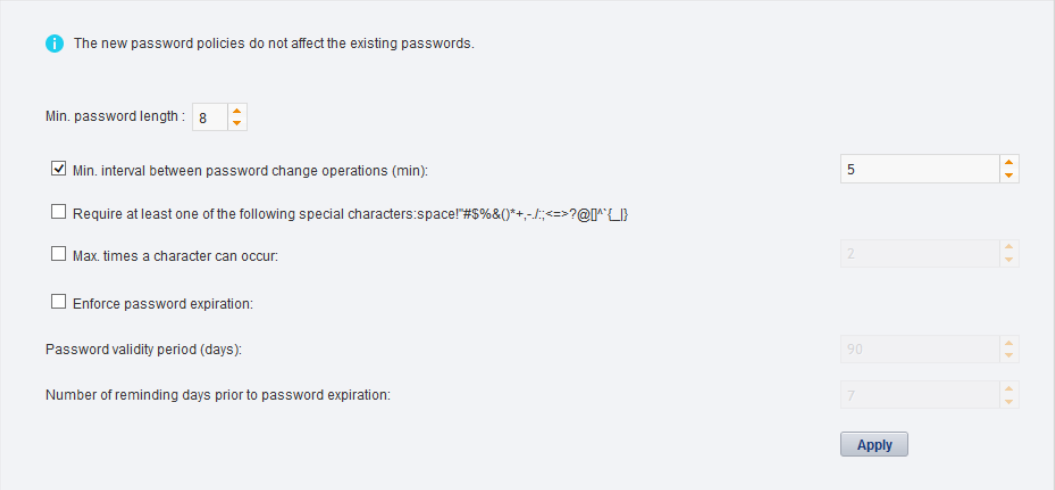
Disabling the functions of password strength policies and password change intervals will lower account security. You are advised to enable all password security policies provided by the NetEco.

Procedure

Step 1 Choose **System** > **User Management** from the main menu.

The **User Management** window is displayed. Choose **Password Policy** from the menu bar on the left, as shown in **Figure 5-50**.

Figure 5-50 Password Policy



Step 2 In the window shown in **Figure 5-50**, set **Password Policy** as required.

NOTE

When you change the passwords of other users as user admin, the value of **Enable account lock policy** has no impact on the change. That is, the password change interval is not limited when you change the passwords of other users as user admin.

Step 3 Click **Apply**.

----End

5.2.7.1.8 Managing the Online Users

You can view online user to find unauthorized login users and log out these users, which prevents unauthorized operations performed on the NetEco 1000S client.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.

- The current user is system administrator.

Procedure

Step 1 Choose **System** > **User Management** from the main menu.

Step 2 In the navigation tree on the left, choose **View Online User**.

Step 3 On the **View Online User** page, view online users, and their login time, login IP addresses, and roles to which they belong. In addition, you can perform the following operations:

Task	Procedure
Update online user information	Click **Refresh** to update the online user information.
Force a user to log out	When viewing online users, you can force an unauthorized user to log out. This prevents the unauthorized user from performing unauthorized operations on the NetEco 1000S client. 1. On the **View Online User** page, click  in the **Operation** column where the required user information is located. 2. In the **Warning** dialog box, click **OK**. **NOTE** You are advised to view the online users at regular time, force the unauthorized users to log out in time.
Enter Single session Mode	Users can enter the single-session mode to prevent the interference from other users' operations. 1. Select **Single session Mode**. 2. In the **Warning** dialog box, click **OK**. **NOTE** ● After entering the single-session mode, users can log in to the NetEco 1000S only on one terminal. ● After entering the single-session mode, the logged-in users are not affected. ● Single-session is a safe mode, recommended for use.
Exit Single session Mode	1. Deselect **Single Session Mode** . 2. In the **Warning** dialog box, click **OK**. **NOTE** After exiting the single-session mode, users can re-log in to the NetEco 1000S on multiple terminals.

----End

5.2.7.1.9 Setting the Idle Logout Time

This topic describes how to set the client to be logged out automatically. To prevent other users from performing unauthorized operations, the NetEco 1000S allows you to set related idle parameters. The client is automatically logged out after being left idle for a specified period of time.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator.

Context

This operation for all users

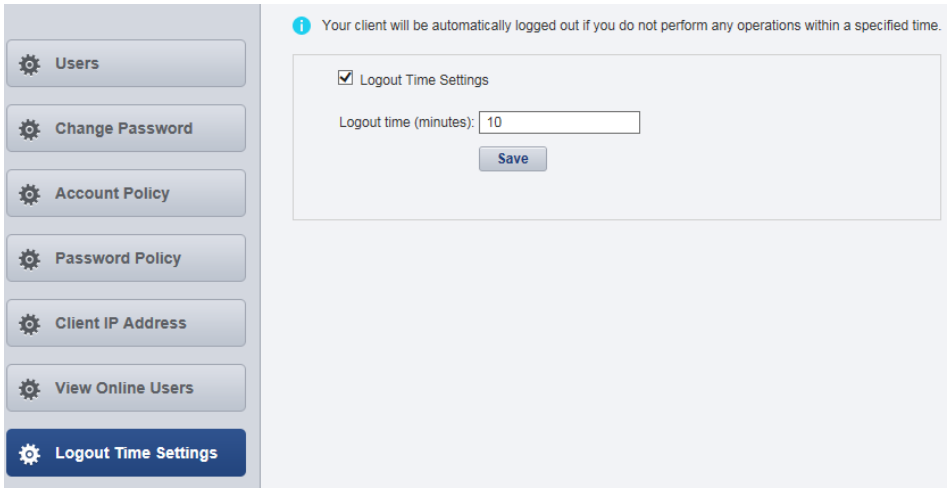
Procedure

Step 1 Choose **System** > **User Management** from the main menu.

Step 2 Choose **Logout Time Setting** on the left.

The **Logout Time Setting** page is displayed, as shown in **Figure 5-51**.

Figure 5-51 Logout Time Setting



Step 3 Set the value of **Logout time (minutes)**.

By default, NetEco 1000S enables the function of logging out users after timeout. To disable this function, clear **Logout Time Settings**.

NOTE

The logout time ranges from 1 to 1440 minutes. Setting the logout time within 3 minutes is advised.

Step 4 Click **Save**.

----End

Follow-up Procedure

After the client is automatically logged out, the current user needs to log in to the NetEco 1000S again.

5.2.7.1.10 Setting an IP Access Control Policy

This section describes how to set an access control policy. In this way, users can only use the specified IP address to log in to the NetEco, ensuring the access security of the NetEco.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator.

Context

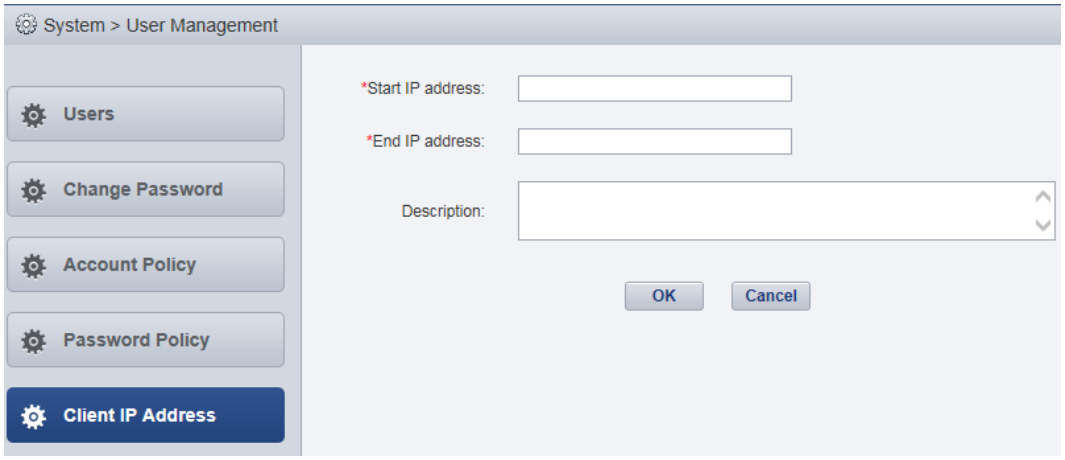
To ensure the access security of the NetEco, you are advised to set an access control policy.

Procedure

Step 1 Choose **System** > **User Management** from the main menu.

The **User Management** window is displayed. Choose **Client IP Address** from the menu bar on the left. In the displayed **Client IP Address** window, click **Create**, as shown in **Figure 5-52**.

Figure 5-52 Client IP Address



Step 2 Set **Start IP address**, **End IP address**, and **Description** for accessing the client and click **OK**.

----End

5.2.7.1.11 Setting Login Time Control Policies

After the login time control policies are set, users other than **admin** can log in to the NetEco 1000S only at the specified control time, which ensures NetEco 1000S access security.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator.

Context

If user **admin** wants to control the time segment on which other users can access the NetEco 1000S, login time control policies need to be set. After the login time control policies are enabled, the following functions can be implemented:

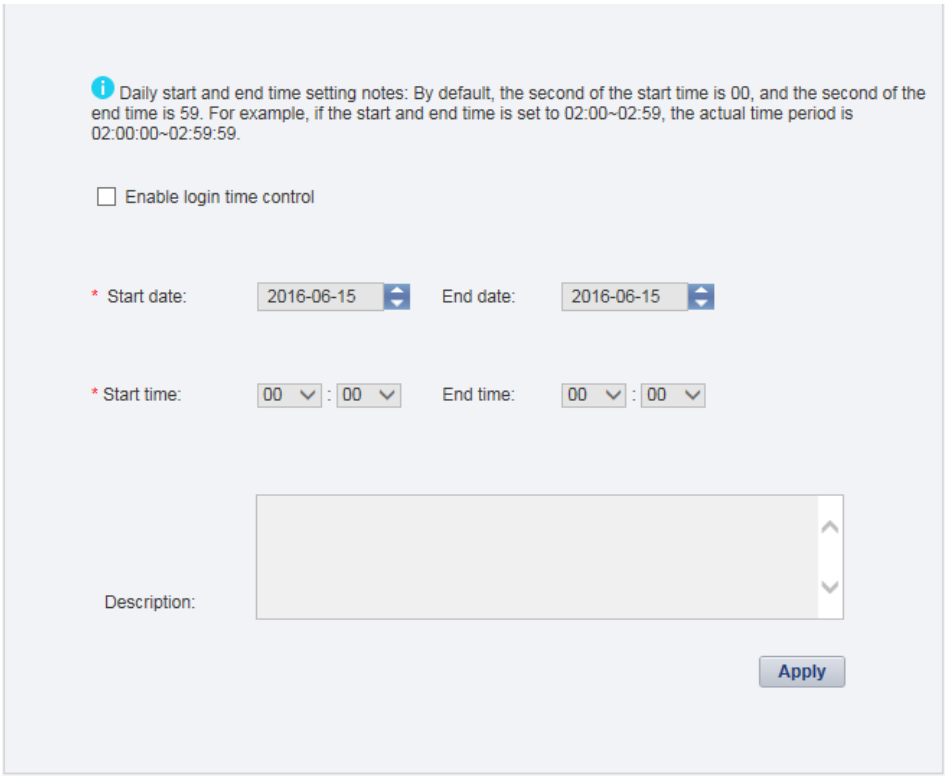
- Users other than **admin** can log in to the NetEco 1000S only on the control time segment.
- The logged-in user will be forcibly logged out if the valid access time expires.

Procedure

Step 1 Choose **System** > **User Management** > **Login Time Control** from the main menu

The **Login Time Control** page is displayed, as shown in **Figure 5-53**.

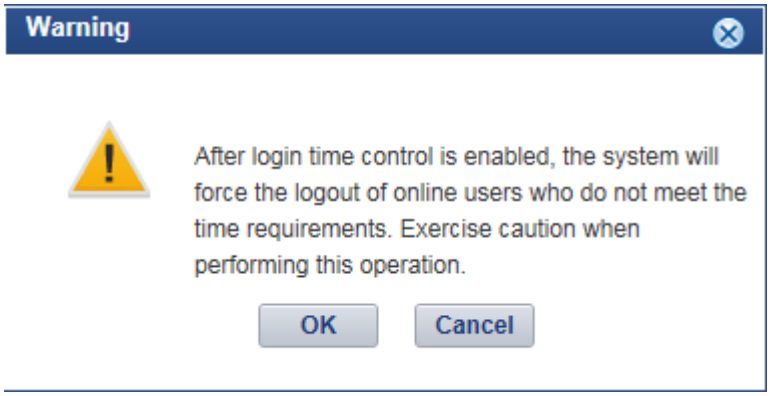
Figure 5-53 Login Time Control



Step 2 Select **Enable login time control**.

Information shown in **Figure 5-54** is displayed.

Figure 5-54 Login time control enabling prompt



Step 3 Set login time control policies according to **Table 5-27**.

Table 5-27 Setting login time control policies

Parameter	Configuration Method
Start date	Select the start date for the login from the drop-down list.
End date	Select the end date for the login from the drop-down list. The end date must be later than or equal to the start date.
Start time	Select the start time for the login from the drop-down list. Other users are allowed to access the NetEco 1000S since the start time.
End time	Select the end time for the login from the drop-down list. Other users are not allowed to access the NetEco 1000S after the end time. The end time must be later than or equal to the start time.
Description	(Optional) Enter the description information about the login time control policy. A maximum of 255 characters are allowed.

----End

5.2.7.1.12 Setting Access Control Policies for Mobile Terminals

This section describes how to set access control policies for mobile terminals. In this way, users can log in to the NetEco only from the specified mobile terminal, ensuring the access security of the NetEco.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator.
- You have obtained the identification number of the mobile terminal.

  NOTE

  Identification number of the IOS mobile terminal is the IDFV identifier. Identification numbers of other mobile terminals are IMEIs/MEIDs of mobile phones or MAC addresses of tablets.

Context

To ensure the access security of the NetEco, enable the access control policies for mobile terminals is advised.

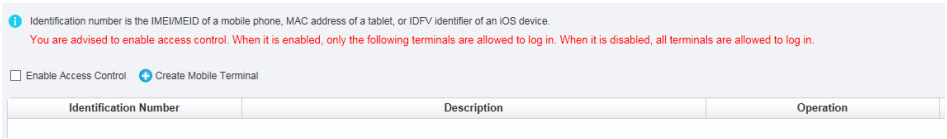
The identification number of the mobile terminal has been anonymized on the NetEco 1000S WebUI to protect user's privacy.

Procedure

Step 1 Choose **System** > **User Management** from the main menu.

The **User Management** window is displayed. Choose **Mobile Terminal Access Control** from the menu bar on the left, as shown in **Figure 5-55**.

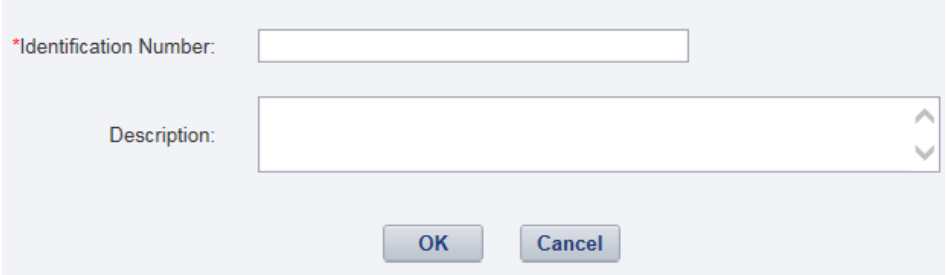
Figure 5-55 Mobile Terminal Access Control



Step 2 In the displayed **Mobile Terminal Access Control** window, click **Create Mobile Terminal**.

The **Create Mobile Terminal** page is displayed, as shown in **Figure 5-56**

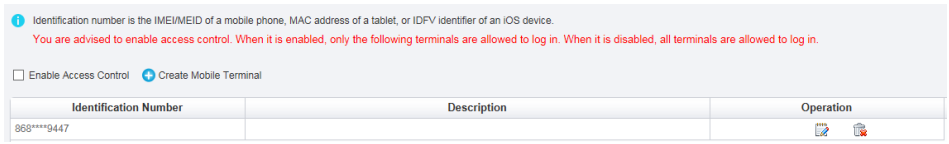
Figure 5-56 Mobile terminal access setting



Step 3 Enter the identification number of the mobile terminal that is allowed to access the NetEco, set **Description**, and click **OK**.

After the access control policies are set, the page similar to **Figure 5-57** is displayed.

Figure 5-57 Access Control Policy



Step 4 Perform the following operations in the **Mobile Terminal** window.

- Select **Enable Access Control**: The access control policy for the mobile terminal is enabled, and users can log in to the NetEco only from the specified mobile terminal.
- Deselect **Enable Access Control**: The access control policy for the mobile terminal is disabled, and users can log in to the NetEco from any mobile terminals.

----End

Follow-up Procedure

- You can click  under **Operation** in **Figure 5-57** to modify the specified mobile terminal.
- You can click  under **Operation** in **Figure 5-57** to delete the specified mobile terminal.

5.2.7.2 Querying User Operation Logs

This section describes how to query user operation logs to know the operations performed by users.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator.

Context

The NetEco 1000S checks whether the number of user operation logs exceeds the preset threshold at the specified time every day. If the number exceeds the threshold, the NetEco 1000S automatically dumps 20% of the operation logs to the specified directory and deletes the dumped data from the database until the database usage is lower than the threshold.

- Check time: 00:00 every day
- Threshold: 100,000
- Dump path: software installation path\backup\LogDataTransfer

  NOTE

  The dump path does not exist after the software is installed. Upon the first dump, a **LogDataTransfer** folder is automatically generated.

  After dumping data, the NetEco 1000S generates a file named the current date in the dump path.

Before dumping data, the NetEco 1000S checks the remaining space of the current disk. If the remaining space is smaller than 600 MB, the NetEco 1000S will delete the earliest dump data

until the remaining space is greater than 600 MB. If the remaining space is still smaller than 600 MB after all dump data is deleted, the dump may fail.

