# MR Imaging System

## ECHELON Smart

## Sentinel Customer Support

# TECHNICAL GUIDE

## --- Installation ---

Hitachi, Ltd.
Tokyo, Japan

L1E-HM0106-05

**CONFIDENTIALITY:** This material including drawings contains proprietary information of Hitachi, Ltd. and it shall not be disclosed to the third party or reproduced without the prior written permission of Hitachi, Ltd.
© Hitachi, Ltd. 2017, 2019. All rights reserved.

# Introduction

## Trademarks and registered trademarks:

Company names and product names used in this manual are the trademarks and registered trademarks of each company.

## Cautions on exportation:

When exporting this equipment, be sure to check the Foreign Exchange and Foreign Trade Control Law and the regulations related to export control in the United States of America, and perform the necessary procedures.
Contact Hitachi or an authorized representative if you have further inquiries.

## Revision history:

First edition : January 2017
Fourth edition : February 2019
Fifth edition : March 2019

# Contents

Introduction ..... iii
Contents ..... v

Chapter1 Summary ..... 1

Chapter2 System structure ..... 3

Chapter3 System requirements ..... 5

Chapter4 Connection setting ..... 7

4.1 Network structure ..... 7
4.2 Broadband router setting ..... 7
4.3 System setting ..... 8
4.3.1 Preparing setting information ..... 9
4.3.2 IP address registration in Network Connection ..... 9
4.3.3 Proxy IP address setting ..... 12
4.3.4 Internet Setting ..... 17
4.4 Time setting of a system ..... 25
4.5 Creation of user account ..... 26
4.6 Client PC setting ..... 27
4.6.1 Adobe® Flash® Player installation ..... 27

Chapter5 Connection to system server ..... 29

Chapter6 How to start Sentinel Customer Support ..... 31

6.1 Language setting ..... 31
6.2 Proxy server setting ..... 35
6.3 How to start ..... 38

Chapter7 Operation way ..... 41

7.1 Way of basic operation ..... 41
7.1.1 Navigation Pane ..... 43
7.1.2 Content Pane ..... 45
7.1.3 Action Pane ..... 46
7.1.4 Refresh ..... 48

7.1.5 Help ..... 49
7.1.6 Exporting URL ..... 50
7.2 Group view ..... 54
7.2.1 Basic operation ..... 54
7.2.2 Finding devices ..... 56
7.2.3 Daily Alert Summary ..... 62
7.2.4 Recent Activities ..... 63
7.2.5 Alerts ..... 64
7.2.6 Devices ..... 72
7.2.7 Device Profile ..... 75
7.2.8 Readings ..... 78
7.2.9 Activities ..... 82
7.2.10 ECHELON Smart monitoring items ..... 83
7.2.11 Monitoring event log (system) errors ..... 113
7.2.12 Monitor Service ..... 116
7.2.13 Tool & Manual ..... 117
7.3 Manage alerts ..... 121
7.4 Run command ..... 134
7.4.1 Basic operation ..... 134
7.4.2 ECHELON Smart command ..... 137
7.5 Add readings ..... 189
7.6 File Management ..... 192
7.6.1 Refresh device files ..... 192
7.6.2 Transfer files ..... 194
7.6.3 Manage system files ..... 202
7.6.4 View transfer log ..... 216
7.7 Connect to device ..... 218
7.7.1 Before Start ..... 219
7.7.2 How to start ..... 221
7.7.3 VNC viewer ..... 226
7.7.4 Personal information protection mode ..... 229
7.7.5 Service Tool & Diagnostic ..... 231
7.7.6 How to acquire and display image ..... 232
7.7.7 How to get library ..... 242
7.8 Update software ..... 254
7.8.1 Displaying [Software update] Dialog ..... 254
7.8.2 Service pack applicable schedule ..... 257
7.8.3 Application result confirmation ..... 261
7.9 Get actual configurations ..... 262

7.10 View chart....266
7.11 Report....273
7.11.1 View report....273
7.11.2 Using content....279
7.11.3 Using search function....280
7.11.4 Report save....283
7.11.5 Report print....286
7.12 Personal Configuration....287
7.13 View event log (Only for administrator account)....299
7.14 View software version....301
7.15 View software license (Only for administrator account)....303

Chapter8 How to quit Sentinel Customer Support..... 305

# Chapter1 Summary

Sentinel Customer Support makes system use smooth and assists for quick recovery in case of trouble. It connects customer's system and support center on the internet and provides various supports. It fulfills customer expectations with scrupulous service such as 24 hour monitoring, failure message, operation support and so on.

# Chapter2 System structure

Structure of Sentinel Customer Support is as follows.
Customer system and our support center are connected via the internet, and the remote service is offered.

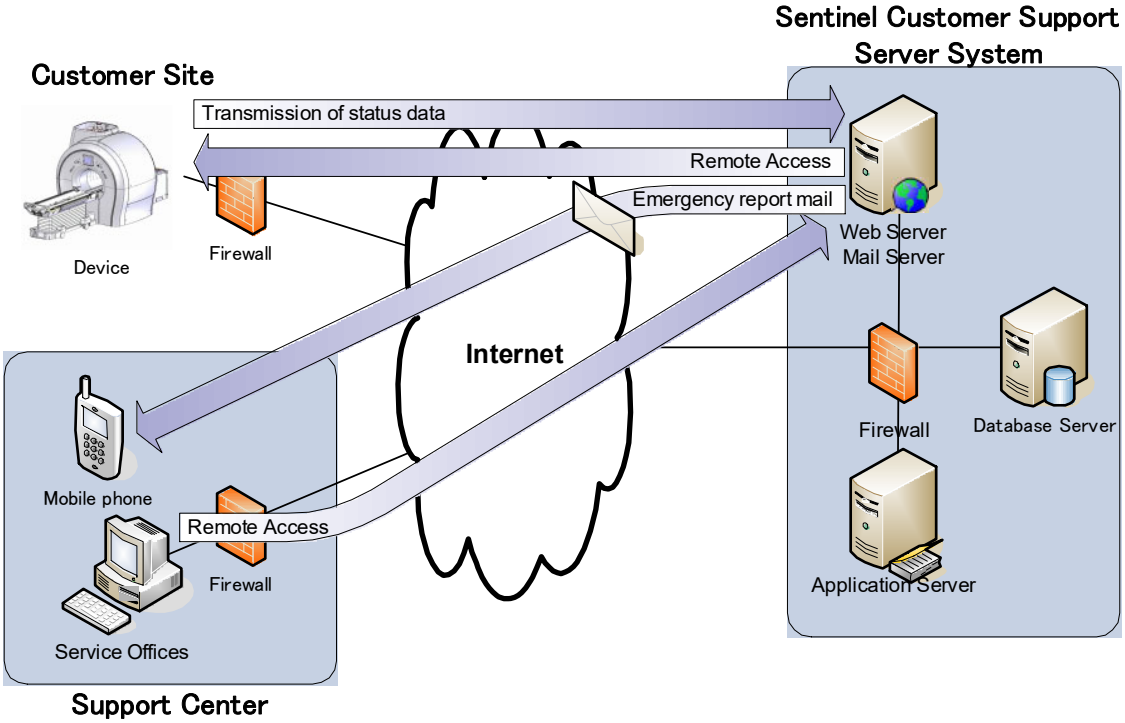



Figure 2-1 System structure

Service contents

- Sentinel Customer Support Server System always monitors the system via the internet.
- If Sentinel Customer Support Server System detects errors of System, person in charge gets mail notification.
- Accessing from Service Offices to Sentinel Customer Support Server System makes it possible to monitor System monitoring status.
- Accessing from Service Offices to Sentinel Customer Support Server System enables remote access to System.
- Web browsing becomes available from systems and customer convenience such as accessing to support information is improved.

# Chapter3 System requirements

The following system requirements are needed for this system.

Table 3-1System requirements

| | |
|---|---|
| Customer side | System software<br>Remote service option<br>A contract with Internet service provider |
| | Internet access line : ADSL40M or higher |
| Support Center | PC (Windows 7)<br>CPU: Pentium4 Processor (or compatible CPU) 2GHz or higher*<br>RAM: 1GB or higher*<br>Flash Player9 or higher<br>Internet access line : ADSL40M or higher<br>Cellular telephone (which PC can be as an alternative to) and which can receive Email.<br>Microsoft .NET Framework Version 3.5 or higher |

**NOTE** There is some possibility that a dialog like the following is displayed if PC, which does not fulfill the above system requirements, is used in Support Center. Use PC which fulfills the system requirements.

Figure 3-1Error dialog

# Chapter4 Connection setting

The following description explains each setting which is needed for Sentinel Customer Support use.