NOTICE

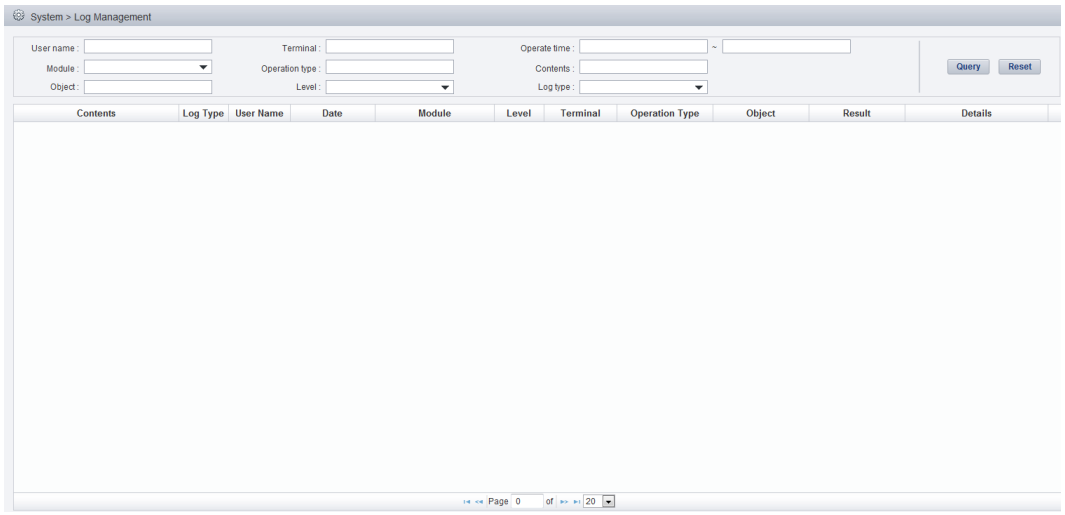
To ensure the user log integrity, you must reserve enough disk space to prevent user logs from being deleted or the dump failure.

Procedure

Step 1 Choose **System** > **Log Management** from the main menu.

The **Log Management** window is displayed.

Figure 5-58 Log Management



Step 2 **Optional:** Set the query criteria by referring to **Table 5-28**.

Table 5-28 Query criteria parameters

Parameter	Description
User name	Name of a user.

Parameter	Description
Module	Module in which an operation is performed, including: ● Device management: involves plant creation, modification, and deletion, device search, device access, and device deletion. ● Configuration management: involves device information modification and control command delivery. ● Security management: involves user login and logout, and user creation, user information modification, and user deletion. ● Software management: involves software package upload, device upgrade, and software package deletion. ● Performance management: involves historical performance data synchronization. ● Device log: involves the obtaining of device logs. ● Remote notification: involves email server parameter and SMS message server parameter modification, and remote notification rules creation, modification, deletion, enabling, and disabling. **NOTE** The product feature you have purchased may use personal information of users when providing services or maintenance. Therefore, you are obligated to take measures, in compliance with the laws of the countries concerned and the user privacy policies of your company, to ensure that the personal data of users is fully protected. Personal data such as phone numbers and email addresses are masked in the NetEco GUI and encrypted in the NetEco during batch data transmission to ensure data security. ● System settings: involves the clock synchronization, baud rate modification, alarm resetting, benefit setting, and collection period setting.
Object	Object on which an operation is performed, including: ● Local network manager ● NetEco 1000S user ● plant ● Device
Client IP address	IP address of the PC client or identification number of the mobile client used for the login.

Parameter	Description
Operation type	Type of operation a user has performed, including: ● System login ● System logout ● Search ● Add ● Synchronize ● Upgrade ● Modify ● Delete ● Reset
Operation time	The value must be a time segment. The start time must be earlier than or equal to the end time.
Contents	Operation performed by a certain user.
Level	Log level, including: ● Risk ● Minor ● Warning
Log type	Log type, including: ● System Logs: record NetEco 1000S running exceptions, network faults, and NetEco 1000S attacks. ● Operation Logs: record device addition and deletion. ● Security Logs: record NetEco 1000S security operation information, such as logging in to the client, changing the password, creating a user, and exiting the client.

Step 3 Click **Query**.

----End

5.2.7.3 Setting Remote Notification

This section describes how to set remote notification. The NetEco 1000S notifies users of information about alarms or generated power remotely based on remote notification rules.

5.2.7.3.1 Setting Parameters for the Email Server

This section describes how to set parameters for the email server for sending emails to users.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.

- The current user is system administrator.

  NOTE

  You need to disable the mail filtering function of the antivirus software for the operating system.

- The PC on where the NetEco 1000S software is installed is properly connected to the email server, and you have obtained the email server's IP address (or domain name) and port number that are used for email transmission from the email server OM personnel.

NOTICE

TLS communication protocols include TLS1.0, TLS1.1, and TLS1.2. The NetEco supports TLS1.1, and TLS1.2 protocols. TLS1.0 has security risks. The NetEco uses TLS1.2 by default.

If an email server supports only TLS1.0, the communication connection may be insecure. In this case, replace the email server with one supporting TLS1.1 or TLS1.2.

NOTE

The product feature you have purchased may use personal information of users when providing services or maintenance. Therefore, you are obligated to take measures, in compliance with the laws of the countries concerned and the user privacy policies of your company, to ensure that the personal data of users is fully protected.

Personal data such as phone numbers and email addresses are masked in the NetEco GUI and encrypted in the NetEco during batch data transmission to ensure data security.

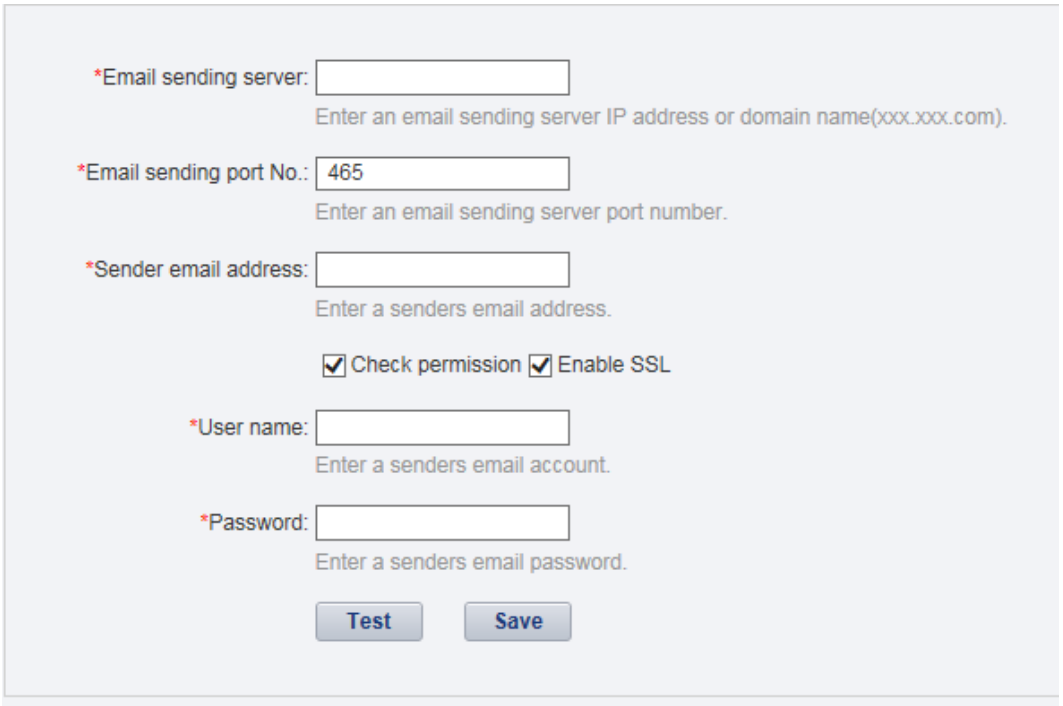
Procedure

Step 1 Choose **System** > **Remote Notification** from the main menu.

Step 2 Choose **Email Server**.

The **Setting parameters for email server** window is displayed, as shown in **Figure 5-59**.

Figure 5-59 Setting parameters for email server



Step 3 Setting parameters for email server by referring to **Table 5-29**.

Table 5-29 Setting parameters for email server

Parameters	Description
Email sending server	Enter the IP address or domain name of the SMTP email server. If the domain name of a website is **www.yourdomain.com**, the domain name of the SMTP email server for this website may be one of the following: ● smtp.yourdomain.com ● mail.yourdomain.com ● smtp.mail.yourdomain.com For example, the domain name of the SMTP email server for **email@126.com** is **smtp.126.com**. If the domain name of the SMTP email server obtained based on the preceding domain naming rule is invalid and email-based remote notification fails to be enabled, contact the email service provider to obtain the valid domain name of the SMTP email server. The domain names of the SMTP email servers for some frequently used email boxes are as follows: ● **126.com**: **smtp.126.com**. ● **gmail(google.com)**: **smtp.gmail.com**. ● **21cn.com**: **smtp.21cn.com**. ● **163.com**: **smtp.163.com**. ● **sohu.com**: **smtp.sohu.com**. ● **yahoo.com**: **smtp.mail.yahoo.com**.
Email sending port No.	Port of email server **NOTE** Select the **Enable SSL**, the SMTPS protocol is used, the default port is **465**. Clear the **Enable SSL** check box, the SMTP protocol is used, the default port is **25**. Ensure that the server port is correct for successful email transmission.
Sender email address	Enter the email address of the sender.
Check permission	If the SMTP email server requires authentication, select **Check permission**, and set the user name and password for connecting to the SMTP email server.
Enable SSL	Select the **Enable SSL**, the SMTPS protocol is used. Clear the **Enable SSL** check box, the SMTP protocol is used. Use the SMTPS protocol to send email is advised. **NOTE** If **Enable SSL** is selected, you must verify that the email server supports the SMTPS. Otherwise, email sending will fail.

Step 4 **Optional:** Test that parameters for the email server are set correctly.

1. Click **Test** in the **Setting parameters for email server** page.

2. Enter the **Recipient email address** in the **Test Email** text box.
3. Click **OK**.

Step 5 Click **Save**.

----End

5.2.7.3.2 Setting Parameters for the SMS Modem

This section describes how to set parameters for the SMS modem for sending SMS messages to users.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator.
- The SMS modem has been properly installed, and you have obtained the serial port number used for communication between the PC and the SMS modem.
- You have obtained the phone number of the SMS center from the telecom operator providing the SMS service.
- You have enabled the function of serial ports.

NOTICE

To ensure NetEco 1000S system security, the NetEco 1000S shields the function of serial ports by default. After completing the operation, disable this function immediately.

Perform the following operations to enable and disable the function:

- Enable the function: Navigate to the **NetEco 1000S installation directory \WebRoot\WEB-INF\classes** directory, open the **userManagement.properties** file, change the value of **isStartCom** to 1, and save the change result. Then, restart the NetEco 1000S.
- Disable the function: Navigate to the **NetEco 1000S installation directory \WebRoot\WEB-INF\classes** directory, open the **userManagement.properties** file, change the value of **isStartCom** to 0, and save the change result. Then, restart the NetEco 1000S.

NOTE

The product feature you have purchased may use personal information of users when providing services or maintenance. Therefore, you are obligated to take measures, in compliance with the laws of the countries concerned and the user privacy policies of your company, to ensure that the personal data of users is fully protected.

Personal data such as phone numbers and email addresses are masked in the NetEco GUI and encrypted in the NetEco during batch data transmission to ensure data security.

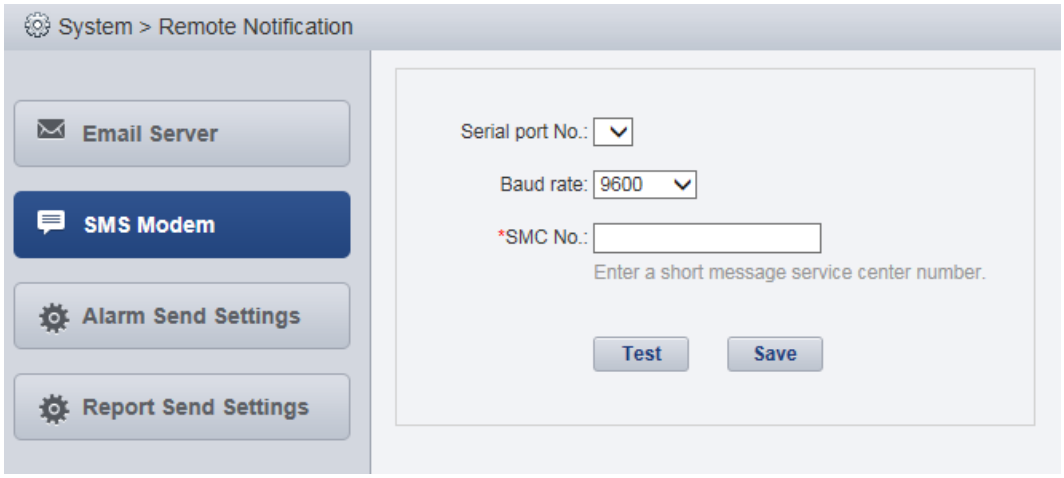
Procedure

Step 1 Choose **System** > **Remote Notification** from the main menu.

Step 2 Click **SMS Modem**.

The **Setting parameters for SMS modem** window is displayed, as shown in **Figure 5-60**.

Figure 5-60 Setting parameters for SMS modem



Step 3 Setting parameters for SMS modem by referring to **Table 5-30**.

Table 5-30 Setting parameters for SMS modem

Parameters	Description
Serial port No.	Enter the RS232 serial port number for communication, through which the SMS modem and the PC are connected.
Baud rate	Choose a matching baud rate.
SMC No.	Enter the number of the SMC which is obtained from the SMC operator. **NOTE** **SMC No.** must be set according to the following requirements: ● A country code must be added preceding the calling number. For example, if the subscriber is located in China, the entered calling number is in the following format: +86*Calling number*. ● If short messages are successfully sent but the subscriber does not receive the short messages, you need to remove the country code.

Step 4 **Optional:** Test that parameters for the SMS modem are set correctly.

1. Click **Test** in the **Setting parameters for SMS modem** page.
2. Enter the test Phone NO. in the **Receiver phone No.** text box.
3. Click **OK**.

Step 5 Click **Save**.

----End

5.2.7.3.3 Setting Alarm Sending Rules

This section describes how to set alarm sending rules. Based on the preset alarm sending rules, the NetEco 1000S sends emails or SMS messages to notify users of alarm information.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator or system operators.

Context

- The NetEco 1000S notifies users of alarm information by email: After the NetEco 1000S receives an alarm reported by a device, the NetEco 1000S waits for 3 minutes, and then sends all alarm information received within 3 minutes to users using one email.

  NOTE

  Alarm send delay time specifies the time that the NetEco 1000S waits before sending alarms. The default value of **Alarm send delay time** is 180s, that is, 3 minutes. After the value of **Alarm send delay time** is changed, the waiting period changes accordingly.

- The NetEco 1000S notifies users of alarm information by SMS: The NetEco 1000S sends the alarm information to users by SMS once receiving an alarm reported by a device.

NOTE

The product feature you have purchased may use personal information of users when providing services or maintenance. Therefore, you are obligated to take measures, in compliance with the laws of the countries concerned and the user privacy policies of your company, to ensure that the personal data of users is fully protected.

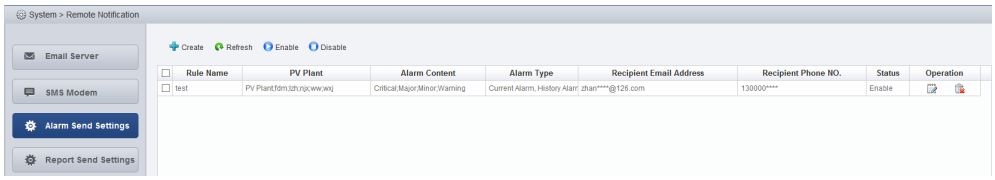
Personal data such as phone numbers and email addresses are masked in the NetEco GUI and encrypted in the NetEco during batch data transmission to ensure data security.

Procedure

Step 1 Choose **System** > **Remote Notification** from the main menu.

Step 2 Click **Alarm Send Settings**.

Figure 5-61 Alarm Send Settings



Step 3 In the **Setting Alarm Sending Rules** page, you can perform the following operations.

Setting Alarm Sending Rules	Operation Method
Create alarm sending rules	A alarm notification rule is enabled by default once it is created. 1. Click **Create**. 2. On the **Create Rule** page, set parameters and click **Save**. **NOTE** You must set at least one of the following two parameters: **Recipient email address** and **Recipient phone No.**.
Enable alarm sending rules	Enable a disabled alarm notification rule. Select one or more alarm sending rules and click **Enable** to enable the alarm sending rules.
Disable alarm sending rules	Disable a alarm notification rule that is not used currently. Select one or more alarm sending rules and click **Disable** to disable the alarm sending rules.
Modify alarm sending rules	Modify a alarm notification rule to meet management requirements. 1. Click  in the **Operation** column where the required alarm notification rule is located. 2. On the **Modify Rule** page, modify the alarm notification rule information.
Delete alarm sending rules	Delete an unused alarm notification rule to ensure sufficient memory and proper running of tasks on the server. 1. Click  in the **Operation** column where the required alarm notification rule is located. 2. In the **Warning** dialog box, click **Yes**.

----End

5.2.7.3.4 Setting Report Sending Rules

This section describes how to set report sending rules. The NetEco 1000S sends emails to users each day to notify users of day energy, income and total energy generated by the plant based on rules.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator or system operators.
- You have set the email server. For details, see **5.2.7.3.1 Setting Parameters for the Email Server**.

Procedure

Step 1 Choose **System** > **Remote Notification** from the main menu.

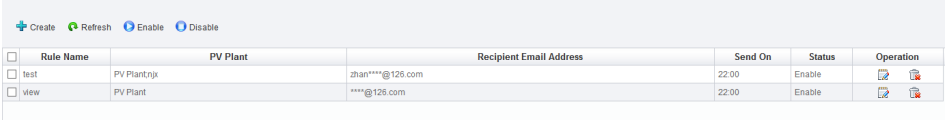
Step 2 Choose **Report Send Settings**.

NOTE

The product feature you have purchased may use personal information of users when providing services or maintenance. Therefore, you are obligated to take measures, in compliance with the laws of the countries concerned and the user privacy policies of your company, to ensure that the personal data of users is fully protected.

Personal data such as email addresses are anonymized in the NetEco GUI and encrypted in the NetEco during batch data transmission to ensure data security.

Figure 5-62 Report Send Settings



Step 3 In the **Setting Report Sending Rules** page, you can perform the following operations.

Setting Report Sending Rules	Operation Method
Create report sending rules	Based on the created report sending rules, the NetEco 1000S sends emails to users each day to notify users of day energy and total energy generated by the plant. This helps maintenance personnel that are not onsite to learn the day energy and total energy generated by the plant on the NetEco 1000S in time. A report sending rule is enabled by default once it is created. 1. Click **Create**. 2. Set **Rule name**, **PV plant**, **Daily send time** and **Recipient email address** on the **Create Rule** page. **NOTE** The NetEco 1000S sends day energy and total energy generated by the PV Plant from 00:00 of the current day to **Daily send time**. 3. Click **Save**.
Enable report sending rules	Enable a disabled report sending rule. Select one or more report sending rules and click **Enable** to enable the report sending rules.
Disable report sending rules	Disable a report sending rule that is not used currently. Select one or more report sending rules and click **Disable** to disable the report sending rules.