## 4.1 Network structure

The following is an example of network structure in customer site if an internet circuit is newly built. Refer to Chapter 4.2 for network setting. Refer to Chapter 4.3 for system setting.

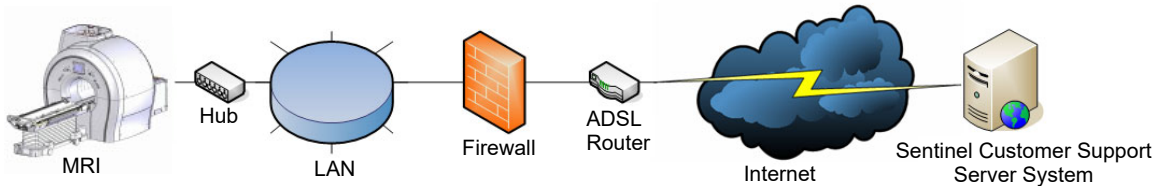



Figure 4-1 Network structure

## 4.2 Broadband router setting

Set up DHCP server on the side of LAN.

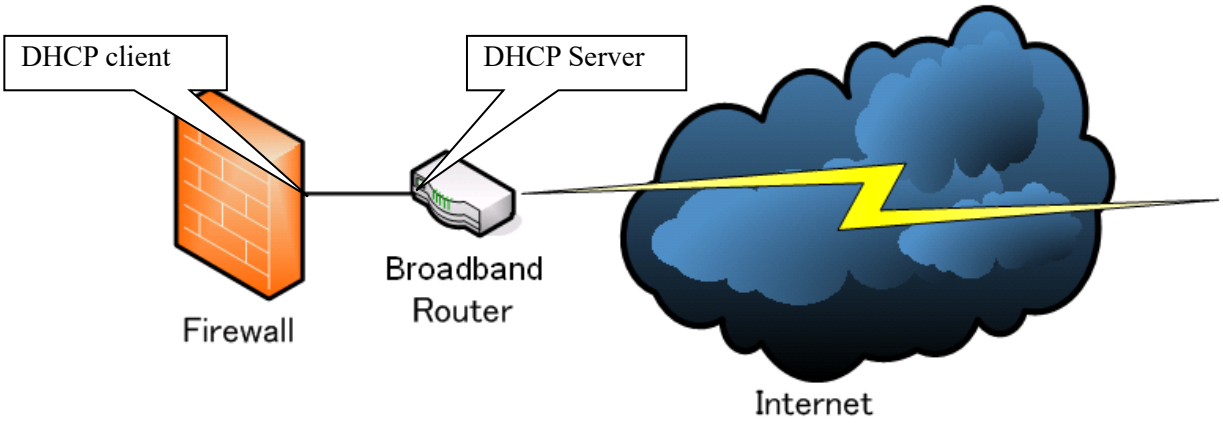



Figure 4-2 DHCP server setting of Broadband Router

# 4.3 System setting

The following explains system setting. If connection way is changed after that, report to a system administrator. Set up system once and then if connection way is changed, report to a system administrator.

Set up software according to the following operation flow.

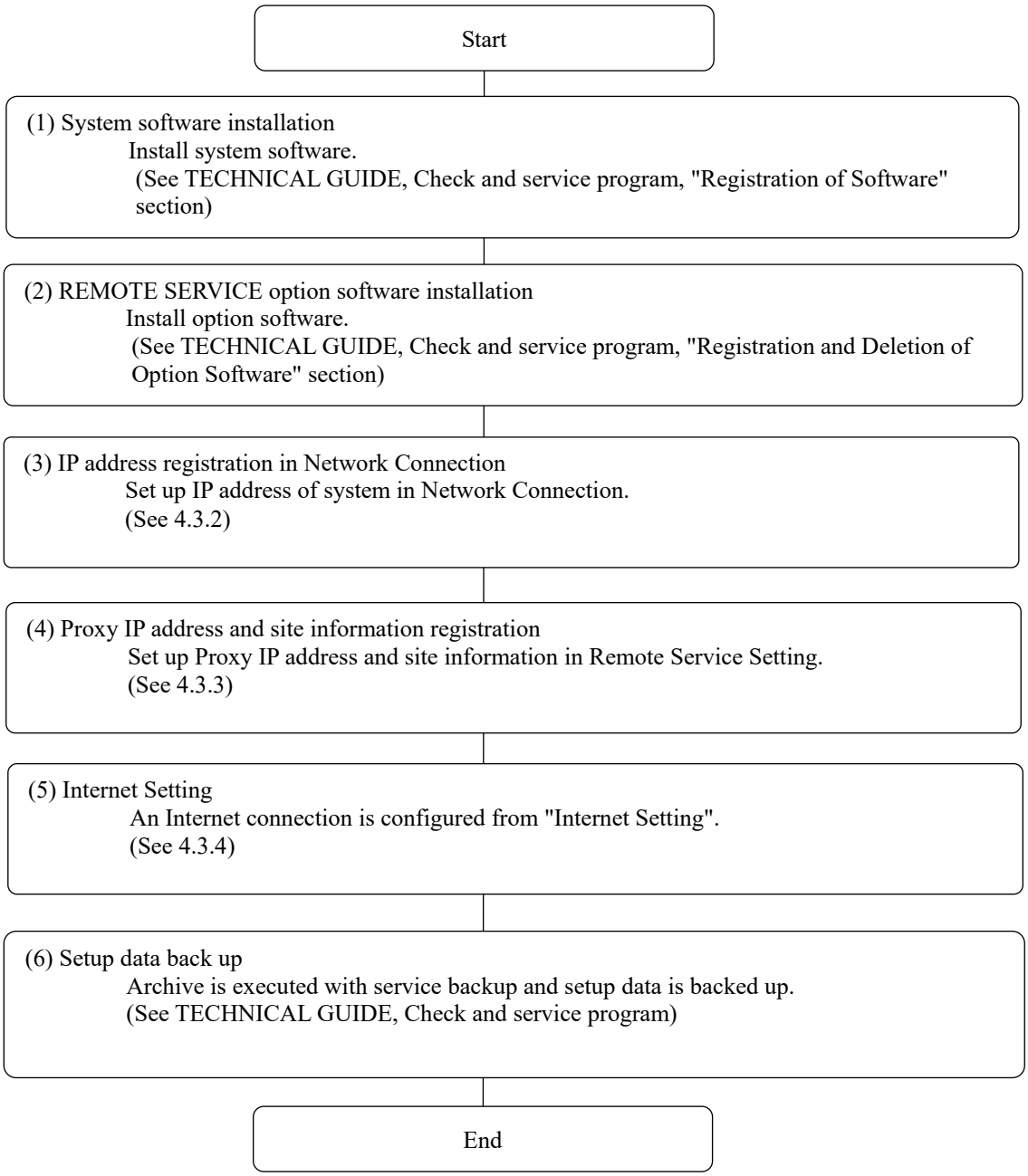



Figure4-3 Operation flow

### 4.3.1 Preparing setting information

Inquire of customer LAN administrator for the following information in advance and prepare.

- Site information(Address and longitude latitude)
- IP address of system. **NOTE1**
- Subnet mask **NOTE1**
- Default gateway (IP address) **NOTE1**
- DNS server (IP address) **NOTE1**
- IP address and port number of HTTP proxy server (if proxy server is used for HTTP transfer on customer LAN.)
- User name and password of HTTP proxy server (if proxy server is used for HTTP transfer on customer LAN and the user is authenticated in such a proxy server.)

**NOTE1** It is unnecessary for DHCP.

### 4.3.2 IP address registration in Network Connection

Perform network settings in Network Connection to connect system to LAN. (The following settings are unnecessary for DHCP.)

(1) Way of starting setting tool
Log in system with service user and start [Network Connection] from [System Settings].

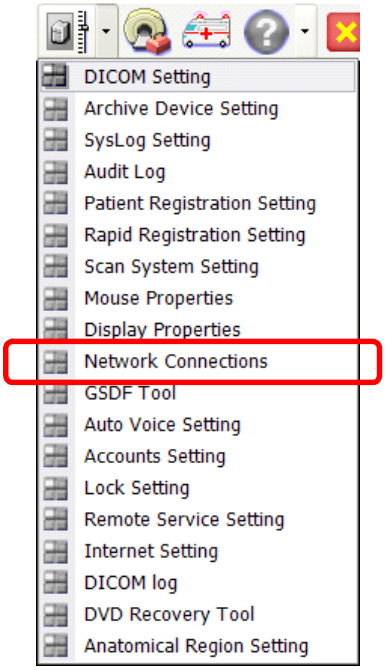



Figure4-4 System Settings menu

(2) System network setting

Configure the settings required for internet connection according to the following procedure.

a) After finishing the operation that is described in “(1) starting set up tool”, confirm that the screen of figure 4-5 is displayed, select “Internet Protocol(TCP/IP)” (on the bottom of the list) from “This Connection use the following items” of “General” tab and click [Properties] button.

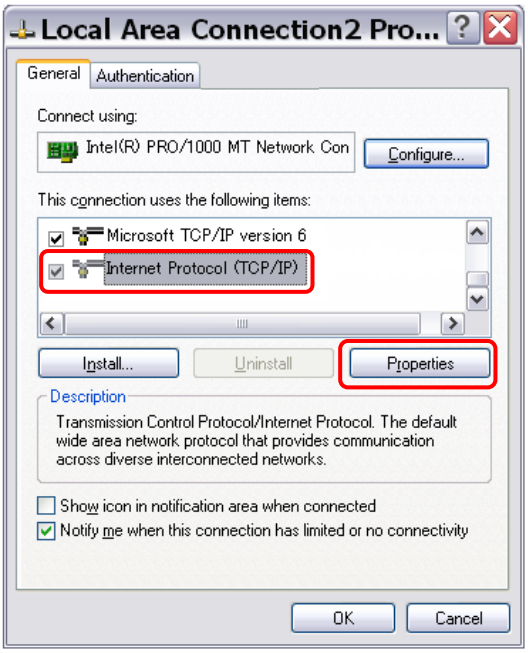



Figure4-5 Network Connections screen

b) After a) operation, confirm that the screen of figure 4-6 is displayed, input the value which is specified by customer LAN administrator in IP address, Subnet mask, Default gateway, Preferred DNS server, Alternate DNS server and click [OK].

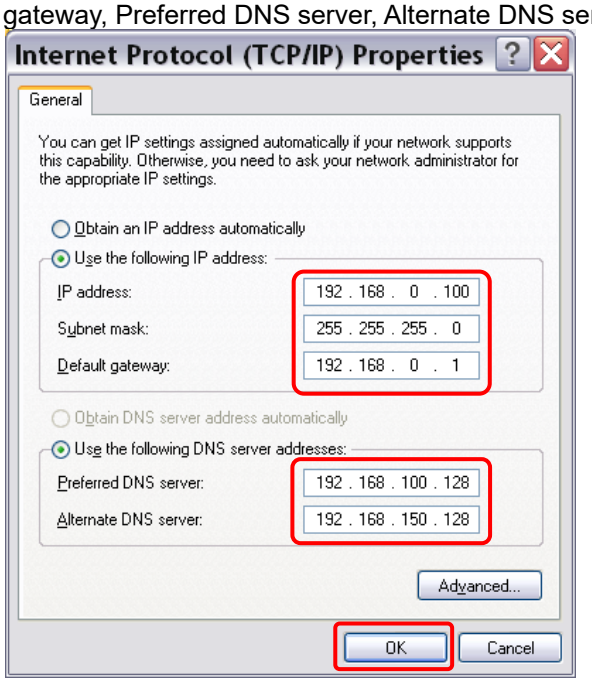



Figure4-6 TCP/1P Properties

(3) Quitting setting tool

Restart system after closing screen according to the following order.

## 4.3.3 Proxy IP address setting

Set up as follows if customer LAN connects to internet via proxy server. It is not necessary to set up if there is no proxy server on customer LAN.

(1) How to starting setting tool
Start [Remote Service Setting] from [System Settings].

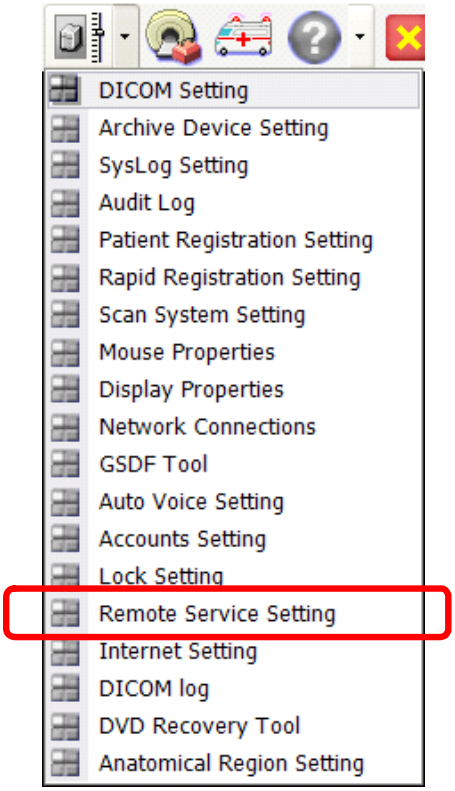
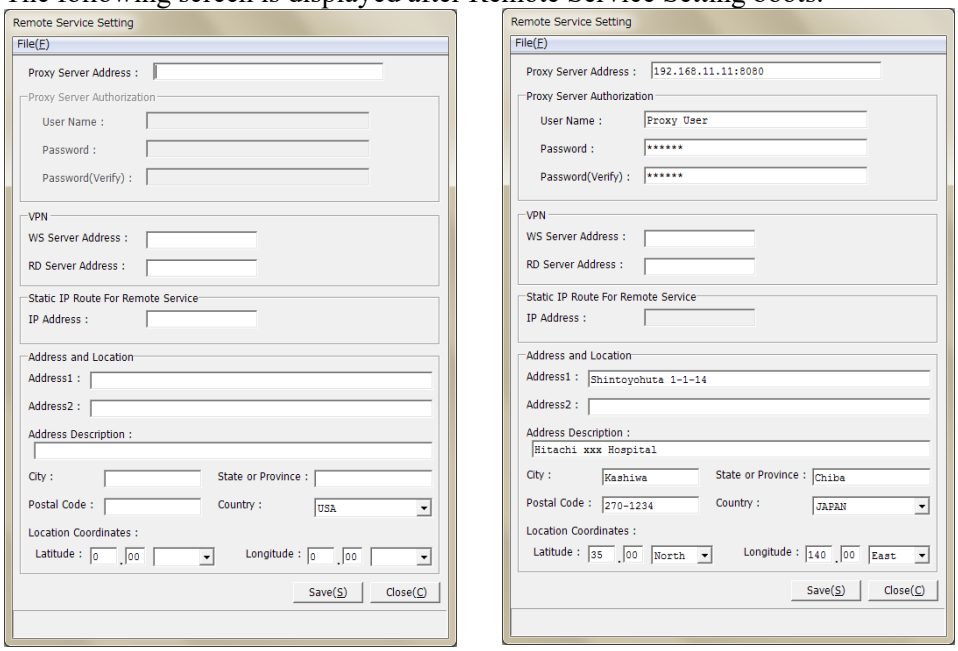



Figure4-7 System Settings menu

The following screen is displayed after Remote Service Setting boots.




The case where Proxy server setting is not configured.

The case where Proxy Server setting is configured. (Example.)

Figure4-8 Remote Service Setting screen

**NOTE** If Proxy Server setting is configured according to the procedure described in "(2) Proxy Server setting" on the next page, subsequently setting value at that time is indicated initially when Service Setting boots.

(2) Proxy Server setting

The following description explains input item.

Table4-1 Input item

| Item name | Explanation |
|---|---|
| Proxy Server Address | Input IP address and port number of HTTP proxy server to go through at the time of accessing to internet Web server. It is not necessary to input if proxy server is not used for HTTP transfer on customer LAN. Make sure to input in the following format if inputting. Proxy server address : Port number (Example:192.168.0.199:8080) |
| User Name | Input the user name of the proxy server above. It is not necessary to input if the user is not authenticated in proxy server. Besides, it becomes impossible to input when Proxy Server Address is not input. |
| Password,Password(Verify) | Input password of the proxy server above. It is not necessary to input if the user is not authenticated in proxy server. Besides, it becomes impossible to input when Proxy Server Address is not input. |
| WS Server Address | Specify the IP address of <ws.sentinel-service.com> on VPN. Since this value is assigned automatically, input nothing in the usual environment. |
| RD Server Address | Specify the IP address of <rd.sentinel-service.com> on VPN. Since this value is assigned automatically, input nothing in the usual environment. |
| Static IP Route For Remote Service | When routing is required for the network connection to Sentinel servers, specify an IP address for the gateway or router to use when forwarding. Since routing settings are unnecessary in the usual environment, input nothing. And, this value cannot be inputted when the proxy server is specified. |

Besides, input value needs to fulfill the following condition.

Table4-2 Input value condition

| Item name | Input value condition |
|---|---|
| Proxy Server Address | Only alphabet, number, hyphen, colon, period (the character generally used as IP address or host name) can be used. |
| User Name | Only alphabet and number can be used. It is necessary to make sure to input when password is being input. |
| Password,Password(Verify) | Only alphabet and number can be used. It is necessary for same value to be input in both fields. |

Input example.