Setting Report Sending Rules	Operation Method
Modify report sending rules	Modify a report sending rule to meet management requirements. 1. Click  in the **Operation** column where the required report sending rule is located. 2. On the **Modify Rule** page, modify the report sending rule information.
Delete report sending rules	Delete an unused report sending rule to ensure sufficient memory and proper running of tasks on the server. 1. Click  in the **Operation** column where the required report sending rule is located. 2. In the **Warning** dialog box, click **Yes**.

----End

Result

After the report sending rules are set, the NetEco 1000S automatically sends a report email to the specified mailbox.

Table 5-31 describes the descriptions of parameters in the report email.

Table 5-31 Report email

Type	Parameter	Description
Total **NOTE** Total data indicates data of all PV plants selected when you set the report sending rules.	Daily Energy Yield	Total energy yield of PV plants on the current day.
	Total Energy Yield	Total energy yield of PV plants.
	Total income	Total income generated by PV plants.
Detailed PV plant parameter	PV plant name	Name of a PV plant selected when you set the report sending rules.
	Total DC power	Total DC power of inverters under the PV plant. If this parameter is not set, **-** is displayed.
	Total Energy Yield	Total energy yield of the PV plant.
	Daily Energy Yield	Energy yield of the PV plant on the current day.

Type	Parameter	Description
	Day Performance Ratio	Performance ratio of the PV plant on the current day.
	Daily income	Income of the PV plant on the current day.
	Total income	Total income generated by the PV plant.
Inverter parameter	Number of Inverters	Number of inverters connected to the PV plant.
	Inverter specific energy mean value	Average equivalent energy generation duration of inverters under the PV plant.
	Specific energy maximum value	Maximum equivalent energy generation duration of inverters under the PV plant.
	Specific energy minimum value	Minimum equivalent energy generation duration of inverters under the PV plant.
	Ratio threshold	Ratio threshold of the PV plant. If this parameter is not set, - is displayed.
	Number of inverters with lower mean value ratio	Number of inverters whose ratio is lower than the average value.

NOTE

The table below inverter data lists **Total Energy Yield**, **Daily Energy Yield**, **Specific Energy**, and **Mean Value Ratio** of each inverter. **Mean Value Ratio** is the ratio of **Specific Energy** to **Inverter specific energy mean value** of an inverter. When the ratio is smaller than **Ratio threshold**, it is displayed in red. In this case, you need to check the inverter to ensure that related functions are available.

5.2.7.4 Setting System Parameters

This section describes how to set system parameters to modify communication parameters, reset alarms, synchronize the clock time, and set the income unit.

5.2.7.4.1 Resetting Alarms

This section describes how to reset alarms. When the target device restores its factory defaults or changes its connection mode, you must reset alarms for the target device on the NetEco 1000S. In this case, all the existing alarm records for the target device will be deleted, and alarms are synchronized from the target device to the NetEco 1000S again.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator.

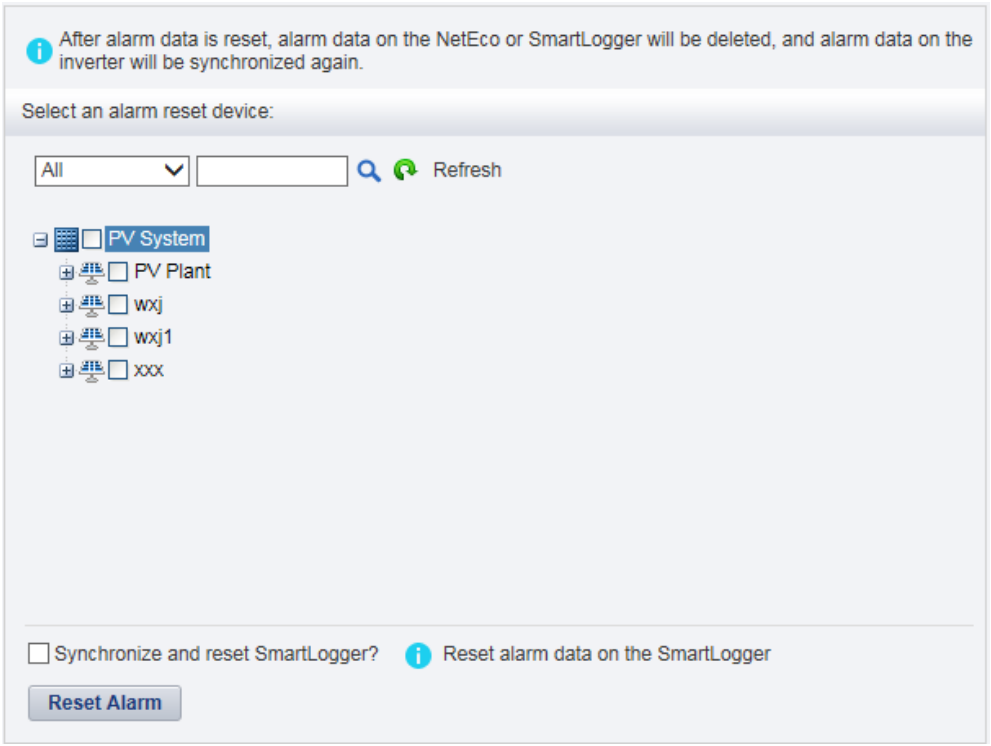
Procedure

Step 1 Choose **System** > **System Settings** from the main menu.

Step 2 Click **Reset Alarm**.

The **Reset Alarm** window is displayed, as shown in **Figure 5-63**.

Figure 5-63 Reset Alarm



Step 3 Select the devices for which you want to reset alarms and click **Reset Alarm**.

The **Warn** dialog box is displayed.

NOTE

If you select **Synchronize and reset SmartLogger?**, the command for resetting alarms will be sent to the SmartLogger. The SmartLogger then clears all alarms of the device in it after receiving the command.

Step 4 Click **OK**.

After alarms are reset, alarm records on the NetEco 1000S will be deleted. However, all alarms of the device still exist on the device side.

----End

5.2.7.4.2 Synchronizing Time

This section describes how to synchronize the time on the monitoring PC on which the NetEco 1000S is installed to devices. This ensures time consistency between the devices and the NetEco 1000S.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator.

Context

By default, the time synchronization function is started.

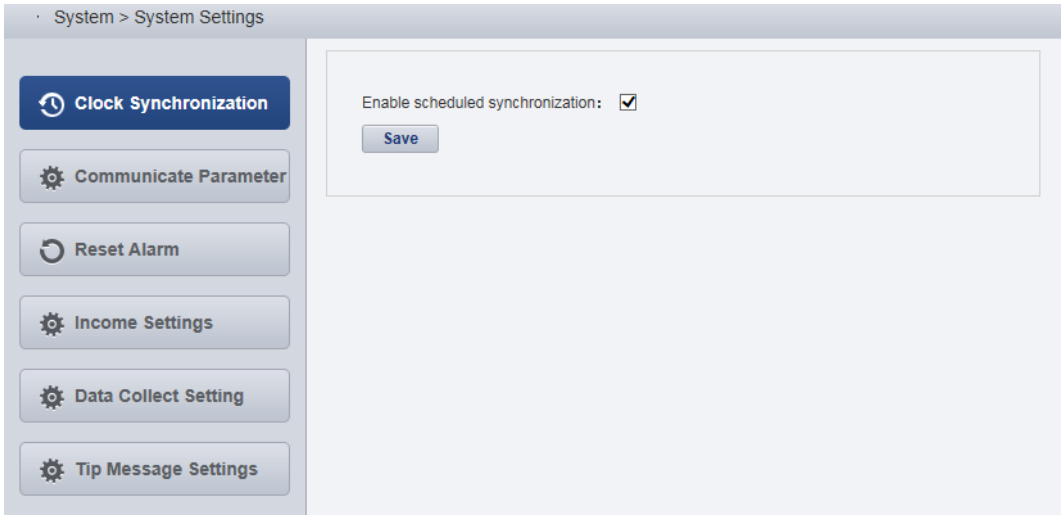
If the time synchronization function is started, the NetEco 1000S will perform time synchronization at 03:03:10, 11:03:10, and 19:03:10 every day, and will synchronize the NetEco 1000S server time and the time on the connected devices.

Procedure

Step 1 Choose **System** > **System Settings** from the main menu.

Step 2 Click **Clock Synchronization**.

Figure 5-64 Synchronizing time



Step 3 Select this check box and click **Save**.

The message `Are you sure you want to issue the command?` is displayed.

Step 4 Click **OK**.

The message `The synchronization command has been issued` is displayed.

Step 5 Click **OK**.

----End

5.2.7.4.3 Setting Communication Parameters

This section describes how to set communication parameters. If a device is connected to the monitoring PC using a serial port, the baud rate of the device must be the same as that set on

the NetEco 1000S. Otherwise, the device communicates with the monitoring PC improperly. By default, the baud rates of the device and NetEco 1000S are 9600. In normal cases, you can retain the default settings unless the actual transmission rate is insufficient. After the baud rate is changed, you need to restart the NetEco 1000S for the setting to take effect.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator.

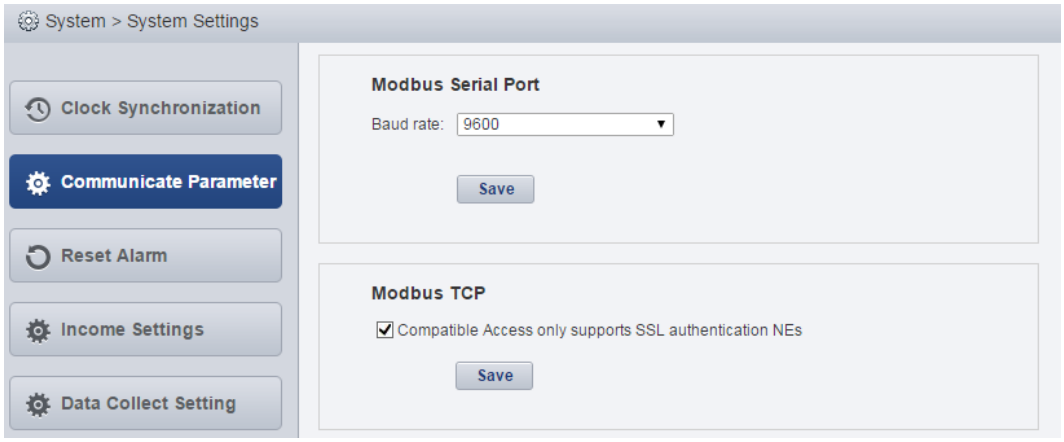
Procedure

Step 1 Choose **System** > **System Settings** from the main menu.

Step 2 Click **Communicate Parameter**.

The **Communicate Parameter** window is displayed, as shown in **Figure 5-65**.

Figure 5-65 Communicate Parameter



Step 3 Changing Baud rate

1. Select a baud rate from the **Baud rate** drop-down list and click **Save**.

   The message `To change the baud rate, you need to restart the network management services. Do you want to continue?` is displayed.

2. Click **Yes**.

   The message `Modification succeeded. Please restart the network management services.` is displayed.

3. Click **OK**.
4. See **5.2.1.2 Logging Out of the NetEco 1000S** and **5.2.1.1 Logging In to the NetEco 1000S** to restart NetEco 1000S service.

Step 4 Set whether the SmartLogger supporting only SSL authentication is allowed to access the NetEco 1000S.

The SmartLogger and NetEco 1000S use the following two authentication modes by default: SSL authentication and user name/password authentication. The NetEco 1000S can be compatible with the SmartLogger supporting only SSL authentication, which has security risks. It is recommended that such SmartLogger be replaced with the SmartLogger supporting both authentication modes or the SmartLogger be upgraded to the version supporting both authentication modes.

- Select **Compatible Access only supports SSL authentication NEs**: The SmartLogger supporting only SSL authentication is allowed to access the NetEco 1000S, and the device connection is normal.
- Deselect **Compatible Access only supports SSL authentication NEs**: The SmartLogger supporting only SSL authentication is allowed to access the NetEco 1000S, but the device is disconnected. To ensure the access security of the NetEco 1000S, you are advised to deselect **Compatible Access only supports SSL authentication NEs**.

NOTE

After installing and upgrading NetEco 1000S, **Compatible Access only supports SSL authentication NEs** is selected by default.

----End

5.2.7.4.4 Setting Income

NetEco 1000S uses **Standard currency** selected during the installation for income statistics. You can set exchange rates between different types of currency and **Standard currency** to collect statistics on the income of all PV plants.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator.

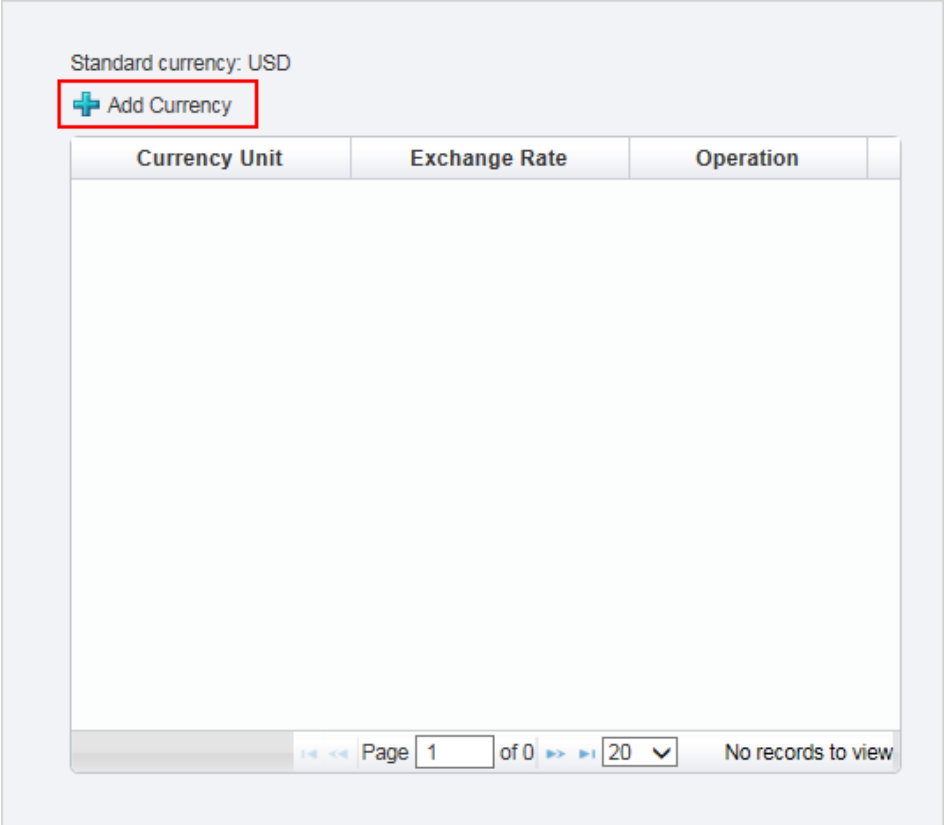
Procedure

Step 1 Choose **System** > **System Settings** from the main menu.

Step 2 Choose **Income Settings**.

The page as shown in **Figure 5-66** is displayed.

Figure 5-66 Income Setting



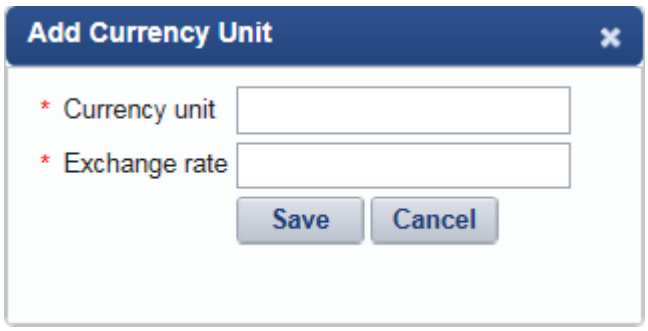
NOTE

NetEco 1000S uses **Standard currency** for income statistics. **Standard currency** indicates the currency type selected when you set currency parameters.

Step 3 Click **Add Currency**.

The **Add Currency Unit** dialog box is displayed, as shown in **Figure 5-67**.

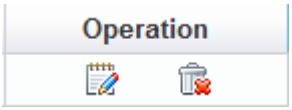
Figure 5-67 Add currency unit



Step 4 Set the currency used for the PV plant and the exchange rate of the currency against **Standard currency**, and save the setting.

----End

Follow-up Procedure

- In the 

area of the **Add Currency Unit** dialog box, edit or delete the currency.

5.2.7.4.5 Setting the Night Auto Data Collection Time

This section describes how to set the night auto data collection time on the NetEco 1000S as required. This setting takes effect only for devices that access the NetEco 1000S through the SmartLogger and inverters directly connected to the FE.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator.

Context

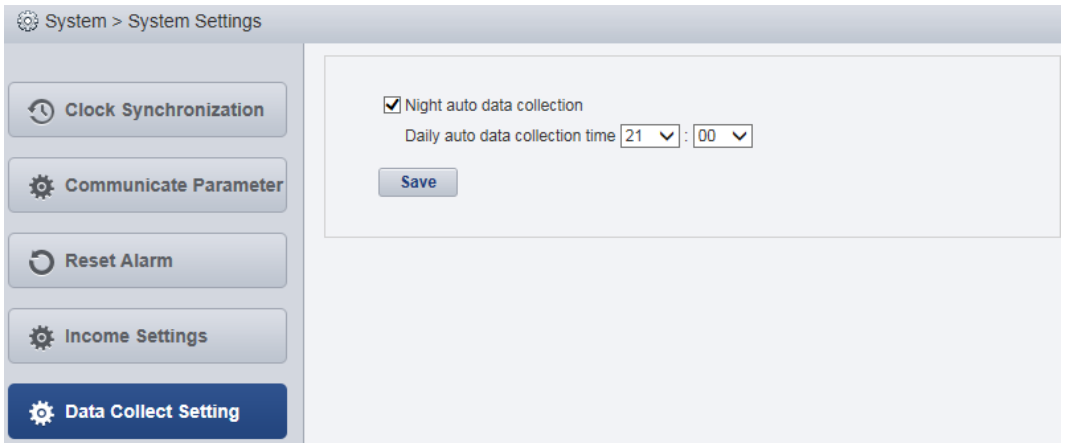
The night data collection time for the inverters directly connected to the FE and that for the SmartLogger can be changed in the same way. This section uses the SmartLogger as an example to describe how to change the night data collection time.

Procedure

Step 1 Choose **System** > **System Settings** from the main menu.

Step 2 Choose **Data Collect Setting** from the navigation tree in the left, as shown in **Figure 5-68**.

Figure 5-68 Data Collect Setting



Step 3 Select **Night auto data collection** and set the data recollection time.

Data recollection time indicates the time when starts to be re-collected data lost in that day.

NOTE

The night auto data collection function is enabled on the NetEco 1000S by default. The default data collection time is **21:00**.