**Example1:**
If proxy server is not used on customer LAN,
Proxy Server Address: Not input(**NOTE1**)

**NOTE1** It becomes impossible to input other item if proxy server address is not input. In this case, program considers that all items are not input and executes processing.

**Example2:**
If proxy server whose IP address is 192.168.0.100 and whose port number is 8080 is used on customer LAN and the user is not authenticated in this proxy server,
Proxy Server Address: 192.168.0.100:8080
Other input item: Not input

**Example3:**
If proxy server whose host name is proxy01.XXX-hospital.com and whose port number is 80 is used on customer LAN and the user is authenticated in this proxy server,
Proxy Server Address: proxy01.XXX-hospital.com:80
UserName: The user name specified by customer LAN administrator.
Password,Password(Verify): The password specified by customer LAN administrator.

After completing input, click [Save] and save setting. After completely saving setting, the message that shows normal end or whether there is an error or not is displayed. If error message is displayed, review input value according to the following table.

Table4-3 Message list

| Message content | Occurrence condition ・ Corrective action |
|---|---|
| Data saving is completed. | Occurrence condition:<br>The case where setting has been completely and normally saved. |
| Character that can't be used for server name or IP address is included in the proxy server name. | Occurrence condition:<br>Characters other than alphabet, figure, colon, period, and hyphen are being input in Proxy Server Address.<br>Corrective action:<br>Confirm input content of Proxy Server Address and input again. |
| Only alphabets and figures can use Proxy Server User Name. | Occurrence condition:<br>Characters other than alphabet and figure are being input in User Name.<br>Corrective action:<br>Confirm input content of User Name and input again. |
| Only alphabets and figures can use Proxy Server Password. | Occurrence condition:<br>Characters other than alphabet and figure are being input in Password.<br>Corrective action:<br>Input Password and Password (Verify) again. |
| When the Proxy Server Password is input, User Name is also necessary. | Occurrence condition:<br>Password is being input but User Name is not being input.<br>Corrective action:<br>Review input content. (Input User Name or delete input value of Password and Password(Verify)) |
| Value of the password and the verify password is different. | Occurrence condition:<br>Password is in disagreement with Password(Verify) input value. (The case where either Password or Password(Verify) input is being input is also included.)<br>Corrective action:<br>Input Password or Password(Verify) again. |

(3) Quitting Setting tool

Click [Close] or select [Exit] from [File] menu to quit this tool. In doing so, the following confirmation dialog is displayed.

The case where setting tool was quit without changing input value or after having saved setting.

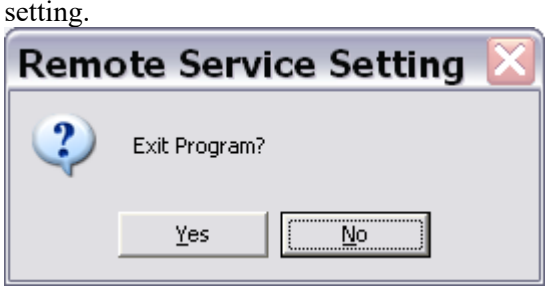



Figure4-9 Remote Service Setting quitting confirmation popup1
If quitting: Click [Yes]
If continuing input: Click [No]

The case where setting tool was quit without saving setting.

Figure4-10 Remote Service Setting quitting confirmation popup2
If saving setting and quitting: Click [Yes]
If quitting without saving setting: Click [No]

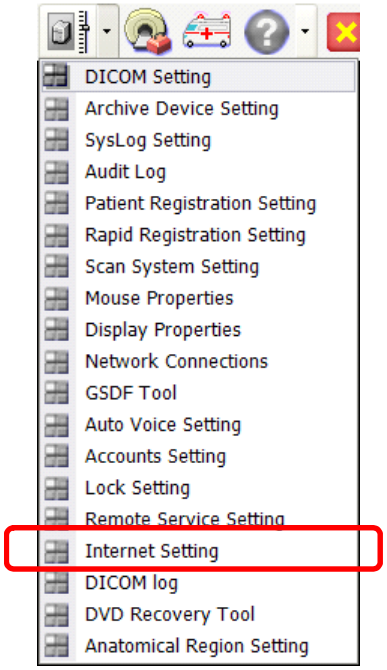
The following dialog is displayed if setting is saved normally.

Figure4-11 Setting normal termination.

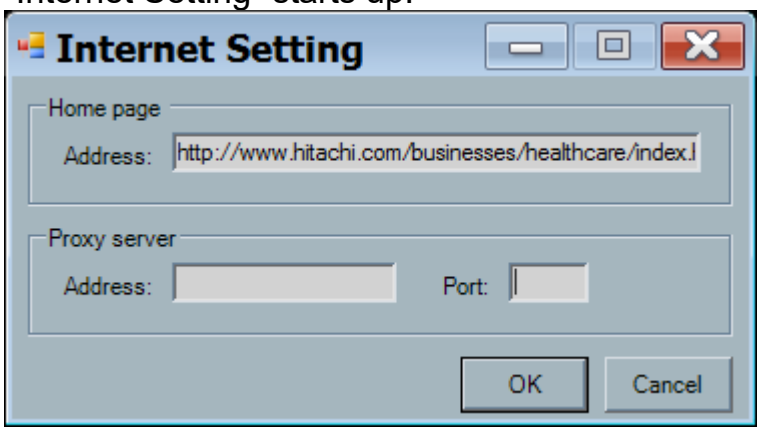
## 4.3.4 Internet Setting

Internet connectivity enables web browsing from MRI system and improves customers' convenience such as access to support information. Follow the next procedure and operate.

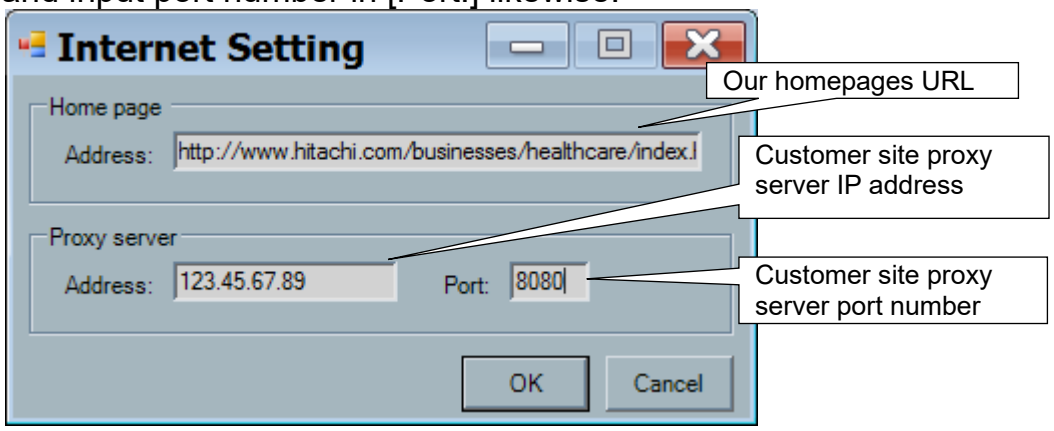
1 Click launcher [System Settings] button and select [Internet Setting] from menu.




2 “Internet Setting” starts up.

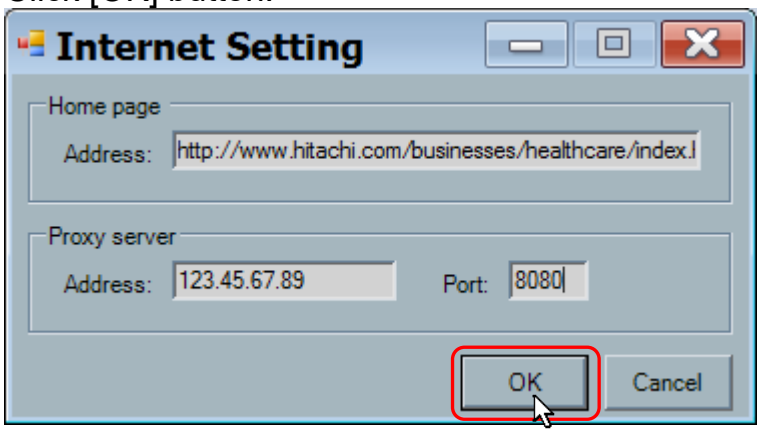


3 Input URL of our homepages in [Home page] [Address:], and input IP address of customer site proxy server in [Proxy server] [Address:], and input port number in [Port:] likewise.




**NOTE1** If no proxy server, leave [Proxy server] blank.
**NOTE2** If no port number is specified, leave [Proxy server] blank.

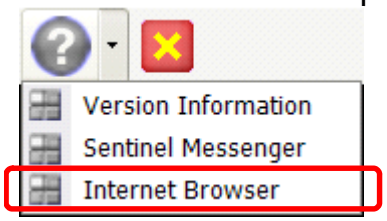
4 Click [OK] button.