Step 4 Click **Save**.

----End

5.2.7.4.6 Setting Prompt Information

This section describes how to set whether to enable the prompt information displayed after you log in to the client, access devices, and create a PV plant on the NetEco 1000S client.

Prerequisites

- You have logged in to the NetEco 1000S client. For detailed operations, see **5.2.1.1.2 Logging In to the NetEco 1000S Client**.
- The current user is system administrator.

Context

After you log in to the NetEco 1000S, access devices, or create a PV plant, the prompt information is displayed in the lower right corner of the NetEco 1000S client.

You can enable or disable the prompt information as required.

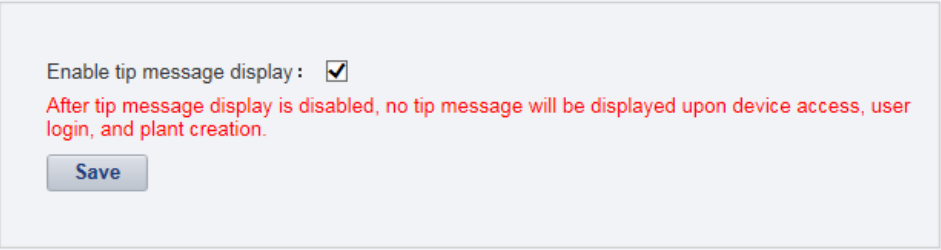
Procedure

Step 1 Choose **System** > **System Settings** from the main menu.

Step 2 Choose **Tip Message Settings**.

The **Tip Message Settings** page is displayed, as shown in **Figure 5-69**.

Figure 5-69 Tip Message Settings



Step 3 Set whether to enable the prompt information.

- Enable the prompt information: select **Enable tip message display**.
- Disable the prompt information: deselect **Enable tip message display**.

Prompt information is enabled on the NetEco 1000S by default.

Step 4 Click **Save**.

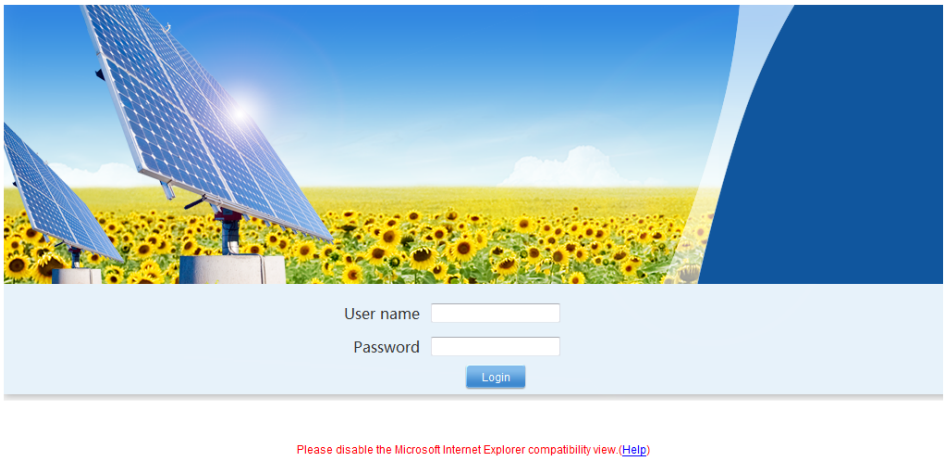
----End

5.2.8 FAQs

5.2.8.1 What Do I Do When the Internet Explorer Browser Displays a Message Asking Me to Close the Compatibility View on to the Login Page?

Symptom

Figure 5-70 Message indicating that the compatibility view needs to be closed



Possible Causes

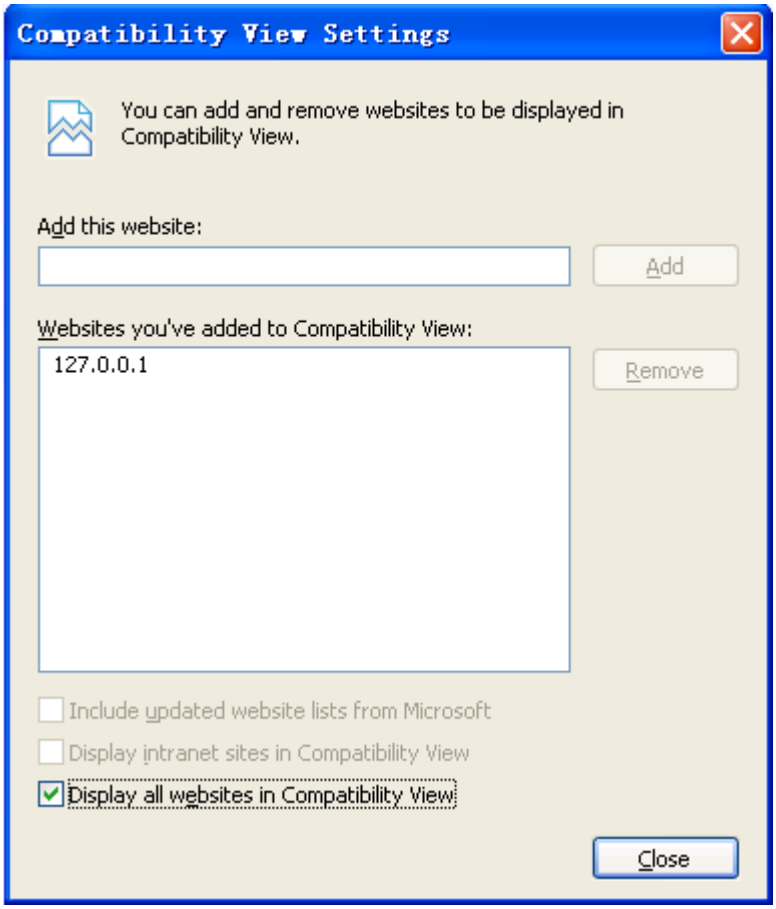
You have enabled the compatibility view of the Internet Explorer browser.

Procedure

Step 1 Choose **Tools** > **Compatibility View Settings** on the Internet Explorer menu bar.

Step 2 Clear the check box for **Display all websites in Compatibility View**.

Figure 5-71 Compatibility View Settings



----End

5.2.8.2 What Do I Do When Characters in a CSV File Are Displayed in Disorder?

Symptom

When users open a CSV file exported from the NetEco 1000S, the characters in the file are displayed in disorder.

Possible Causes

When data in a list is exported to a CSV file, the default separator used by the operating system is not comma (,).

Procedure

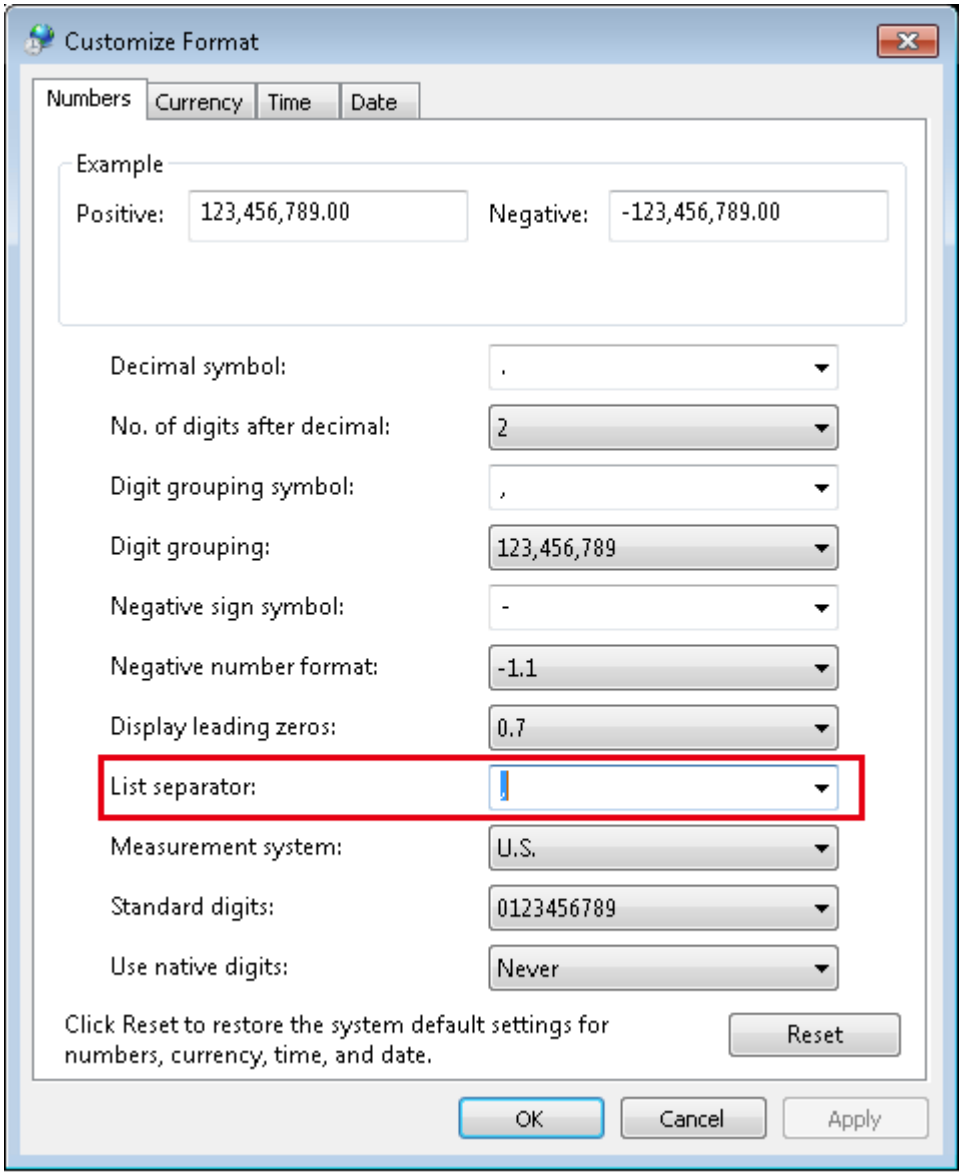
Step 1 Choose **Start** > **Control Panel**.

Step 2 In the displayed **Control Panel** window, click **Region and Language**.

Step 3 In the displayed **Region and Language** window, click the **Formats** tab.

Step 4 Click **Additional settings**.

Step 5 In the displayed dialog box, set **List separator** to comma (,) on the **Numbers** tab page.



Step 6 Click **OK**.

----End

5.2.8.3 What Do I Do When the NetEco 1000S Service Icon Is Not Displayed?

Symptom

On a PC running the Windows operating system, the NetEco 1000S service icon is not displayed on the right of the taskbar when the NetEco 1000S service is running.

Possible Causes

An exception occurs in the resource manager of the operating system.

This problem does not affect the functions of the NetEco 1000S. You can ignore it.

Procedure

To restart the NetEco 1000S service, perform the following steps:

Step 1 Log off the Windows operating system.

Step 2 Log in to the Windows operating system again and then start the NetEco 1000S services.

----End

5.2.8.4 How Do I Solve the Problem that the Login Page Fails to Be Displayed When I Access theNetEco 1000S Using a Web Browser?

Symptom

The login page fails to be displayed when I access NetEco 1000S using a web browser.

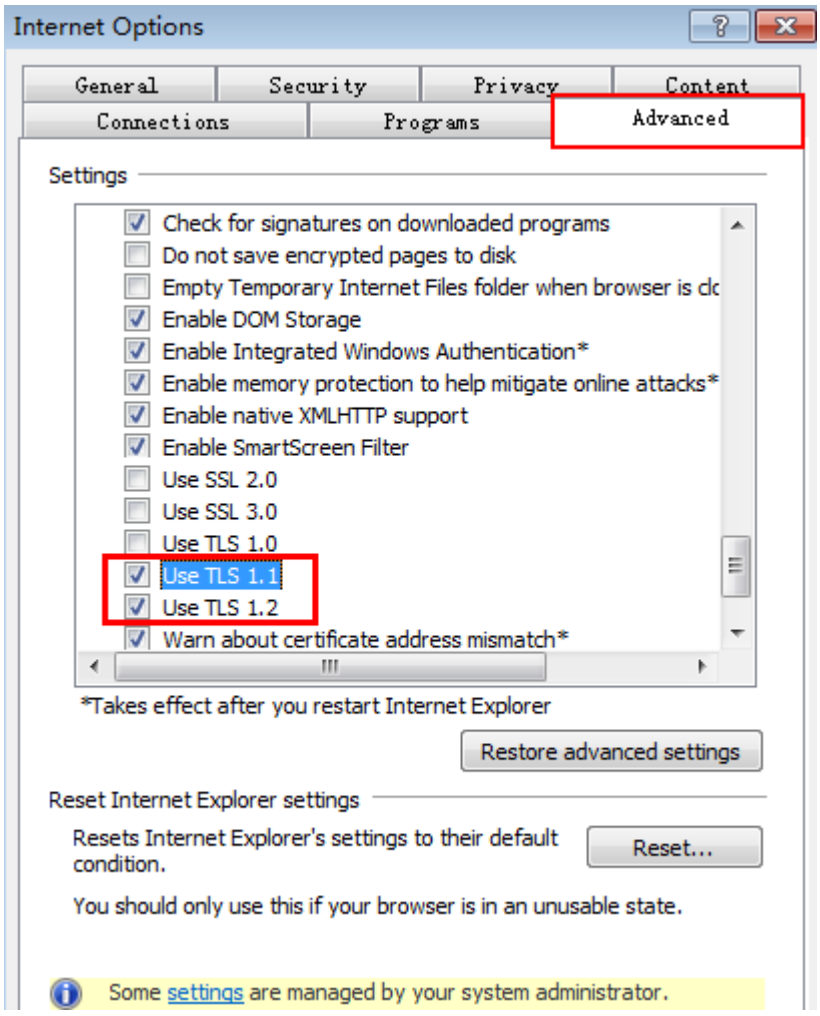
Possible Causes

- Connection mode setting on the browser is not correct.
- The network is connected improperly.
- The PC where the NetEco 1000S is installed is powered off.
- The NetEco 1000S service has not been started on the PC.

Procedure

Step 1 Set the connection mode:

Choose **Tools** > **Internet Options** on the menu bar of the browser. On the **Advanced** tab page, select **Use TLS 1.2** and **Use TLS 1.1** under **Settings**, do not select **Use TLS 1.0**, **Use SSL 2.0** or **Use SSL 3.0**. Click **OK**.



Step 2 Choose **Start** > **Search programs and files** in the operating system. In the displayed dialog box, enter **cmd** and press **Enter**. The command-line interface (CLI) is displayed.

Step 3 Run the following command to check whether the network between the PC on which users can log in to the NetEco 1000S and the PC where the NetEco 1000S is installed is connected properly:

ping *IP address*

NOTE

Replace *IP address* with the IP address of the PC on which the NetEco 1000S is installed.

- If the IP address cannot be pinged, go to **Step 4**.
- If the IP address can be pinged, go to **Step 6**.

Step 4 Check whether the PC on which the NetEco 1000S is installed is started.

- If the PC is started, go to **Step 5**.
- If the PC is not started, perform the following operations:

  a. Start the PC on which the NetEco 1000S is installed.

  b. Choose **Start** > **All Program** > **NetEco 1000S** > **NetEco 1000S Service** in the operating system to start the NetEco 1000Sservice.

Step 5 Check whether the network cable of the PC where the NetEco 1000S is installed is loosened or disconnected.

In normal cases, the indicator of the network port where the network cable is inserted is green. The indicator blinks when data is transmitted.

- If the network cable is loosened or disconnected, connect it again.
- If the network cable is connected properly but the IP address of the NetEco 1000S server still cannot be pinged, check whether network connection problems occur on the user side.

Step 6 Check whether the NetEco 1000S service has been started on the PC.

- If the NetEco 1000S service is not started, choose **Start** > **All Program** > **NetEco 1000S** > **NetEco 1000S Service** in the operating system to start the NetEco 1000S service.
- If the NetEco 1000S service has been started but logging in to the NetEco 1000S using the web browser fails, contact Huawei technical support.

----End

5.2.8.5 How Do I Solve the Problem that the Serial Port for the SMS Modem to Connect to a PC Is Always Occupied After the SMS Is Enabled?

Question

How do I solve the problem that the serial port for the SMS modem to connect to a PC is always occupied after the SMS is enabled?

NOTE

After the serial cable between the SMS modem and the PC is disconnected or removed, the serial port is still occupied.

The product feature you have purchased may use personal information of users when providing services or maintenance. Therefore, you are obligated to take measures, in compliance with the laws of the countries concerned and the user privacy policies of your company, to ensure that the personal data of users is fully protected.

Personal data such as phone numbers and email addresses are masked in the NetEco GUI and encrypted in the NetEco during batch data transmission to ensure data security.

Answer

Perform the following steps to restart the NetEco 1000S service:

Step 1 Right-click the NetEco 1000S service icon in the lower right corner of the taskbar of the desktop and choose **Exit** to stop the NetEco 1000S service from the shortcut menu.

Step 2 Choose **Start** > **All Program** > **NetEco 1000S** > **NetEco 1000S Service** to start the NetEco 1000S service in the operating system.

----End

5.2.8.6 How Do I Remove the NetEco 1000S Software?

Question

How do I remove the NetEco 1000S software?

Answer

Step 1 Right-click NetEco 1000S in the lower right corner of the desktop and choose **Exit** from the shortcut menu.

NOTE

If the NetEco 1000S service is not started, skip this step.

Step 2 Choose **Start** > **All Program** > **NetEco 1000S** > **Uninstall NetEco 1000S** in the operating system to start the uninstallation program.

The **Select Software Components** window is displayed.

Step 3 Select the **NetEco 1000S** component, and click **Next**.

Step 4 Click **Yes**.

The NetEco 1000S uninstallation progress is displayed in the window.

Step 5 Click **Finish** when the uninstallation is complete.

The **Conformation** dialog box is displayed.

Step 6 Determine whether to restart the operating system.

- If you click **Yes**, the operating system is restarted, and the NetEco 1000S installation directory is deleted automatically.
- If you click **No**, the operating system will not be restarted, and you need to manually delete the NetEco 1000S installation directory.

----End

5.2.8.7 Verifying OpenPGP Signature

This section describes how to verify the integrity of an obtained software package, thereby preventing network risks that may be caused by malicious alteration or damage during the transmission of the software package. A software package can be installed only after it passes the verification.

Prerequisites

You have obtained the signature file for the NetEco 1000S software package. The NetEco 1000S software package and its signature file are in a one-to-one relationship, and are stored in the same directory.

Context

- The GNU Privacy Guard for Windows (Gpg4Win) is a free open-source GNU tool. It can be used to verify OpenPGP signatures in the Windows operating system.
- You can download the Gpg4Win software package used with the Windows operating system from http://www.gpg4win.org/, and then double-click **gpg4win-2.2.1.exe** to install the Gpg4Win tool by following the wizard. You are advised to retain all the default settings during the installation.