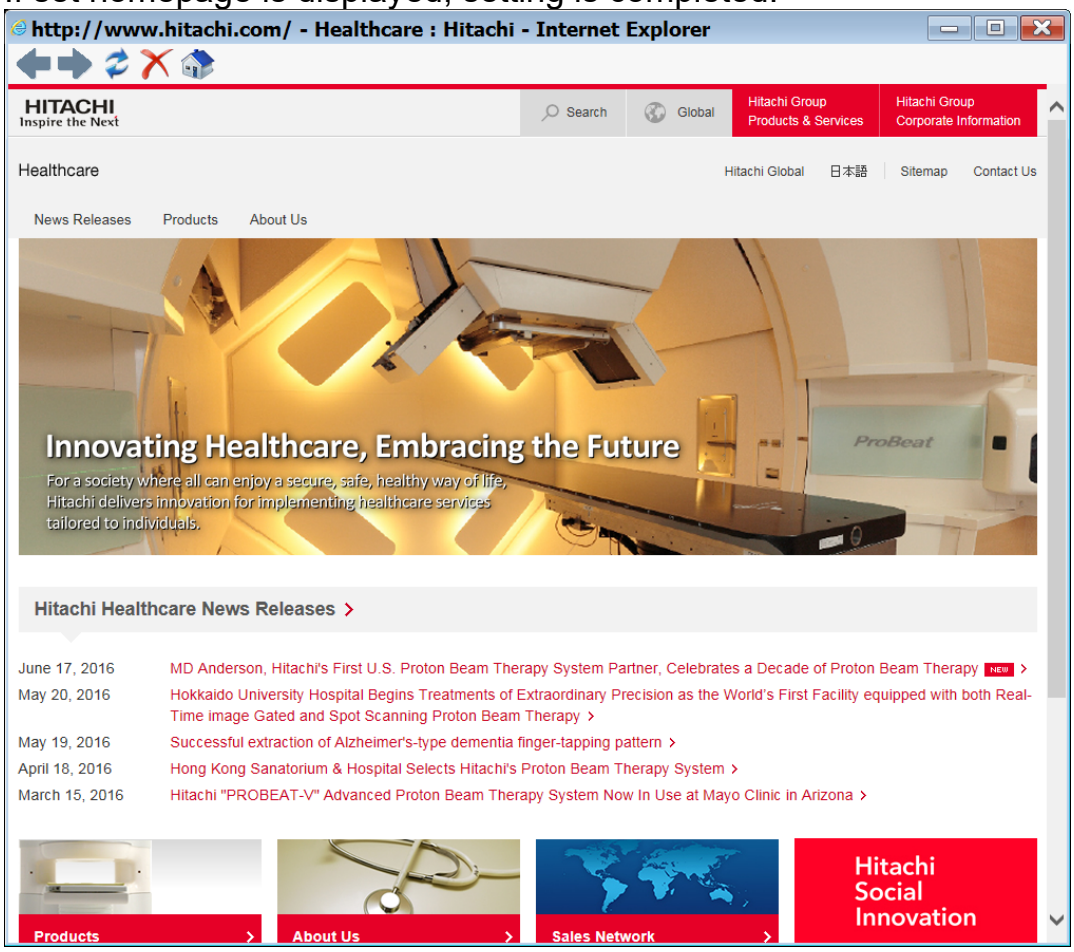

**NOTE** Close Internet Browser once and confirm setting if setting was performed while Internet Browser was starting up.

After setting, start up an Internet Browser and confirm. Follow the next procedure and operate.

1 Click launcher [Help] button and choose [Internet Browser] from menu. Browser starts up.




2 If set homepage is displayed, setting is completed.




3 Like general web browsers, click ☒ to close.

- Reference

  The latitude longitude of the major city in the world is shown referring the latitude longitude input below.

| Country | Capital | Latitude | Longitude |
|---|---|---|---|
| Afghanistan | Kabul | 34.28North | 69.11East |
| Albania | Tirane | 41.18North | 19.49East |
| Algeria | Algiers | 36.42North | 03.08East |
| American Samoa | Pago Pago | 14.16South | 170.43West |
| Andorra | Andorra la Vella | 42.31North | 01.32East |
| Angola | Luanda | 08.50South | 13.15East |
| Antigua and Barbuda | W. Indies | 17.20North | 61.48West |
| Argentina | Buenos Aires | 36.30South | 60.00West |
| Armenia | Yerevan | 40.10North | 44.31East |
| Aruba | Oranjestad | 12.32North | 70.02West |
| Australia | Canberra | 35.15South | 149.08East |
| Austria | Vienna | 48.12North | 16.22East |
| Azerbaijan | Baku | 40.29North | 49.56East |
| Bahamas | Nassau | 25.05North | 77.20West |
| Bahrain | Manama | 26.10North | 50.30East |
| Bangladesh | Dhaka | 23.43North | 90.26East |
| Barbados | Bridgetown | 13.05North | 59.30West |
| Belarus | Minsk | 53.52North | 27.30East |
| Belgium | Brussels | 50.51North | 04.21East |
| Belize | Belmopan | 17.18North | 88.30West |
| Benin | Porto-Novo (constitutional cotonou (seat of gvnt) | 06.23North | 02.42East |
| Bhutan | Thimphu | 27.31North | 89.45East |
| Bolivia | La Paz (adm.)/sucre (legislative) | 16.20South | 68.10West |
| Bosnia and Herzegovina | Sarajevo | 43.52North | 18.26East |
| Botswana | Gaborone | 24.45South | 25.57East |
| Brazil | Brasilia | 15.47South | 47.55West |
| British Virgin Islands | Road Town | 18.27North | 64.37West |
| Brunei Darussalam | Bandar Seri Begawan | 04.52North | 115.00East |
| Bulgaria | Sofia | 42.45North | 23.20East |
| Burkina Faso | Ouagadougou | 12.15North | 01.30West |
| Burundi | Bujumbura | 03.16South | 29.18East |
| Cambodia | Phnom Penh | 11.33North | 104.55East |
| Cameroon | Yaounde | 03.50North | 11.35East |
| Canada | Ottawa | 45.27North | 75.42West |
| Cape Verde | Praia | 15.02North | 23.34West |
| Cayman Islands | George Town | 19.20North | 81.24West |
| Central African Republic | Bangui | 04.23North | 18.35East |
| Chad | N'Djamena | 12.10North | 14.59East |
| Chile | Santiago | 33.24South | 70.40West |

| Country | Capital | Latitude | Longitude |
|---|---|---|---|
| China | Beijing | 39.55North | 116.20East |
| Colombia | Bogota | 04.34North | 74.00West |
| Comros | Moroni | 11.40South | 43.16East |
| Congo | Brazzaville | 04.09South | 15.12East |
| Costa Rica | San Jose | 09.55North | 84.02West |
| Cote d'Ivoire | Yamoussoukro | 06.49North | 05.17West |
| Croatia | Zagreb | 45.50North | 15.58East |
| Cuba | Havana | 23.08North | 82.22West |
| Cyprus | Nicosia | 35.10North | 33.25East |
| Czech Republic | Prague | 50.05North | 14.22East |
| Democratic People's Republic of | P'yongyang | 39.09North | 125.30East |
| Democratic Republic of the Congo | Kinshasa | 04.20South | 15.15East |
| Denmark | Copenhagen | 55.41North | 12.34East |
| Djibouti | Djibouti | 11.08North | 42.20East |
| Dominica | Roseau | 15.20North | 61.24West |
| Dominica Republic | Santo Domingo | 18.30North | 69.59West |
| East Timor | Dili | 08.29South | 125.34East |
| Ecuador | Quito | 00.15South | 78.35West |
| Egypt | Cairo | 30.01North | 31.14East |
| El Salvador | San Salvador | 13.40North | 89.10West |
| Equatorial Guinea | Malabo | 03.45North | 08.50East |
| Eritrea | Asmara | 15.19North | 38.55East |
| Estonia | Tallinn | 59.22North | 24.48East |
| Ethiopia | Addis Ababa | 09.02North | 38.42East |
| Falkland Islands (Malvinas) | Stanley | 51.40South | 59.51West |
| Faroe Islands | Torshavn | 62.05North | 06.56West |
| Fiji | Suva | 18.06South | 178.30East |
| Finland | Helsinki | 60.15North | 25.03East |
| France | Paris | 48.50North | 02.20East |
| French Guiana | Cayenne | 05.05North | 52.18West |
| French Polynesia | Papeete | 17.32South | 149.34West |
| Gabon | Libreville | 00.25North | 09.26East |
| Gambia | Banjul | 13.28North | 16.40West |
| Georgia | T'bilisi | 41.43North | 44.50East |
| Germany | Berlin | 52.30North | 13.25East |
| Ghana | Accra | 05.35North | 00.06West |
| Greece | Athens | 37.58North | 23.46East |
| Greenland | Nuuk | 64.10North | 51.35West |
| Guadeloupe | Basse-Terre | 16.00North | 61.44West |
| Guatemala | Guatemala | 14.40North | 90.22West |
| Guernsey | St. Peter Port | 49.26North | 02.33West |
| Guinea | Conakry | 09.29North | 13.49West |
| Guinea-Bissau | Bissau | 11.45North | 15.45West |
| Guyana | Georgetown | 06.50North | 58.12West |
| Haiti | Port-au-Prince | 18.40North | 72.20West |