Procedure

Step 1 Download the public key file.

Download the **OpenPGP Signature Verification Guide** package from **http://support.huawei.com/carrier/digitalSignatureAction**, and then decompress the package to obtain the public key file **KEYS**.

Step 2 Import the public key file.

1. Log in to the server on which the software package to be verified is stored, and enter the command-line interface (CLI).
2. Go to the directory (for example, **C:\Users**) for storing the **KEYS** file, and then import the **KEYS** file.

   gpg --import "C:\Users\KEYS"

   C:\Users\KEYS indicates the directory for storing the **KEYS** file. You need to rename the directory based on site conditions.

   The following information is displayed:

   ```
   gpg: key 27A74824: public key "OpenPGP signature key for Huawei software
   (created on 30th Dec,2013) <support@huawei.com>" imported
   gpg: Total number processed: 1
   gpg: imported: 1 (RSA: 1)
   ```

3. Check whether the public key file is successfully imported.

   gpg --fingerprint

   If the following information is displayed, the public key file is successfully imported:

   ```
   pub 2048R/27A74824 2013-12-30 Key fingerprint = B100 0AC3 8C41 525A 19BD C087
   99AD 81DF 27A7 4824 uid OpenPGP signature key for Huawei software (created on
   30th Dec,2013) support@huawei.com
   ```

Step 3 Verify the public key.

In normal cases, the validity of the OpenPGP public key needs to be verified according to the ID, fingerprint, and user ID (uid) of the public key published by the involved entity. Huawei publishes the following information about the OpenPGP public key:

- Key ID: 27A74824
- Key fingerprint: B100 0AC3 8C41 525A 19BD C087 99AD 81DF 27A7 4824
- User ID (uid): OpenPGP signature key for Huawei software (created on 30th Dec,2013) support@huawei.com

After the validity of the public key is verified, you can do as follows to set the trust level of the public key:

1. Set the trust level of the public key.

   gpg --edit-key "OpenPGP signature key for Huawei" trust

   When the system displays **Your decision?**, type **5**. When the system displays **Do you really want to set this key to ultimate trust? (y/N)**, type **y**.

   ```
   1 = I don't know or won't say
   2 = I do NOT trust
   3 = I trust marginally
   4 = I trust fully
   5 = I trust ultimately
   m = back to the main menu
   Your decision? 5
   Do you really want to set this key to ultimate trust? (y/N) y
   ```

2. Run the following command to exit:

   quit

Step 4 Verify the signature.

gpg --verify "*C:\Users\NetEco1000SV100R002C20SPCXXX_win7_standard.zip.asc*

NOTE

- *C:\Users* indicates the path of the signature file. You need to change it based on site conditions.
- **iManagerNetEco1000S_V100R002C20*SPCXXX*_win7_standard.zip.asc** indicates the name of the signature file. You need to rename the file based on site conditions.
- Contact the Huawei technical support engineers and obtain the signature files **iManagerNetEco1000S_V100R002C20*SPCXXX*_win7_standard.zip.asc**and the**iManagerNetEco1000S_V100R002C20*SPCXXX*_win2012_enterprise.zip.asc** from the path **SUPPORT** > **Software** > **Energy** > **PV Inverter** > **Smart PV Plant System** > **iManager NetEco 1000S** > **V100R002C20** on the **http://support.huawei.com/carrier/** website.

  NOTE

  - If the Windows Server 2012 OS is used, obtain the **iManagerNetEco1000S_V100R002C20*SPCXXX*_win2012_enterprise.zip** installation package and **iManagerNetEco1000S_V100R002C20*SPCXXX*_win2012_enterprise.zip.asc** digital signature file.
  - If the Windows 7 OS is used, obtain the **iManagerNetEco1000S_V100R002C20*SPCXXX*_win7_standard.zip** installation package and **iManagerNetEco1000S_V100R002C20*SPCXXX*_win7_standard.zip.asc** digital signature file.

The following information is displayed, where the RSA key ID in bold is the same as the public key ID (if no error message, such as **WARNING**, **The signature has expired**, and **The public key has been revoked** is displayed for any other information, the signature is valid):

```
gpg: Signature made Thu Jan 9 15:29:06 2014 CST using RSA key ID 27A74824
gpg: Good signature from "OpenPGP signature key for Huawei software (created on
30th Dec,2013) <support@huawei.com>"
```

NOTE

When signatures of multiple files need to be verified for a software package, the software package is safe only when the verification results of all the files are PASS. If the verification result of any file is WARNING or FAIL, the software package fails the verification, and security risks exist. If this occurs, you need to re-download the software package.

Table 5-32 Examples of signature verification results

Verification Result Scenario	Output Information Example	Verification Result
The signature verification is successful without any exceptions.	gpg: Signature made Thu Jan 9 15:29:06 2014 CST using RSA key ID 27A74824 gpg: Good signature from "OpenPGP signature key for Huawei software (created on 30th Dec,2013) <support@huawei.com>	PASS
The signature verification fails.	gpg: Signature made Thu Jan 9 15:29:06 2014 CST using RSA key ID 27A74824 gpg: BAD signature from "OpenPGP signature key for Huawei software (created on 30th Dec,2013) <support@huawei.com>"	FAIL

Verification Result Scenario	Output Information Example	Verification Result
The public key cannot be found.	gpg: Signature made Thu Jan 9 15:20:01 2014 CST using RSA key ID 27A74824 gpg: Cannot check signature: public key not found	FAIL
The signature verification is successful but the public key is not set to ultimate trust.	gpg: Signature made Thu Jan 9 15:29:06 2014 CST using RSA key ID 27A74824 gpg: Good signature from "OpenPGP signature key for Huawei software (created on 30th Dec,2013) <support@huawei.com>" gpg: WARNING: This key is not certified with a trusted signature! gpg: There is no indication that the signature belongs to the owner. Primary key fingerprint: B100 0AC3 8C41 525A 19BD C087 99AD 81DF 27A7 4824	WARNING
The corresponding source file cannot be found.	gpg: no signed data gpg: cannot hash datafile: No data	FAIL
The signature has expired.	gpg: Signature made 04/24/13 10:50:29 CST using RSA key ID 133B64E5 gpg: Expired signature from " OpenPGP signature test key <support@huawei.com>" gpg: Signature expired 04/25/13 10:50:29 CST	FAIL
The signature verification is successful but the public key has been revoked.	gpg: Signature made 06/13/13 11:14:49 CST using RSA key ID 133B64E5 gpg: Good signature from " OpenPGP signature test key <support@huawei.com>" gpg: WARNING: This key has been revoked by its owner! gpg: This could mean that the signature is forged. gpg: reason for revocation: Key is no longer used gpg: revocation comment:	WARNING
The corresponding signature file cannot be found for the source file.	None	WARNING

----End

5.2.8.8 How Do I Update the NetEco 1000S Software?

Question

How do I update the NetEco 1000S software?

Answer

Step 1 Contact Huawei technical support engineers to obtain the software package. To obtain the software package, Huawei technical support engineers can choose **SUPPORT** > **Software** > **Energy** > **PV Inverter** > **Smart PV Plant System** > **iManager NetEco 1000S** > **V100R002C20** at **http://support.huawei.com/carrier/**.

NOTE

- If the Windows Server 2012 OS is used, obtain the **iManagerNetEco1000S_V100R002C20*SPCXXX*_win2012_enterprise.zip** installation package and **iManagerNetEco1000S_V100R002C20*SPCXXX*_win2012_enterprise.zip.asc** digital signature file.
- If the Windows 7 OS is used, obtain the **iManagerNetEco1000S_V100R002C20*SPCXXX*_win7_standard.zip** installation package and **iManagerNetEco1000S_V100R002C20*SPCXXX*_win7_standard.zip.asc** digital signature file.

You can check the integrity of the software package by referring to **5.2.8.7 Verifying OpenPGP Signature**.

NOTE

Software package integrity check is related to the software security. You must perform the check to ensure the software security.

Step 2 Stop the service, process and close the installation directory of the NetEco 1000S.

NOTE

If the service and process of the NetEco 1000S are not started, NetEco 1000S installation directory is not opened, skip this step.

Step 3 For details about how to install the NetEco 1000S software, see **User_Manual** > **Installation and Commissioning** > **NetEco 1000S Installation** > **Installing the NetEco 1000S Software**.

NOTE

- The NetEco 1000S installation directory cannot be changed.
- Historical data is inherited after the update.

----End

5.2.8.9 What Do I Do If a Certificate Error Message or a Security Alarm Is Displayed on Internet Explorer?

Symptom

When log in to NetEco 1000S using Internet Explorer or Chrome, Internet Explorer or Chrome displays a certificate error message similar to that shown in **Figure 5-72** or **Figure 5-73**.

Figure 5-72 Certificate error message

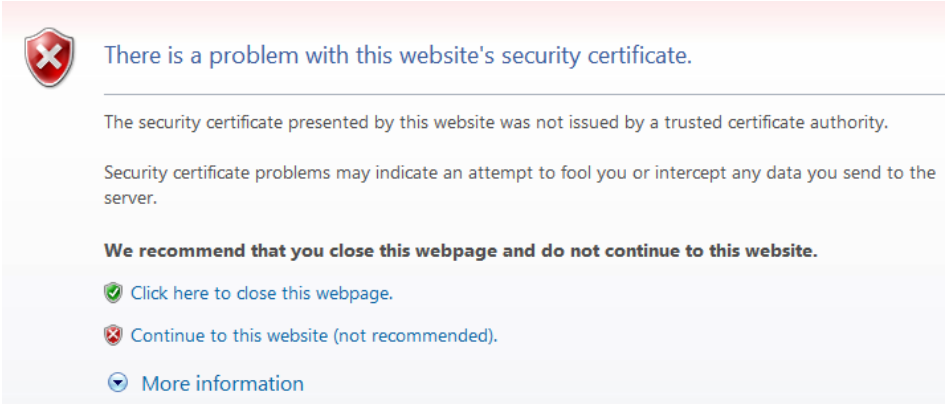
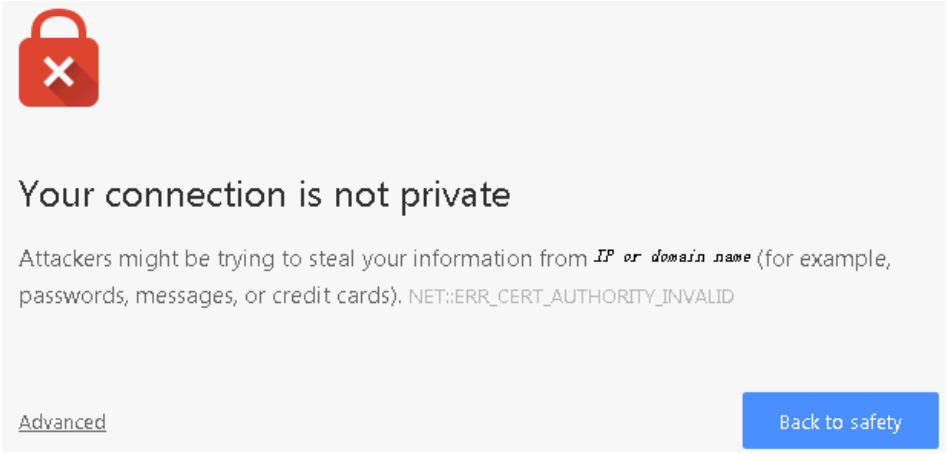


Figure 5-73 Website Security Certificate window (Chrome 50)



Possible Causes

Trusted certificate has not been loaded in the browser.

Procedure

Step 1 Log in to a PC as a user in the Administrators user group.

After the certificate is replaced on Internet Explorer, the certificate is also replaced on Chrome. This section mainly describes how to replace the certificate on Internet Explorer.

NOTE

If you install only Chrome, choose **Manage Certificate** > **Trusted Root Certification Authorities** > **Import** in the setting window of the Chrome browser and import the certificate as prompted.

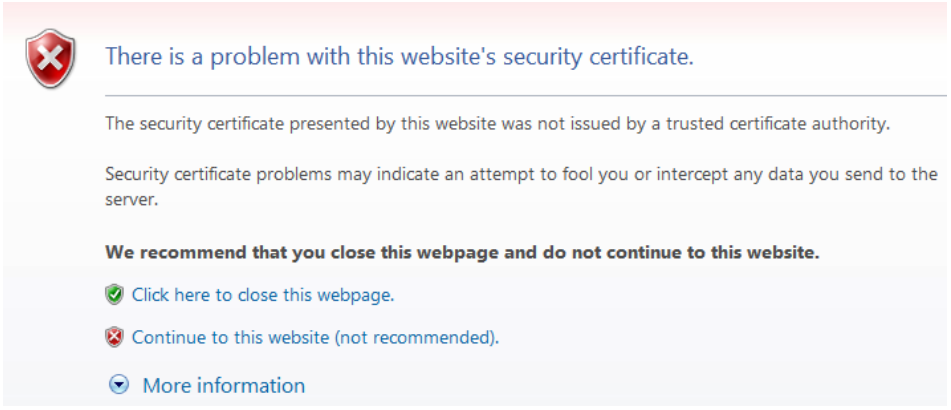
If you start Internet Explorer 11 in the Windows 7 operating system, you need to log in a PC as a user in the Administrators user group and then start Internet Explorer as user Administrator. Otherwise, you cannot properly set Internet Explorer:

1. Choose **Start** > **Internet Explorer**.
2. In the displayed shortcut menu, choose **Run as Administrator**.

Step 2 View the certificate.

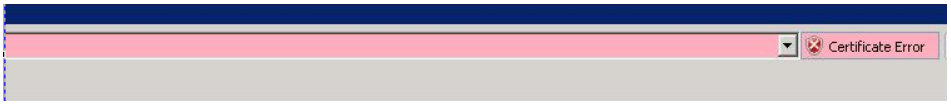
1. When the Internet Explorer displays the security certificate message as shown in **Figure 5-74**, click **Continue to this website**.

Figure 5-74 Security certificate



2. As shown in **Figure 5-75**, click **Certificate Error**.

Figure 5-75 Certificate Error



3. In the displayed dialog box, click **View Certificate**.

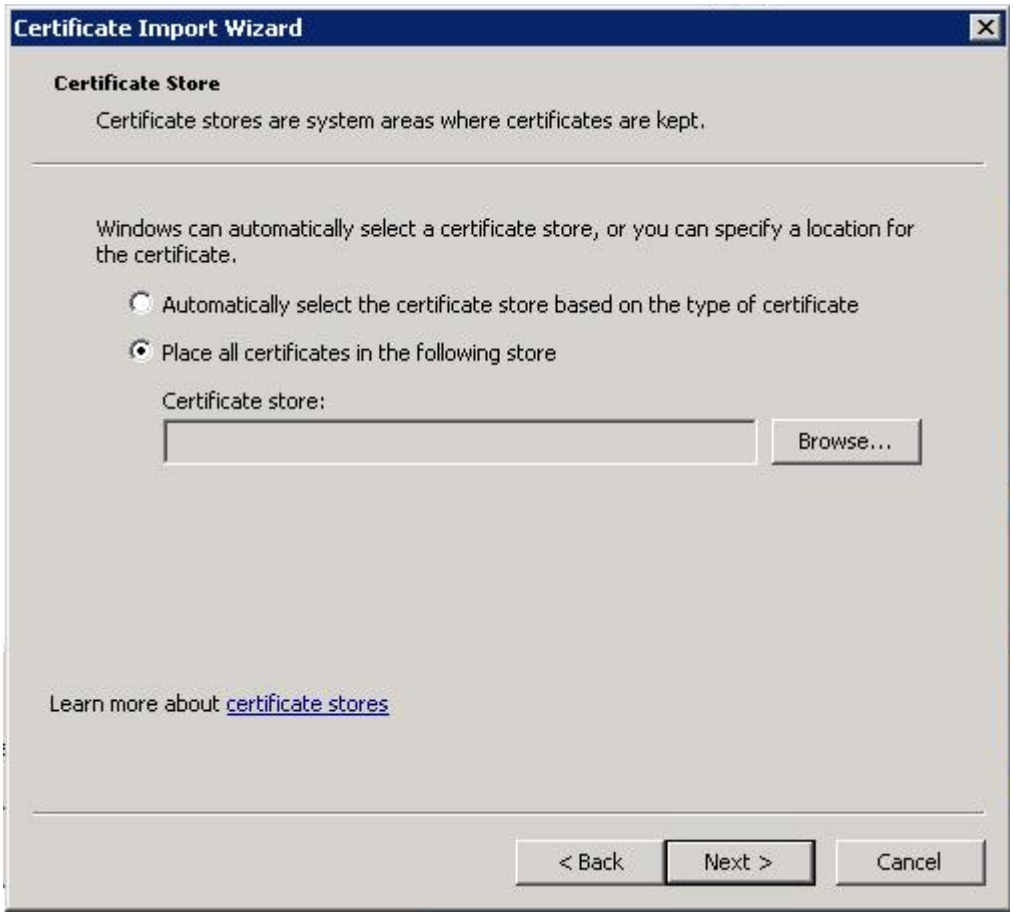
Step 3 In the displayed root certificate dialog box as shown in **Figure 5-76**, click **Install Certificate**.

Figure 5-76 Installing the root certificate

Step 4 In the displayed **Certificate Import Wizard dialog** box, click **Next**.

Step 5 Set the certificate store to **Trusted Root Certification Authorities**, as shown in **Figure 5-77**.

Figure 5-77 Setting the certificate store



Step 6 Click **Next**.

Step 7 After confirming the certificate import information, click **Finish**.

Step 8 If the system displays the **Security Warning** dialog box asking you whether to install the certificate, click **Yes**. Otherwise, skip this step.

Step 9 In the displayed dialog box indicating the import is successful, click **OK**.

Step 10 Click **OK** to close the **Certificate** dialog box.

Step 11 In the window of Internet Explorer, choose **Tools** > **Internet Options**.

Step 12 In the displayed **Internet Options** dialog box, click Advanced.

Step 13 In the **Settings** group box, clear **Warn about certificate address** mismatch under **Security**.

Step 14 Click **OK** to close the **Internet Options** dialog box.

Step 15 Restart the web browser and log in to NetEco 1000S again.

----End

5.2.8.10 How Do I Manage the NetEco 1000S Through the Local IP Address (127.0.0.1) If I Fail to Log In to the NetEco 1000S Client After Setting the Client IP Address Policy?

Question

When the IP address you have set is not within the IP address range of the existing network, you will fail to log in to the NetEco 1000S client through the existing network.

Answer

For this problem, the NetEco 1000S allows you to type **https://127.0.0.1:8443** in the address box of the browser only on the local PC where the NetEco 1000S software is installed to log in to the NetEco 1000S client and set a proper IP policy for the NetEco 1000S.