| Country | Capital | Latitude | Longitude |
|---|---|---|---|
| Heard Island and McDonald Islands | | 53.00South | 74.00East |
| Honduras | Tegucigalpa | 14.05North | 87.14West |
| Hungary | Budapest | 47.29North | 19.05East |
| Iceland | Reykjavik | 64.10North | 21.57West |
| India | New Delhi | 28.37North | 77.13East |
| Indonesia | Jakarta | 06.09South | 106.49East |
| Iran (Islamic Republic of) | Tehran | 35.44North | 51.30East |
| Iraq | Baghdad | 33.20North | 44.30East |
| Ireland | Dublin | 53.21North | 06.15West |
| Israel | Jerusalem | 31.71North | 35.10West |
| Italy | Rome | 41.54North | 12.29East |
| Jamaica | Kingston | 18.00North | 76.50West |
| Jordan | Amman | 31.57North | 35.52East |
| Kazakhstan | Astana | 51.10North | 71.30East |
| Kenya | Nairobi | 01.17South | 36.48East |
| Kiribati | Tarawa | 01.30North | 173.00East |
| Kuwait | Kuwait | 29.30North | 48.00East |
| Kyrgyzstan | Bishkek | 42.54North | 74.46East |
| Lao People's Democratic Republic | Vientiane | 17.58North | 102.36East |
| Latvia | Riga | 56.53North | 24.08East |
| Lebanon | Beirut | 33.53North | 35.31East |
| Lesotho | Maseru | 29.18South | 27.30East |
| Liberia | Monrovia | 06.18North | 10.47West |
| Libyan Arab Jamahiriya | Tripoli | 32.49North | 13.07East |
| Liechtenstein | Vaduz | 47.08North | 09.31East |
| Lithuania | Vilnius | 54.38North | 25.19East |
| Luxembourg | Luxembourg | 49.37North | 06.09East |
| Macao, China | Macau | 22.12North | 113.33East |
| Madagascar | Antananarivo | 18.55South | 47.31East |
| Malawi | Lilongwe | 14.00South | 33.48East |
| Malaysia | Kuala Lumpur | 03.09North | 101.41East |
| Maldives | Male | 04.00North | 73.28East |
| Mali | Bamako | 12.34North | 07.55West |
| Malta | Valletta | 35.54North | 14.31East |
| Martinique | Fort-de-France | 14.36North | 61.02West |
| Mauritania | Nouakchott | 20.10South | 57.30East |
| Mayotte | Mamoudzou | 12.48South | 45.14East |
| Mexico | Mexico | 19.20North | 99.10West |
| Micronesia (Federated States of) | Palikir | 06.55North | 158.09East |
| Moldova, Republic of | Chisinau | 47.02North | 28.50East |
| Mozambique | Maputo | 25.58South | 32.32East |
| Myanmar | Yangon | 16.45North | 96.20East |

| Country | Capital | Latitude | Longitude |
|---|---|---|---|
| Namibia | Windhoek | 22.35South | 17.04East |
| Nepal | Kathmandu | 27.45North | 85.20East |
| Netherlands | Amsterdam/The Hague (seat of Gvnt) | 52.23North | 04.54East |
| Netherlands Antilles | Willemstad | 12.05North | 69.00West |
| New Caledonia | Noumea | 22.17South | 166.30East |
| New Zealand | Wellington | 41.19South | 174.46East |
| Nicaragua | Managua | 12.06North | 86.20West |
| Niger | Niamey | 13.27North | 02.06East |
| Nigeria | Abuja | 09.05North | 07.32East |
| Norfolk Island | Kingston | 45.20South | 168.43East |
| Northern Mariana Islands | Saipan | 15.12North | 145.45East |
| Norway | Oslo | 59.55North | 10.45East |
| Oman | Masqat | 23.37North | 58.36East |
| Pakistan | Islamabad | 33.40North | 73.10East |
| Palau | Koror | 07.20North | 134.28East |
| Panama | Panama | 09.00North | 79.25West |
| Papua New Guinea | Port Moresby | 09.24South | 147.08East |
| Paraguay | Asuncion | 25.10South | 57.30West |
| Peru | Lima | 12.00South | 77.00West |
| Philippines | Manila | 14.40North | 121.03East |
| Poland | Warsaw | 52.13North | 21.00East |
| Portugal | Lisbon | 38.42North | 09.10West |
| Puerto Rico | San Juan | 18.28North | 66.07West |
| Qatar | Doha | 25.15North | 51.35East |
| Republic of Korea | Seoul | 37.31North | 126.58East |
| Romania | Bucuresti | 44.27North | 26.10East |
| Russian Federation | Moskva | 55.45North | 37.35East |
| Rawanda | Kigali | 01.59South | 30.04East |
| Saint Kitts and Nevis | Basseterre | 17.17North | 62.43West |
| Saint Lucia | Castries | 14.02North | 60.58West |
| Saint Pierre and Miquelon | Saint-Pierre | 46.46North | 56.12West |
| Saint vincent and the Greenadines | Kingstown | 13.10North | 61.10West |
| Samoa | Apia | 13.50South | 171.50West |
| San Marino | San Marino | 43.55North | 12.30East |
| Sao Tome and Principe | Sao Tome | 00.10North | 06.39East |
| Saudi Arabia | Riyadh | 24.41North | 46.42East |
| Senegal | Dakar | 14.34North | 17.29West |
| Sierra Leone | Freetown | 08.30North | 13.17West |
| Slovakia | Bratislava | 48.10North | 17.07East |
| Slovenia | Ljubljana | 46.04North | 14.33East |
| Solomon Islands | Honiara | 09.27South | 159.57East |
| Somalia | Mogadishu | 02.02North | 45.25East |

| Country | Capital | Latitude | Longitude |
|---|---|---|---|
| South Africa | Pretoria (adm.) / Cap Town (Legislative) / Bloemfontein (Judicial) | 25.44South | 28.12East |
| Spain | Madrid | 40.25North | 03.45West |
| Sudan | Khartoum | 15.31North | 32.35East |
| Suriname | Paramaribo | 05.50North | 55.10West |
| Swaziland | Mbabane (Adm.) | 26.18South | 31.06East |
| Sweden | Stockholm | 59.20North | 18.03East |
| Switzerland | Bern | 46.57North | 07.28East |
| Syrian Arab Republic | Damascus | 33.30North | 36.18East |
| Tajikistan | Dushanbe | 38.33North | 68.48East |
| Thailand | Bangkok | 13.45North | 100.35East |
| The Former Yugoslav Republic of Macedonia | Skopje | 42.01North | 21.26East |
| Togo | Lome | 06.09North | 01.20East |
| Tonga | Nuku'alofa | 21.10South | 174.00West |
| Tunisia | Tunis | 36.50North | 10.11East |
| Turkey | Ankara | 39.57North | 32.54East |
| Turkmenistan | Ashgabat | 38.00North | 57.50East |
| Tuvalu | Funafuti | 08.31South | 179.13East |
| Uganda | Kampala | 00.20North | 32.30East |
| Ukraine | Kiev (Rus) | 50.30North | 30.28East |
| United Arab Emirates | Abu Dhabi | 24.28North | 54.22East |
| United Kingdom of Great Britain and Northern Ireland | London | 51.36North | 00.05West |
| United Republic of Tanzania | Dodoma | 06.08South | 35.45East |
| United States of America | Washington | 47.30North | 120.30West |
| United States of Virgin Islands | Charlotte Amalie | 18.21North | 64.56West |
| Uruguay | Montevideo | 34.50South | 56.11West |
| Uzbekistan | Tashkent | 41.20North | 69.10East |
| Vanuatu | Port-Vila | 17.45South | 168.18East |
| Venezuela | Caracas | 10.30North | 66.55West |
| Viet Nam | Hanoi | 21.05North | 105.55East |
| Yugoslavia | Belgrade | 44.50North | 20.37East |
| Zambia | Lusaka | 15.28South | 28.16East |
| Zimbabwe | Harare | 17.43South | 31.02East |

# 4.4 Time setting of a system

Set up time of a system. After that, it synchronizes with NTP server automatically.