5.2.8.11 What Do I Do If the Software Cannot Be Properly Used After I Share the Software Installation Directory?

Question

After you share the NetEco 1000S software installation directory with other users, you cannot log in to the NetEco 1000S or you can log in to the NetEco 1000S but the performance file cannot be exported.

NOTICE

You are not allowed to share the NetEco 1000S installation directory with other system accounts or grant the NetEco 1000S permission to other system accounts. Otherwise, security risks may occur.

Answer

When you share the NetEco 1000S software installation directory with other users, the NetEco 1000S software deletes user **NETWORK SERVICE** that is automatically generated during software installation and is used for accessing the NetEco 1000S software installation directory to ensure security, causing the preceding problem. You can perform the following operations to solve the problem.

Step 1 Cancel the sharing of the NetEco 1000S software installation directory.

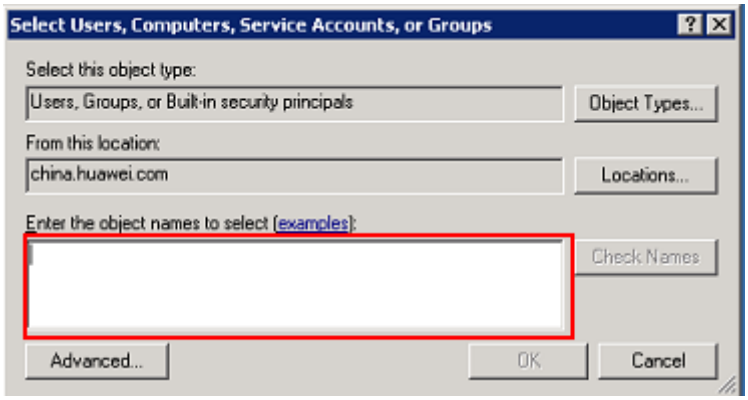
1. Right-click the NetEco 1000S software installation directory and choose **Properties** from the shortcut menu. The **Properties** dialog box is displayed.
2. Choose **Sharing** > **Advanced Sharing**. The **Advanced Sharing** dialog box is displayed.
3. Deselect **Share this folder** and click **OK**.

Step 2 Add user **NETWORK SERVICE**.

1. Right-click the NetEco 1000S software installation directory and choose **Properties** from the shortcut menu. The **Properties** dialog box is displayed.
2. In the **Properties** dialog box, choose **Security** > **Edit**.

3. In the displayed dialog box, click **Add**. The dialog box shown in **Figure 5-78** is displayed.

Figure 5-78 Adding a user



4. Enter **NETWORK SERVICE** in **Figure 5-78** marked in red and click **OK**. The **Properties** dialog box is displayed again. Select **FULL control** and **modify** and click **OK**.

NOTICE

After you click **OK**, the system might display a security warning dialog box. Click **Continue**.

Step 3 Restart the NetEco 1000S.

----End

5.2.8.12 What Do I Do When Devices Fail to Be Detected?

Symptom

Devices fail to be detected based on serial port addresses.

Possible Causes

- The baud rate set on the NetEco 1000S is inconsistent with that of the device.
- The serial port addresses configured for the device are duplicate.
- The address of RS-485 serial port for the device is out of the default search range (1 to 20) of the NetEco 1000S.

Procedure

Step 1 Check whether the baud rate setting on the device is consistent with that on the NetEco 1000S.

1. Obtain information about the baud rate set for the device by referring to *User Manual on the monitored device side*.

2. Obtain information about the baud rate set on the NetEco 1000S by referring to **Setting Communication Parameters**.
3. Check whether the baud rate set for the device is the same as that set on the NetEco 1000S.
   - If the two baud rates are the same, go to **Step 2**.
   - If the two baud rates are different, change the baud rate on either the device or the NetEco 1000S.

Step 2 Check whether the value of **RS485 Com Address** for the device is duplicate by referring to *User Manual on the monitored device side*.

- If the value of **RS485 Com Address** is unique, go to **Step 3**.
- If the value of **RS485 Com Address** is duplicate, change the parameter value by referring to *User Manual on the monitored device side*.

Step 3 Check whether the value of **RS485 Com Address** for the device is within the default search range (1 to 20) of the NetEco 1000S.

If value is out of the default search range, change the address search range on the NetEco 1000S, or change the value of **RS485 Com Address** by referring to *User Manual on the monitored device side*.

----End

5.2.8.13 How Do I Change the Password of the ftpuser user?

After the SmartLogger connects to the NetEco 1000S, log in to the FTPS server of the NetEco 1000S as user **ftpuser** and upload performance data. You are advised to change the password periodically to ensure system security.

Prerequisites

- You have obtained the password for **ftpuser**.

  Please see **Installation and Commissioning** > **Planning Operating System Users and Their Initial Passwords** for details about the password of **ftpuser**.
- You have started the NetEco services. For details about how to start the services, see **5.2.1.1.1 Starting NetEco Services**.
- The Smart Logger supports FTPS.

NOTE

You are advised to change the password after you install the NetEco 1000S for the first time, and change the password every three months.

Procedure

Step 1 Run the script **NetEco software installation\tools\ConfigTools.bat**. When the following information is displayed, type **1** and press **Enter**.

```
1) Change FTPServer password
2) Change database password
3) Change Modbus SSL config
4) Change FTPS SSL config
5) Change external IP of the NetEco
6) Change local IP of the NetEco
7) Exit

Please choose 1-7:
```

Step 2 When the following information is displayed, type **ftpuser**, and press **Enter**.

```
Please input FTPserver username:
```

Step 3 When the following information is displayed, type current password and press **Enter**.

```
Please input the old password:
```

Step 4 When the following information is displayed, type new password and press **Enter**.

```
Please input new FTPserver password:
```

NOTE

- The password cannot be the same as the user name or the user name in a reversed order.
- The password contains 8 to 32 characters.
- The password contains three of the following types of characters:
  - At least one lowercase letter
  - At least one uppercase letter
  - At least one digit
- The password proposal contain a special characters, special characters contains !"#$%&'()*+,-./:;<=>?@[\]^`{_|}~ and space.

Step 5 When the following information is displayed, type new password again and press **Enter**.

```
Please confirm new FTPserver password:
```

Step 6 When the following information is displayed, the password is changed successfully.

```
FTPServer password changed.
Change succeeded.
```

NOTE

Password take effect after the next restart NetEco 1000S.

----End

5.2.8.14 How Do I Modify the Data or File Transmission Protocol?

This section describes how to modify the data or file transmission protocol. Data is transmitted using the Modbus protocol and files are transmitted using the FTPS between the NetEco 1000S and SmartLogger. Data and files are transmitted using the Modbus protocol between the NetEco 1000S and inverters directly connected to the FE.

Context

The data or file transmission protocol needs to be modified, that is, modifying the TLS protocol of the Modbus or FTP.

To be compatible with devices of earlier versions, the NetEco 1000S supports the TLSv1.0, TLSv1.1, and TLSv1.2 at the same time by default. TLSv1.0 has security risks. To ensure connection security, you are advised to use TLSv1.1 or TLSv1.2.

NOTICE

If the SmartLogger or inverters directly connected to the FE does not support TLSv1.1/1.2, the SmartLogger or inverters directly connected to the FE may be disconnected after you change the protocol to TLSv1.1 or TLSv1.2. You are advised to replace the SmartLogger or inverters directly connected to the FE with the one supporting TLSv1.1/1.2 or upgrade the SmartLogger or inverters directly connected to the FE to the version supporting TLSv1.1/1.2.

Procedure

Step 1 Logging Out of the NetEco 1000S services, for detailed operations, see **5.2.1.2.2 Logging Out of the NetEco 1000S Services**.

Step 2 Run the script ***NetEco software installation*\tools\ConfigTools.bat**. The following information is displayed:

```
1) Change FTPServer password
2) Change database password
3) Change Modbus SSL config
4) Change FTPS SSL config
5) Change external IP of the NetEco
6) Change local IP of the NetEco
7) Exit

Please choose 1-7:
```

Step 3 Modify the transmission protocol.

- **Modify the data transmission protocol.**

  a. Type **3** and press **Enter**. The following information is displayed:

  ```
  The old config is : TLSv1,TLSv1.1,TLSv1.2
  1) TLSv1,TLSv1.1,TLSv1.2
  2) TLSv1.1,TLSv1.2
  3) TLSv1.2
  4) Cancel

  Please choose 1-4:
  ```

  b. Set the data transmission mode as required.

  - **Supporting TLS1.0, TLS1.1, and TLS1.2**: Type **1** and press **Enter**.

    NOTICE

    TLSv1.0 has security risks. To ensure connection security, you are advised to use TLSv1.1 or TLSv1.2.

    When the following information is displayed, the protocol type is changed successfully:

    ```
    Modbus SSL changed to TLSv1, TLSv1.1, TLSv1.2
    Change succeeded.
    ```

  - **Supporting TLS1.1 and TLS1.2**: Type **2** and press **Enter**.

    When the following information is displayed, the protocol type is changed successfully:

    ```
    Modbus SSL changed to TLSv1.1, TLSv1.2
    Change succeeded.
    ```

- **Supporting Only TLS1.2**: Type **3** and press **Enter**.

  When the following information is displayed, the protocol type is changed successfully:

  ```
  Modbus SSL changed to TLSv1.2
  Change succeeded.
  ```

- **Modify the file transmission protocol.**

  a. Type **4** and press **Enter**. The following information is displayed:

  ```
  The old config is : TLSv1,TLSv1.1,TLSv1.2
  1) TLSv1,TLSv1.1,TLSv1.2
  2) TLSv1.1,TLSv1.2
  3) TLSv1.2
  4) Cancel

  Please choose 1-4:
  ```

  b. Set the file transfer mode as required.

  - **Supporting TLS1.0, TLS1.1, and TLS1.2**: Type **1** and press **Enter**.

    NOTICE

    TLSv1.0 has security risks. To ensure connection security, you are advised to use TLSv1.1 or TLSv1.2.

    When the following information is displayed, the protocol type is changed successfully:

    ```
    FTPS SSL config changed to TLSv1, TLSv1.1, TLSv1.2
    Change succeeded.
    ```

  - **Supporting TLS1.1 and TLS1.2**: Type **2** and press **Enter**.

    When the following information is displayed, the protocol type is changed successfully:

    ```
    FTPS SSL config changed to TLSv1.1, TLSv1.2
    Change succeeded.
    ```

  - **Supporting Only TLS1.2**: Type **3** and press **Enter**.

    When the following information is displayed, the protocol type is changed successfully:

    ```
    FTPS SSL config changed to TLSv1.2
    Change succeeded.
    ```

Step 4 Restart the NetEco 1000S for the settings to take effect.

----End

5.2.8.15 How Do I Ensure that Performance Data Can Be Properly Reported When the NetEco 1000S and SmartLogger Are Deployed On Different Network Segments?

If the NetEco 1000S and SmartLogger are deployed on different network segments, you need to set the external IP address of the NetEco 1000S using the configuration file so that performance data can be properly reported between the NetEco 1000S and SmartLogger.

Procedure

Step 1 Logging Out of the NetEco 1000S services, for detailed operations, see **5.2.1.2.2 Logging Out of the NetEco 1000S Services**.

Step 2 Run the script ***NetEco software installation*\tools\ConfigTools.bat**. When the following information is displayed, type **5** and press **Enter**.

```
1) Change FTPServer password
2) Change database password
3) Change Modbus SSL config
4) Change FTPS SSL config
5) Change external IP of the NetEco
6) Change local IP of the NetEco
7) Exit

Please choose 1-7:
```

Step 3 When the following information is displayed, type the external IP address of the NetEco and press **Enter**.

```
Please input external IP of the NetEco:
```

Step 4 When the following information is displayed, the external IP address of the NetEco is changed successfully.

```
External IP of the NetEco is changed to xxx.xx.xx.xx
Change succeeded.
```

Step 5 Type **7** and press **Enter** to exit.

Step 6 Restart the NetEco 1000S for the settings to take effect.

----End

5.2.8.16 How Do I Replace the Key File of the NetEco 1000S?

To ensure the security and reliability of the NetEco 1000S key, the system administrator needs to periodically replace the NetEco 1000S key to improve the security of the NetEco 1000S.

Prerequisites

- You have started the NetEco 1000S services. For details about how to start the services, see **5.2.1.1.1 Starting NetEco Services**.
- You have logged in to the NetEco 1000S client.

Context

You are advised to replace the Key file every 3 months to improve the security of the NetEco 1000S.

Procedure

Step 1 Stop the NetEco 1000S services. For detailed operations, see **5.2.1.2.2 Logging Out of the NetEco 1000S Services**.

Step 2 Run the script **NetEco software installation directory\tools\KeysTools.bat**.

The following information is displayed:

```
please input database username:
```

Step 3 Type **dbuser** and press **Enter**.

The following information is displayed:

```
please input database password:
```

Step 4 Type the password of **dbuser** user and press **Enter**.

The following information is displayed:

```
Do you want to start replacing the key?Y: start. N: cancel.
```

Step 5 Type **Y** and press **Enter**.

When the following information is displayed, the key is successfully replaced:

```
Starting database ...
database started

Change succedded
```

NOTICE

The command window is automatically closed after the key is replaced. You cannot manually close the command window during the key replacement. Otherwise, data interruption will occur.

If any statement indicating the replacement failure is displayed, perform the operations as prompted or contact Huawei technical support.

Step 6 After the replacement is complete, restart the NetEco 1000S services.

----End

5.2.8.17 How Do I Change the Password of the plantcontroller user?

User **plantcontroller** is used for plant controller devices to transfer files to the NetEco. You are advised to change the password periodically to ensure system security.

Prerequisites

- You have obtained the password of **plantcontroller** user.

  Please see **User_Manual** > **Installation and Commissioning** > **Planning Operating System Users and Their Initial Passwords** for details about the password of **plantcontroller** user.
- You have started the NetEco 1000S services. For details about how to start the services, see **5.2.1.1.1 Starting NetEco Services**.

NOTE

You are advised to change the password after you install the NetEco 1000S for the first time, and change the password every three months.

Procedure

Step 1 Run the script **NetEco software installation\tools\ConfigTools.bat**. When the following information is displayed, type **1** and press **Enter**.

```
1) Change FTPServer password
2) Change database password
3) Change Modbus SSL config
4) Change FTPS SSL config
5) Change external IP of the NetEco
6) Change local IP of the NetEco
7) Exit

Please choose 1-7:
```

Step 2 When the following information is displayed, type **plantcontroller**, and press **Enter**.

```
Please input FTPserver username:
```

Step 3 When the following information is displayed, type current password and press **Enter**.

```
Please input the old password:
```

Step 4 When the following information is displayed, type new password and press **Enter**.

```
Please input new FTPserver password:
```

NOTE

- The password cannot be the same as the user name or the user name in a reversed order.
- The password contains 8 to 32 characters.
- The password contains three of the following types of characters:
  - At least one lowercase letter
  - At least one uppercase letter
  - At least one digit
- The password proposal contain a special characters, special characters contains !"#$%&'()*+,-./:;<=>?@[\]^` {_|}~ and space.

Step 5 When the following information is displayed, type new password again and press **Enter**.

```
Please confirm new FTPserver password:
```

Step 6 When the following information is displayed, the password is changed successfully.

```
FTPServer password changed.
Change succeeded.
```

NOTE

Password take effect after the next restart NetEco 1000S.

----End

5.2.8.18 What Do I Do If the Email Server Fails to Send an Email?

This section describes how to solve the problem that the email server fails to send an email.

Possible Causes

The possible causes of the failure are as follows:

- Incorrect network configuration
- Incorrect IP address or domain name of the email sending server
- Incorrect port number for email sending
- Incorrect user name or password
- Incorrect sender or recipient email address

Procedure

Step 1 Check the network configuration.

1. Choose **Start** > **Control Panel** > **Network and Internet** > **Network and Sharing Center** > **Network Connections** in the operating system.

   NOTE

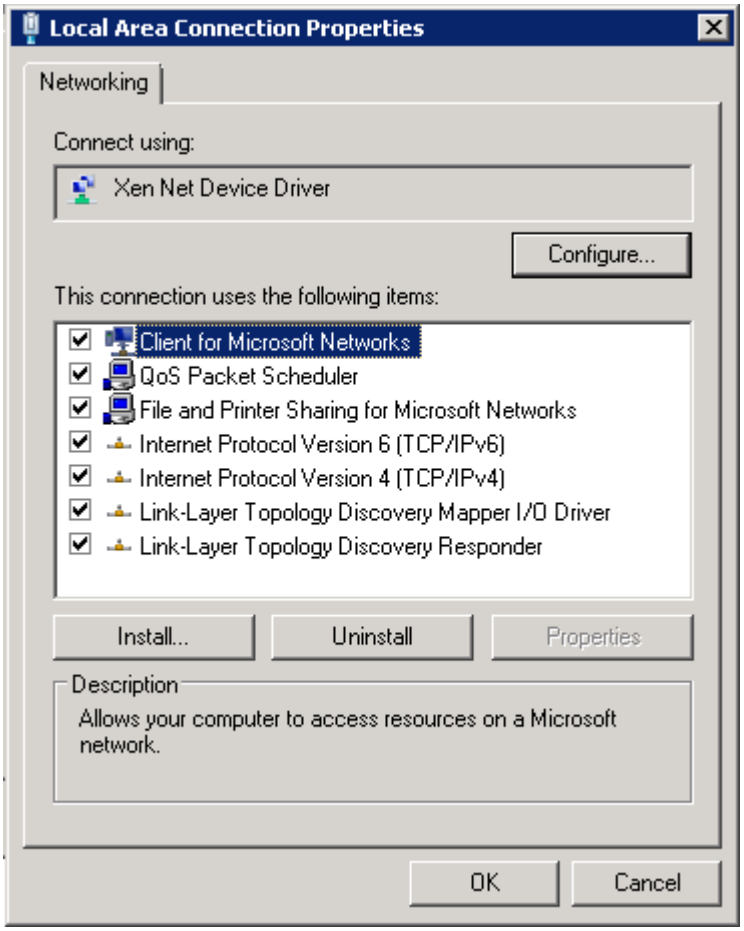
   The navigation path of **Network Connections** on the **Control Panel** may vary depending on the OS version. Choose the corresponding path as required.

   The **Network Connections** dialog box is displayed.

2. Click **Properties**.

   The **Local Area Connection Properties** dialog box is displayed, as shown in **Figure 5-79**.

   Figure 5-79 Local area connection properties



3. Select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**.
4. Select **Obtain an IP address automatically** and **Obtain DNS server address automatically**, and click **OK**.
5. Check whether the problem has been resolved.
   - If the problem has been resolved, no further operation is required.
   - If the problem persists, go to the next step.

Step 2 Check **Email sending server**.

1. Check whether the IP address or domain name configured for **Email sending server** is correct.

   If the configuration is correct, go to the next step. Otherwise, configure the correct IP address or domain name by referring to **5.2.7.3.1 Setting Parameters for the Email Server**.

2. Check whether the problem has been resolved.

   - If the problem has been resolved, no further operation is required.
   - If the problem persists, go to the next step.

Step 3 Check **Email sending port No**.

1. Check whether the setting of **Email sending port No** is correct.

   If the configuration is correct, go to the next step. Otherwise, configure the correct port number by referring to **5.2.7.3.1 Setting Parameters for the Email Server**.

2. Check whether the problem has been resolved.

   - If the problem has been resolved, no further operation is required.
   - If the problem persists, go to the next step.

Step 4 Check **User name** and **Password**.

1. Check whether **User name** and **Password** are correctly configured.

   If the configuration is correct, go to the next step. Otherwise, configure the correct user name and password by referring to **5.2.7.3.1 Setting Parameters for the Email Server**.

2. Check whether the problem has been resolved.

   - If the problem has been resolved, no further operation is required.
   - If the problem persists, go to the next step.

Step 5 Check **Sender email address** and **Recipient email address**.

1. Check whether **Sender email address** and **Recipient email address** are correctly configured.

   If the configuration is correct, go to the next step. Otherwise, configure the correct email address by referring to **5.2.7.3.1 Setting Parameters for the Email Server**.

2. Check whether the problem has been resolved.

   - If the problem has been resolved, no further operation is required.
   - If the problem persists, go to the next step.

Step 6 If the problem persists after the preceding possible causes are ruled out, contact Huawei technical support engineers.

----End

5.2.8.19 How Do I Solve the Problem that the Calculated Performance Ratio Is Inaccurate?

This section describes how to locate the cause of performance ratio inaccuracy and solve this problem.

Possible Causes

The performance ratio in the PV Plant, inverter, or electric meter may be inaccurate due to the following reasons:

- The total component capacity is not configured for inverters.
- The environmental monitoring instrument (EMI) does not report data properly.

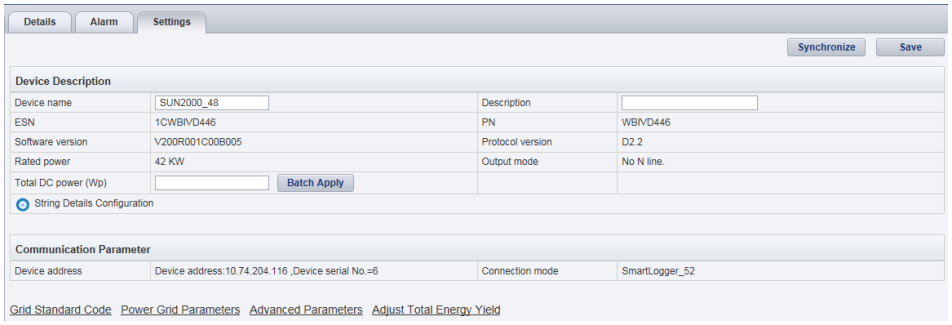
Procedure

Step 1 Check whether total component capacity is configured for all inverters.

1. Log in to the NetEco 1000S client as the system administrator or a user in the system operator group.
2. Click the **Monitor** tab.
3. Choose the inverter to be checked from the navigation tree in the left pane and click the **Settings** tab in the right pane.

   The inverter configuration page is displayed, as shown in **Figure 5-80**.

   Figure 5-80 Inverter configuration page



4. Check whether **Total DC power** is configured.
   - If it is configured, view the configuration pages of all inverters in sequence and check whether **Total DC power** has been configured for all inverters.

     NOTE

     If any inverters are not configured with **Total DC power**, configure **Total DC power** for them.
   - If it is not configured, enter the target value in the **Total DC power** text box and click **Save** in the upper right corner.

     NOTE

     To change the total DC power of multiple inverters to the value set in last step, click **Batch Apply** and select target devices.
5. Check whether the problem has been resolved.
   - If the problem has been resolved, no further operation is required.
   - If the problem persists, go to the next step.

Step 2 Check the data reporting status of the EMI.

If the irradiance quantity data collected and reported by the EMI is incorrect, the performance ratio calculated by the NetEco 1000S may have a big deviation. In this case, set **Radiation correction factor** of the EMI to correct the irradiance quantity and performance ratio data..

1. Set **Radiation correction factor** of the EMI by referring to **5.2.3.6.2 Modifying the Information About an EMI**.
2. Check whether the problem has been resolved.
   - If the problem has been resolved, no further operation is required.
   - If the problem persists, go to the next step.

Step 3 If the problem persists after the preceding possible causes are ruled out, contact Huawei technical support engineers.

----End

5.2.8.20 How Do I Enable or Disable the HTTP Mode for Logging In to the NetEco Client?

To improve system security, the NetEco allows you to log in to the NetEco client in HTTPS mode by default and manually enable or disable the HTTP mode for logging in to the NetEco client. This section describes how to enable or disable the HTTP mode for logging in to the NetEco client.

Prerequisites

You have Logged out of the NetEco services by following the instructions provided in **5.2.1.2.2 Logging Out of the NetEco 1000S Services**.

Context

NOTICE

The HTTP mode is not a secure connection mode and may reduce the NetEco system security. Exercise with caution when using the HTTP mode.

Procedure

Step 1 Enable or disable the HTTP mode for logging in to the NetEco client.

Operation	Steps
Enable the HTTP mode for logging in to the NetEco client.	1. Open the **NetEco 1000S software installation directory\WebRoot\WEB-INF\classes\struts.properties** file on the server where the NetEco 1000S is installed. 2. Change the **struts.ssl** value to **false** and save this modification.

Operation	Steps
Disable the HTTP mode for logging in to the NetEco client.	1. Open the **NetEco 1000S software installation directory\WebRoot\WEB-INF\classes\struts.properties** file on the server where the NetEco 1000S is installed. 2. Change the **struts.ssl** value to **true** and save this modification.

Step 2 Start the NetEco services by following the instructions provided in **5.2.1.1.1 Starting NetEco Services**.

----End

5.2.8.21 Failure to Receive Emails

Symptom

After the alarm or report sending rules are configured on the NetEco 1000S client, no alarm or report emails are received.

Possible Causes

- Reasons related to the sender's server: The sender's server categorizes the emails as junk emails and therefore does not send the emails.

  An email may be categorized as a junk email for the following reasons:

  - The number of emails sent in a day exceeds the limit.
  - The content of the email is the same as or similar to that of another email.
- Reasons related to the recipient's server:
  - The emails are categorized as junk emails and therefore cannot be received.
  - In Windows Server 2012, the email server is used for email receiving by default. The cause may be that the default host name or domain name of the email server is not recognized. As a result, the emails fail to be received.

    This problem may occur if customers use the email server installed by themselves.

Procedure

Step 1 Check the sender's email server.

- In Windows Server 2012, enable the SMTP server for email sending.
- In Windows 7, upgrade the mailbox to a VIP mailbox for email sending. For detailed operations, contact Huawei technical support engineers.

Step 2 Check whether the problem has been resolved.

- If the problem has been resolved, no further operation is required.
- If the problem persists, go to the next step.

Step 3 Check the recipient's mailbox.

Check whether junk emails contain emails from the NetEco 1000S. If yes, set the mailbox so that emails from the NetEco 1000S are not categorized as junk emails.

Step 4 Check whether the problem has been resolved.

- If the problem has been resolved, no further operation is required.
- If the problem persists, go to the next step.

Step 5 If the operating system is Windows Server 2012, change the email server attribute.

Set the host name or domain name of the email server to a value in the ****.****.**** format, such as **mail.neteco.com**.

Step 6 Check whether the problem has been resolved.

- If the problem has been resolved, no further operation is required.
- If the problem persists, contact Huawei technical support.

----End

5.3 NetEco 1000S APP Operation

This section describes how to access the NetEco 1000S system through the NetEco 1000S APP and how to perform related operations on the NetEco 1000S APP.

5.3.1 Security Configuration for NetEco 1000S APP

To ensure system security, you must perform the following configurations before accessing the NetEco 1000S system through the NetEco 1000S APP.

Context

The identification number of the mobile terminal has been anonymized on the NetEco 1000S APP screen to protect user's privacy.

Procedure

Step 1 Obtain the identification number of the mobile terminal.

NOTE

Identification number of the IOS mobile terminal is the IDFV identifier. Identification numbers of other mobile terminals are IMEIs/MEIDs of mobile phones or MAC addresses of tablets.

- Method of obtaining the IDFV identifier: When using the IOS mobile terminal to log in to the NetEco 1000S APP, click **IDFV** on the login page to view the identifier.
- Method of obtaining the IMEI/MEID: Enter ***#06#** in the dial keyboard of your mobile phone.
- Method of obtaining the MAC address: Choose **Settings** > **WLAN** > **Advanced settings** on your tablet to view the MAC address.

  NOTE

  The navigation path of **Advanced settings** may vary depending on the OS version. Choose the corresponding path as required.

Step 2 Add the identification number of the mobile terminal to the NetEco 1000S.

1. Log in to the NetEco 1000S system through the web browser.
2. Choose **System** > **User Management** from the main menu.
3. Click **Mobile Terminal**, and then add the identification number of the mobile terminal.

----End

5.3.2 (Optional) Replacing APP Secure Certificates

The APP Server and APP provides the default Huawei-preconfigured certificate for security connection. This certificate applies only to the commissioning scenario. Huawei-preconfigured certificate cannot ensure the information transmission security. When users need to ensure information security, they must apply for a legal and valid certificate from the CA and replace the preconfigured certificate with the applied one. The certificate cracking possibility increases if one certificate is used for a long period. Therefore, replace the certificate periodically.

5.3.2.1 Updating an APP Certificate (IOS)

This section describes how to replace the preconfigured certificate of the NetEco 1000S APP in the IOS system.

Prerequisites

- The NetEco 1000S APP has been installed on your mobile device.
- You have obtained the new digital certificate that is manually prepared.

Context

After the NetEco 1000S APP is installed, the preconfigured Huawei digital certificate is used by default. If you do not want to use the preconfigured certificate, manually replace it with a required certificate.

Procedure

Step 1 Name the obtained new certificate **client.cer**.

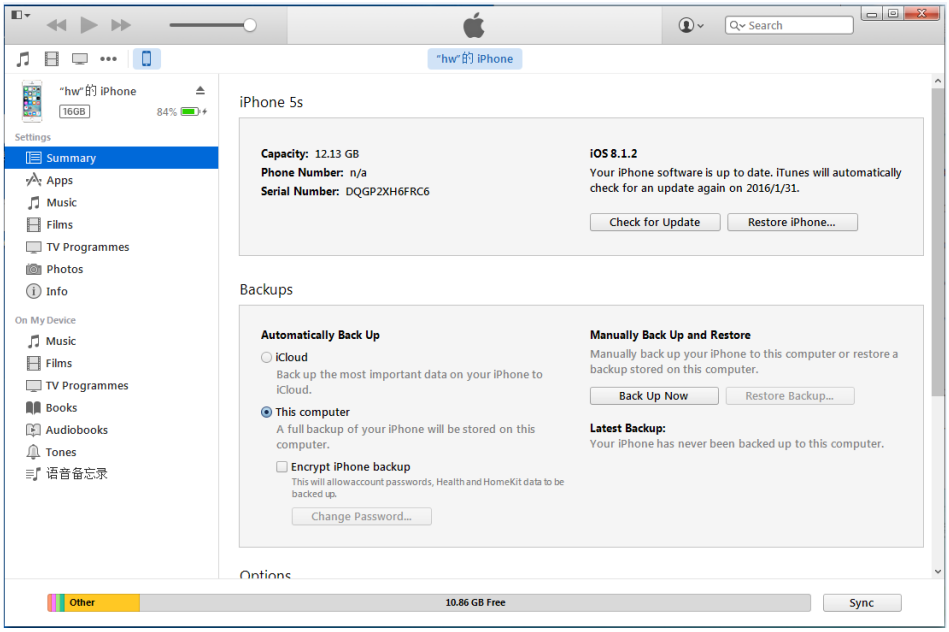
Step 2 Import **client.cer** to the NetEco 1000S using iTunes.

The operations on an iPhone and iPad are similar. This section uses the operations on an iPhone as an example.

1. On your PC, connect the mobile device to iTunes.

   Figure 5-81 shows the iTunes GUI after the connection.

Figure 5-81 iTunes GUI

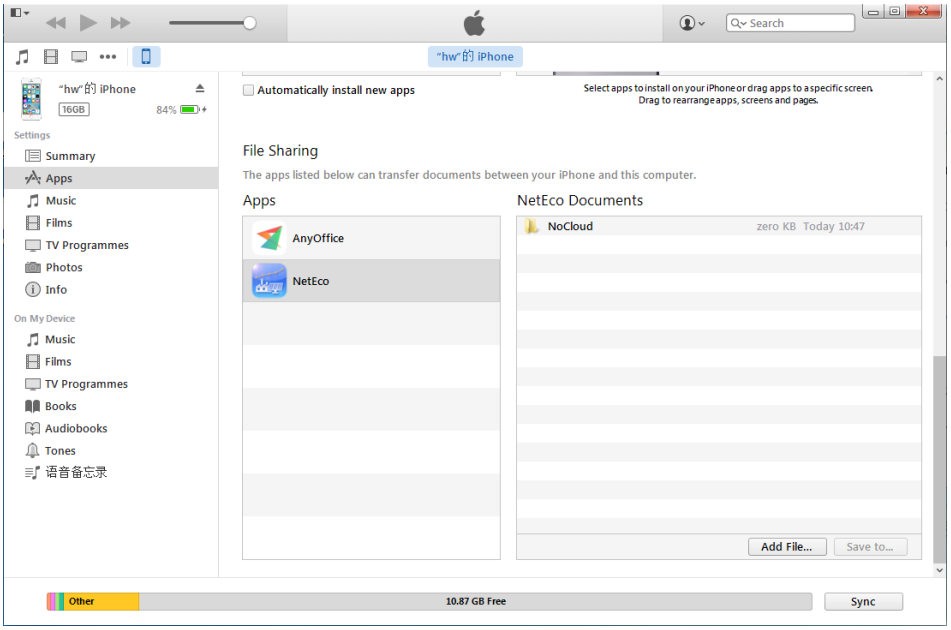


2. In the left navigation tree, choose **APPs**.

   The **APPs** page is displayed.

3. Select **NetEco** in the **File sharing** area of the **APPs** page, as shown in **Figure 5-82**.

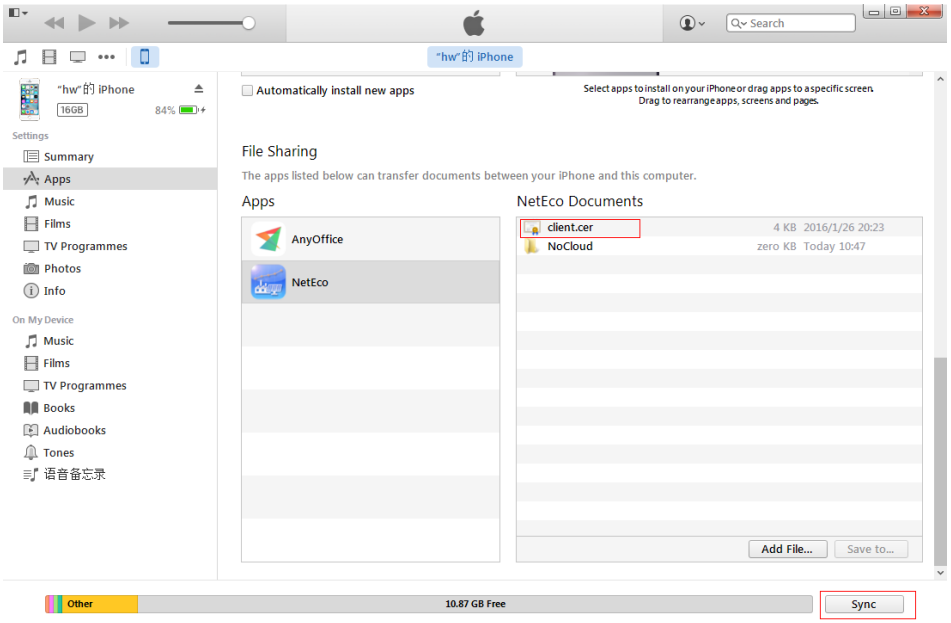
Figure 5-82 File sharing



4. Click **Add file** in the **NetEco Documents** area, and add the **client.cer** certificate of the **Step 1**.

   The **client.cer** certificate has been imported into the iTunes, as shown in **Figure 5-83**.

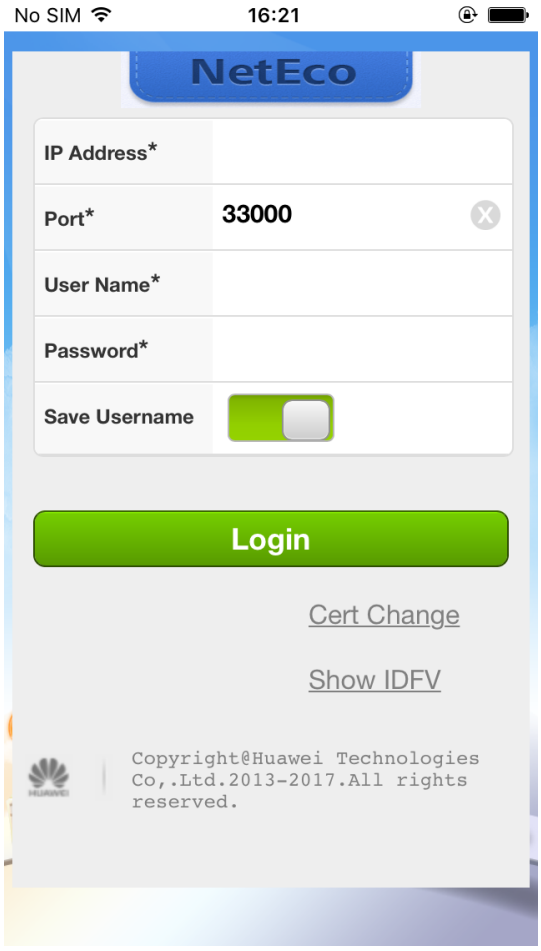
Figure 5-83 Importing a new certificate



Step 3 Click the NetEco icon on the mobile client.

The NetEco 1000S APP login window is displayed, as shown in **Figure 5-84**.