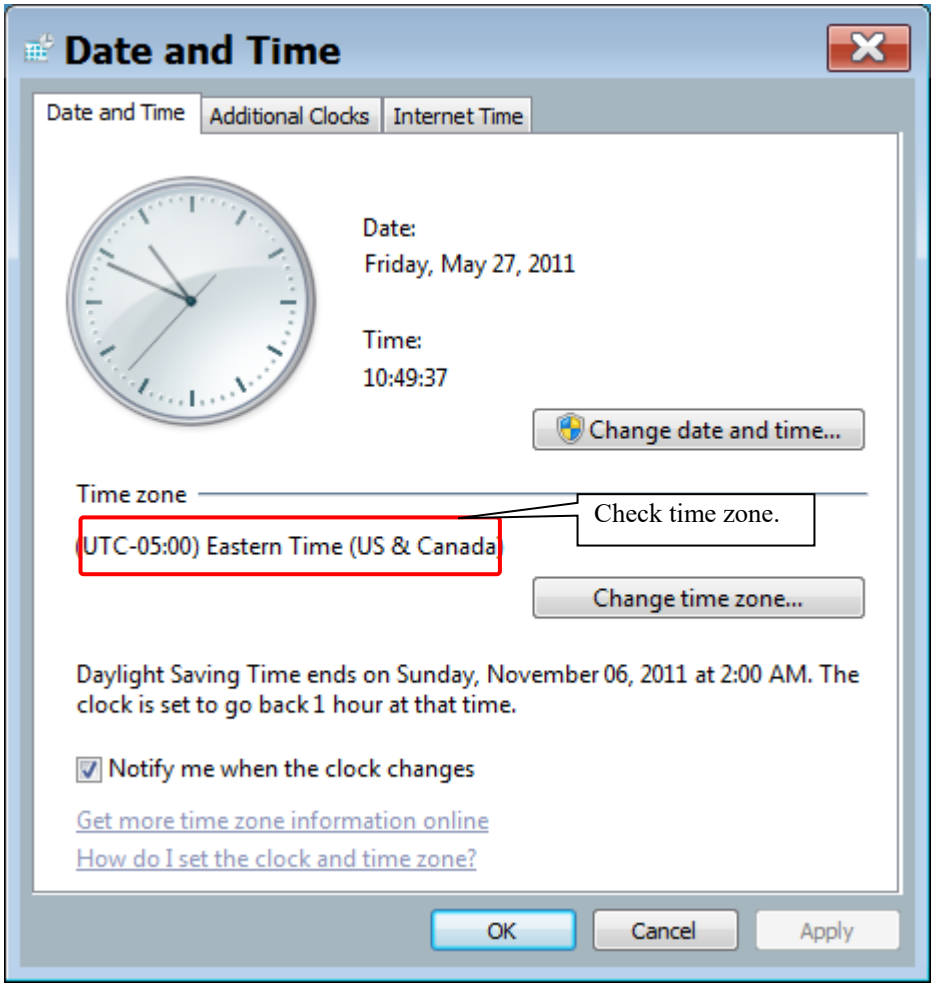



Figure4-12 Time setting

**NOTE** Only if time zone is properly set up and a margin of error is 1 hour or less, it can be synchronized with NTP server.

# 4.5 Creation of user account

Inform system administrator of the following items and request creating user account.

- Login user name
- Login user password
- Name
- Company
- Position
- User authority (for service maintenance/for reference)
- Department
- Time zone
- Email address (Cellular telephone)
- Email address (Office)
- Address
- Telephone number (Cellular telephone)
- Telephone number (Office)
- FAX number

# 4.6 Client PC setting

The following software is required for the client PC that performs remote service. Install according to the following procedure.

## 4.6.1 Adobe® Flash® Player installation

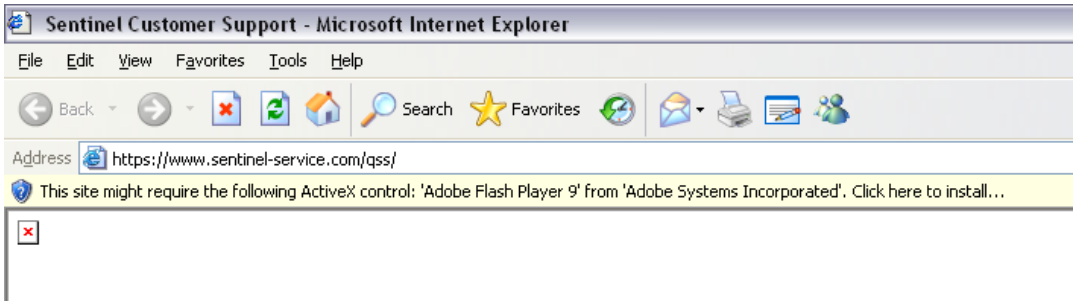
Connect to “http://www.adobe.com/downloads/“from browser, observe site screen, download and install a minimum of Flash Player 9 or later.

Flash Player is automatically installed if it is not installed when Sentinel customer support (https://www.sentinel-service.com/qss/) is connected to.

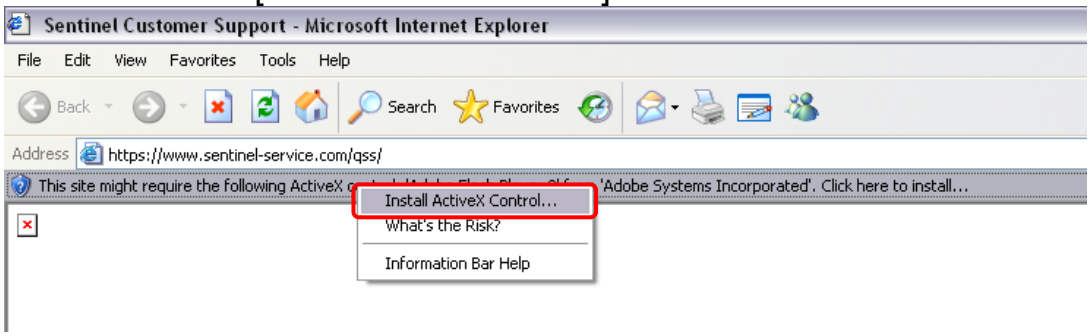
Observe the following procedure to install.

1 Log in to PC as Administrator authority user.

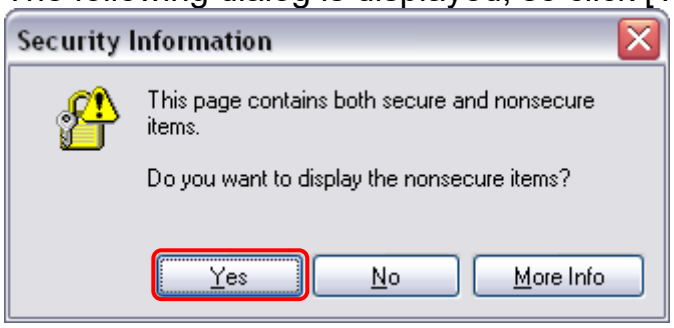
2 In case of Windows 7, the following display is on the upper side of browser if https://www.sentinel-service.com/qss/ is specified in address.