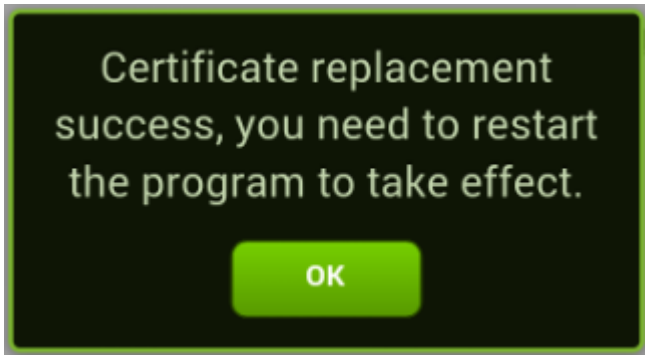
Figure 5-84 NetEco 1000S APP login window



Step 4 Click **Cert Change**.

If information as shown in **Figure 5-85** is displayed, the certificate has been replaced.

Figure 5-85 Successful certificate replacement



Step 5 Restart the NetEco 1000S APP to make the new certificate take effect.

----End

5.3.2.2 Updating an APP Certificate (Android)

This section describes how to replace the preconfigured certificate of the NetEco 1000S APP in the Android system.

Prerequisites

- The NetEco 1000S APP has been installed on your mobile device.
- You have obtained the new digital certificate that is manually prepared.

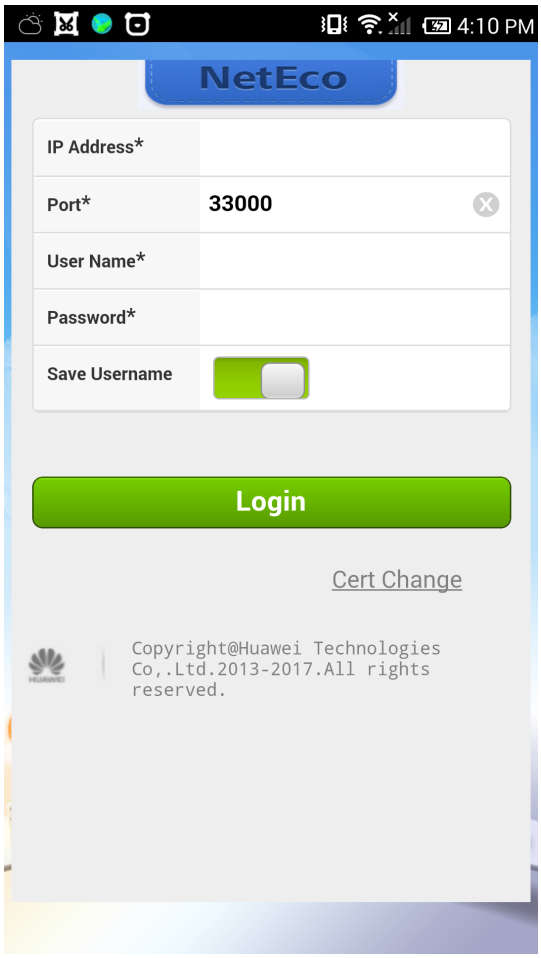
Procedure

Step 1 Connect the mobile device to your PC, and save the obtained new certificate to the mobile device.

Step 2 Click the NetEco 1000S APP icon on the mobile client.

The NetEco 1000S APP login window is displayed, as shown in **Figure 5-86**.

Figure 5-86 NetEco 1000S APP login window



Step 3 Click **Cert Change**.

The page for replacing a certificate is displayed.

Step 4 Select the new certificate. In the displayed dialog box, click **Confirm** to complete the certificate replacement.

Step 5 Restart the NetEco 1000S APP to make the new certificate take effect.

----End

5.3.3 Logging In to the NetEco 1000S APP

After installing the NetEco 1000S APP on the mobile terminal, you can access the NetEco 1000S server through the NetEco 1000S APP.

Prerequisites

- You have added the identification number of the mobile terminal in the NetEco 1000S system. For details, see **5.3.1 Security Configuration for NetEco 1000S APP**.
- You have obtained the user name and password for logging in to NetEco 1000S APP.
- You have installed the NetEco 1000S APP software on the mobile terminal. For detailed operations, see **4.2.2 Installing the NetEco 1000S APP Software**.
- The mobile terminal has been connected to the network.

Context

The NetEco 1000S APP can be installed on mobile terminals running IOS6.0, Android4.0, and later versions. Different Android versions support different communication protocols.

- Versions earlier than Android4.4: supports TLSv1.
- Android4.4 and later: support TLSv1, TLSv1.1, and TLSv1.2.

The NetEco 1000S APP supports the TLSv1, TLSv1.1, and TLSv1.2 by default. The TLSv1 has security risks. You are advised to upgrade the Android. For mobile terminals running Android4.4 or later, disable the TLSv1 by following the instructions provided in **5.3.6 How Do I Disable the TLSv1?**.

Procedure

Step 1 Click the NetEco 1000S APP icon on the desktop of the mobile terminal to open the login page.

Step 2 **Optional:** Set the IP address and port number of the NetEco 1000S server if this is the first time that you log in to the NetEco 1000S APP.

- **IP Address** indicates the IP address of the NetEco 1000S server. Set it as required.
- **Port** indicates the port number of the NetEco 1000S server. It is **33000** by default.

Figure 5-87 Setting the IP address and port number of the server

Step 3 Enter the user name and password.

Step 4 Click **Log In**. After you successfully log in to the NetEco 1000S service, the **Overview** window is displayed, as shown in **Figure 5-88**.

Figure 5-88 Summary window

NOTE

- You can click  to view the version of the NetEco 1000S APP.
- You can click  to deregister an application.
- You can click  to update data on the overview page.

----End

5.3.4 Viewing PV Plant and Inverter Information

You can view information about the PV plants and about the inverters accessed each PV plant on the NetEco 1000S APP to learn the operating status of the PV plants and inverters.

Prerequisites

You have logged in to the NetEco 1000S APP. For detailed operations, see **5.3.3 Logging In to the NetEco 1000S APP**.

Context

- Click  on the page to return to the previous page.
- Click  on the page to return to the **Overview** page.

Procedure

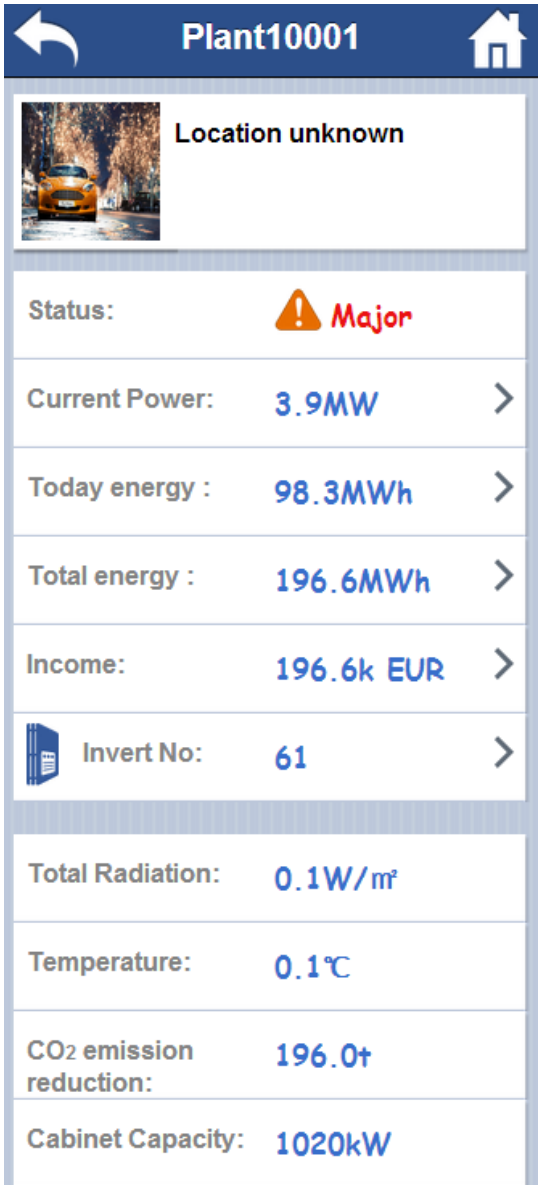
Step 1 Click 

on the **Overview** page. The **Plant List** page is displayed, as is shown in **Figure 5-89**.

Figure 5-89 Plant list

Step 2 Select the PV plant to be viewed on the Plant List page. The PV plant details page is displayed, as shown in **Figure 5-90**.

Figure 5-90 PV plant details page



On the PV plant details page, you can view Status, Current Power, Today energy, Total energy, Income, the number of inverters, Total Radiation, Temperature, CO_2 emission reduction, and Cabinet Capacity of the selected PV plant.

Step 3 Perform the following operations on the PV plant details page as required.

If You Need To...	Then...
Replace the image of the current PV plant	Click the PV plant icon in **Figure 5-90**.

If You Need To...	Then...
View the alarm list of a PV plant	Click **Status** in **Figure 5-90** or > corresponding to the target PV plant in **Figure 5-89**. The **Alarm List** page of the PV plant is displayed. To view alarm details, click > corresponding to the target alarm on the **Alarm List** page.
Display Current Power, Today energy, Total energy, and Income of a PV plant in charts	Click > in **Figure 5-90** separately.
View information about the inverters in a PV plant	Click > corresponding to **Inverter NO.** in **Figure 5-90**. The **Inverter List** page is displayed. ● **To view Current Power, Today energy, Total energy, Inverter status, PV input current and input voltage, and Rated power of an inverter:** click the line corresponding to the target inverter on the **Inverter List** page. ● **To view all alarms of an inverter:** 1. Click > corresponding to the target inverter on the **Inverter List** page. The **Alarm List** page of the inverter is displayed. 2. Click > corresponding to the target alarm on the **Alarm List** page. The alarm details are displayed.

----End

5.3.5 Viewing the Electric Energy Yield and Total Benefits

You can view the daily yield, monthly yield, yearly yield, and total benefits of PV plants on the NetEco 1000S APP.

Prerequisites

You have logged in to the NetEco 1000S APP. For detailed operations, see **5.3.3 Logging In to the NetEco 1000S APP**.

Context

- Click  on the page to return to the previous page.
- Click  on the page to return to the **Overview** page.

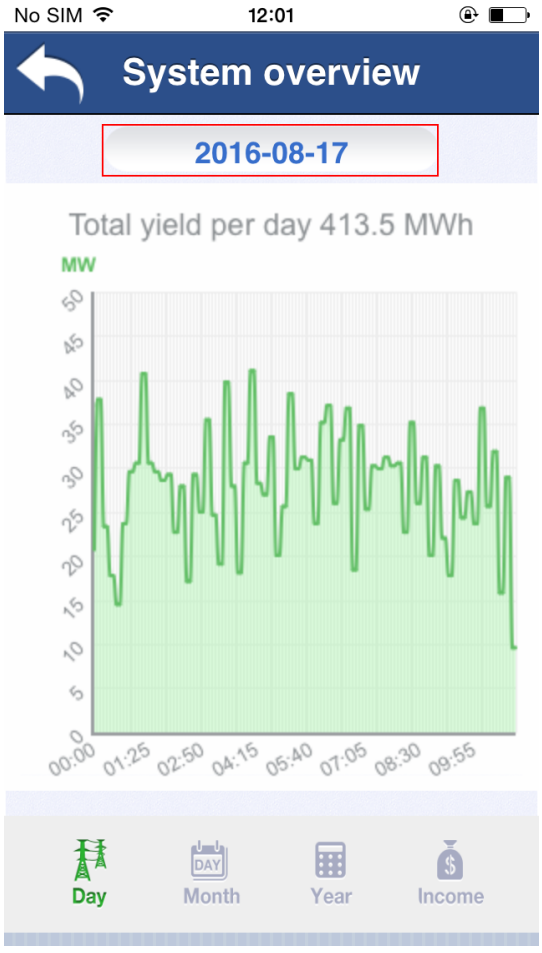
Procedure

- **View the daily yield:**

  a. Click 

on the **Overview** page. The **Total yield per day** page is displayed, as shown in **Figure 5-91**.

  Figure 5-91 Total yield per day page



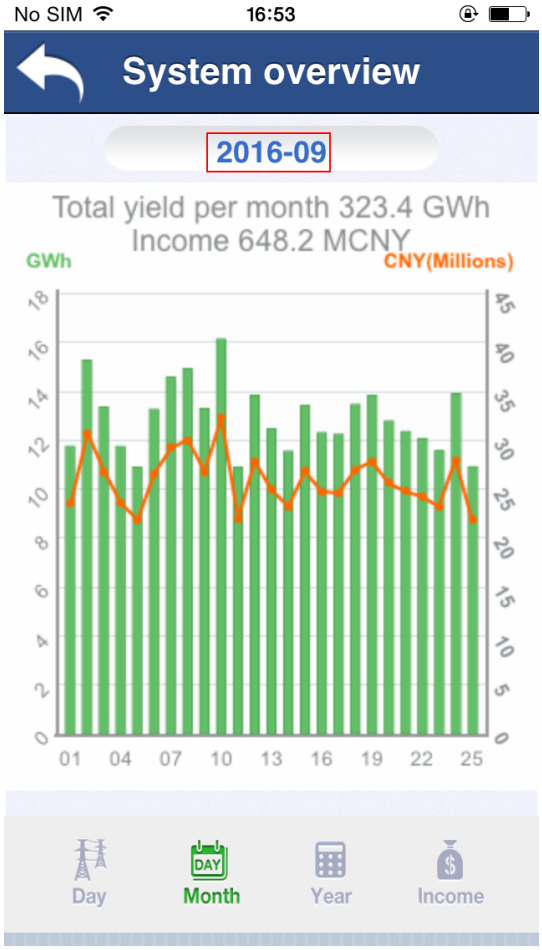
  b. On the **Total yield per day** page, click the date in the red box to choose to view the electric energy yield of any day.

- **View the monthly yield:**

  a. Click 

on the **Overview** page. The **Total yield per month** page is displayed, as shown in **Figure 5-92**.

Figure 5-92 Total yield per month page



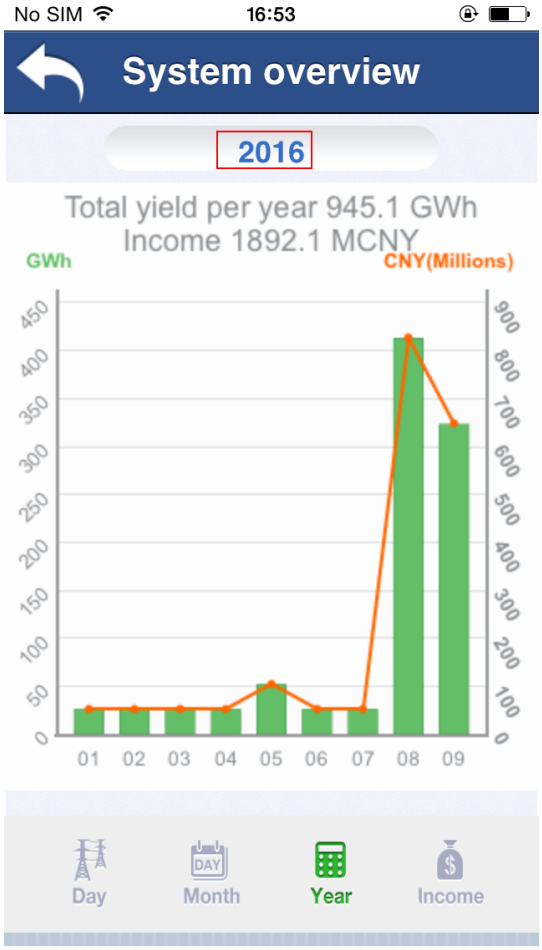
b. On the **Total yield per month** page, click the date in the red box to choose to view the electric energy yield of any month.

- **View the yearly yield:**

a. Click 

on the **Overview** page. The **Total yield per year** page is displayed, as shown in **Figure 5-93**.

Figure 5-93 Total yield per year page



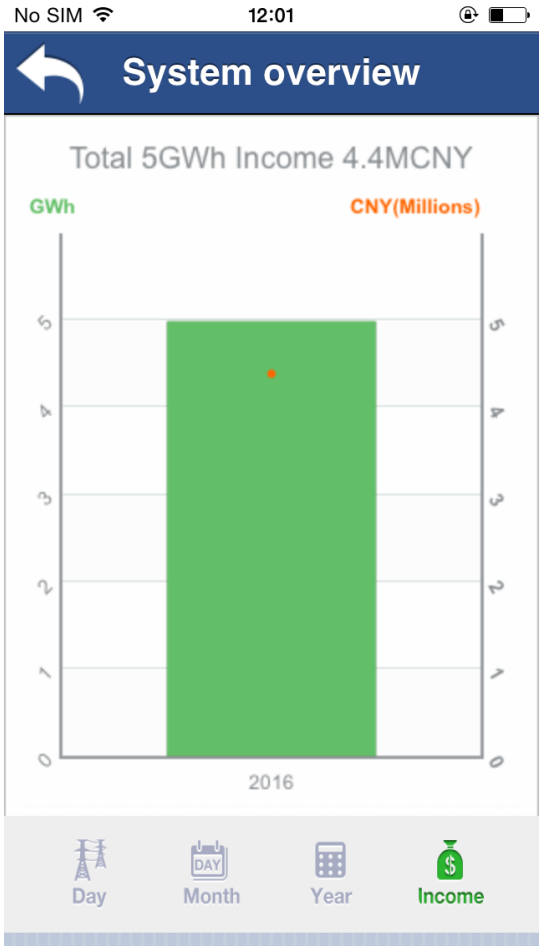
b. On the **Total yield per year** page, click the year in the red box to choose to view the electric energy yield of any year.

- **View the total benefits:**

a. Click 

on the **Overview** page. The **Income** page is displayed, as shown in **Figure 5-94**.

Figure 5-94 Income page



b. View the total energy yield of all PV plants and total benefits.

----End

5.3.6 How Do I Disable the TLSv1?

Question

This section describes how to disable the TLSv1 to ensure the security of mobile terminals running Android4.4 or later. The TLSv1 has security risks.

Answer

You can perform the following operations to disable the TLSv1.

Step 1 Open the following file on the server where the NetEco 1000S is installed.

***NetEco 1000S software installation directory*\WebRoot\WEB-INF\classes\struts.properties**

Step 2 Change the value of **appSslTLSJetty** to **TLSv1.1,TLSv1.2** and save the change result.

Step 3 Restart NetEco 1000S services for the change to take effect.

----End

6 Abbreviations

F	
FTPS	File Transfer Protocol over SSL
H	
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
K	
KPI	Key Performance Indicator
N	
NMS	Network Management System
R	
RSA	Revist-Shamir-Adleman Algorithm
S	
SMTP	Simple Mail Transfer Protocol
SSH	Secure Shell
SSL	Secure Sockets Layer
SFTP	Secure File Transfer Protocol

T

TLS	Transport Layer Security
TCP	Transmission Control Protocol

V

VLAN	Virtual Local Area Network