3 Select and click [Install ActiveX Control].

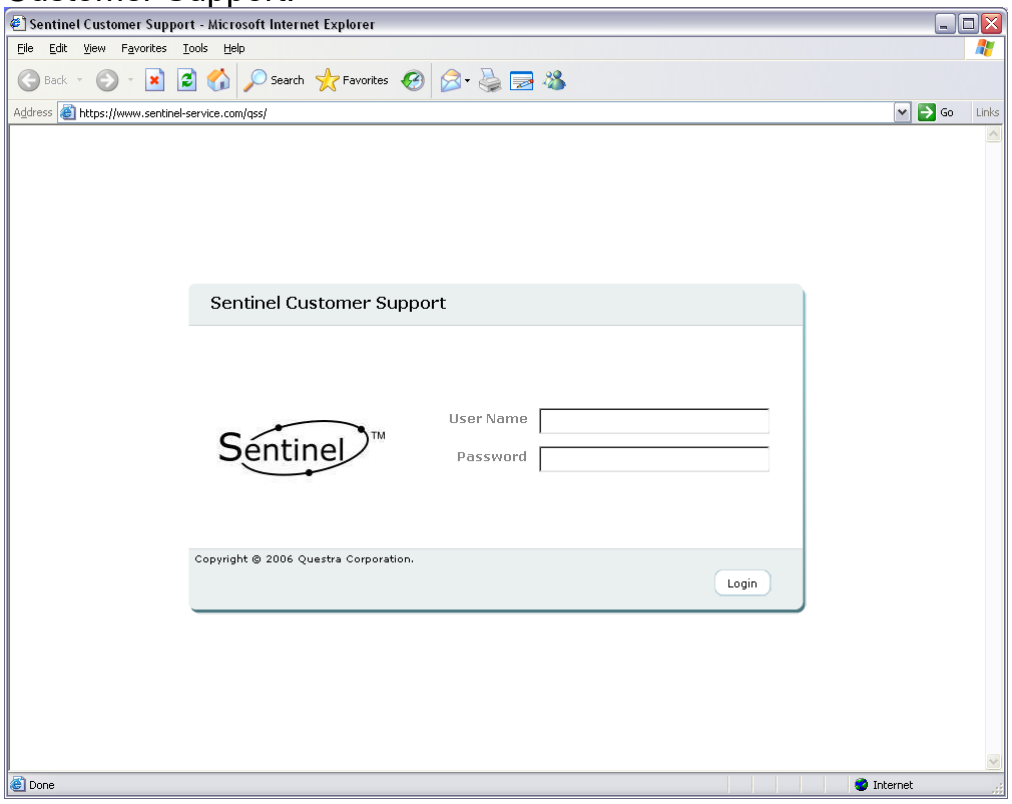


4 The following dialog is displayed, so click [Yes].




5 Click [Install] on the following dialog.

6 Installation is completed and it is possible to connect to Sentinel Customer Support.



# Chapter5 Connection to system server

After setting up system according to section 4.3, when connecting to internet line, server is connected to automatically and setting information is registered in server. Let system administrator know the following site information of system that has been newly connected and ask system administrator to register site information and confirm whether it has been possible to connect to server or not.

Table 5-1 Site information

| | |
|---|---|
| System | Model name |
| | Serial number **NOTE** |
| Customer site | Site name |
| | Address |
| | Telephone number |
| | FAX number |
| | Email address |
| | Web site |
| Person in charge | Name of person in charge |
| | Position |
| | Organization name |
| | Address |
| | Telephone number |
| | FAX number |
| | Email address |

**NOTE** The serial number can be confirmed by "Version Information" of "Help".

Figure5-1 Version Information

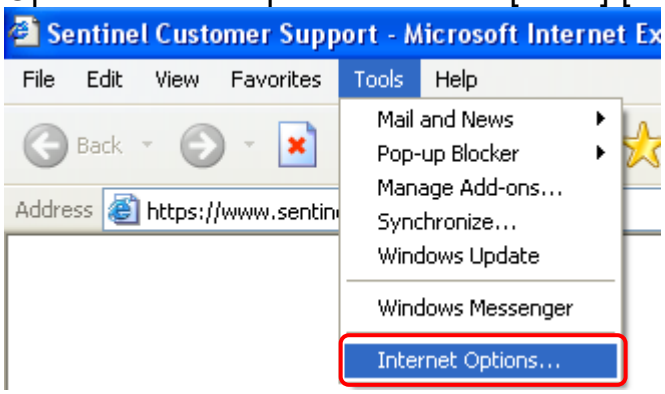
# Chapter6 How to start Sentinel Customer Support

## 6.1 Language setting

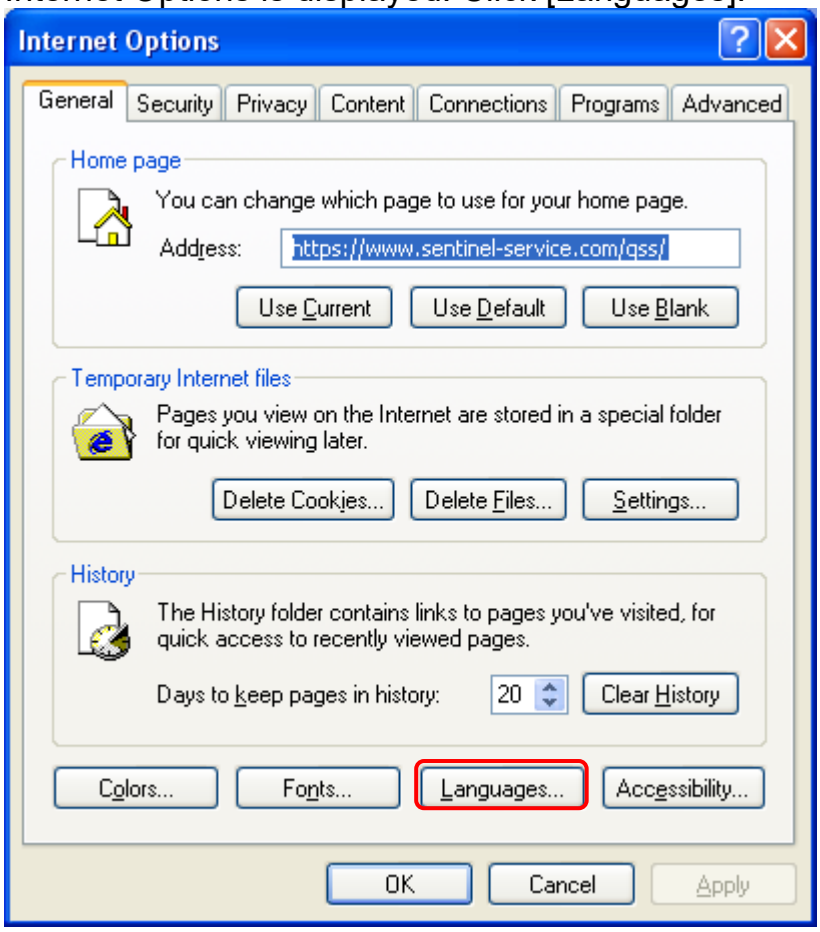
It is necessary “English [en]” is selected as Web browser language, before Sentinel customer support starts.

Observe the following procedure to set up.

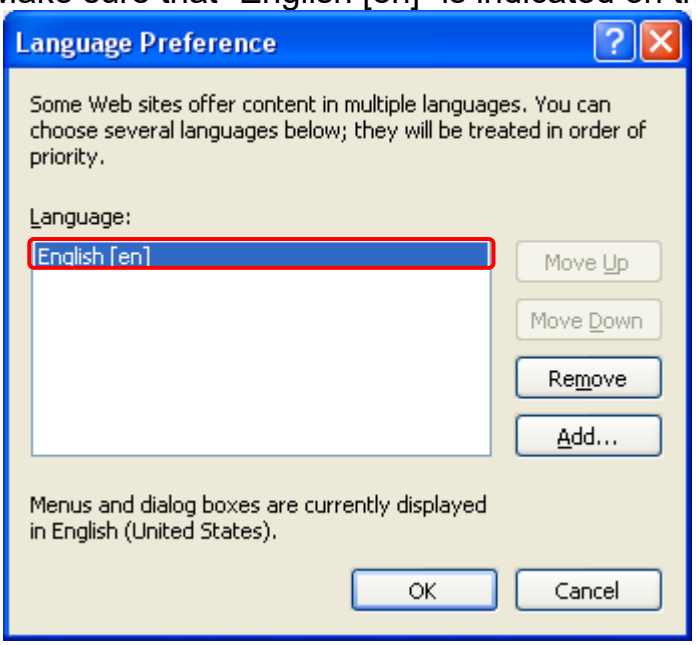
1 Open Internet Explorer and click [Tools]-[Internet Options].



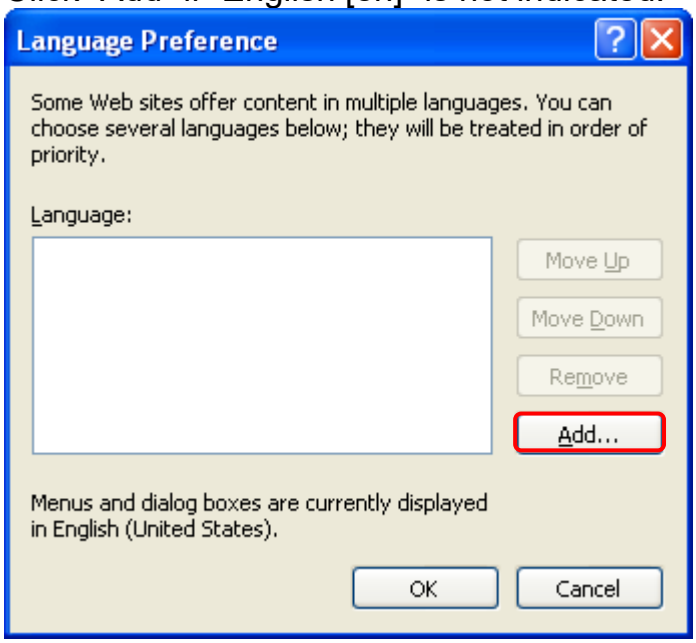
2 Internet Options is displayed. Click [Languages].



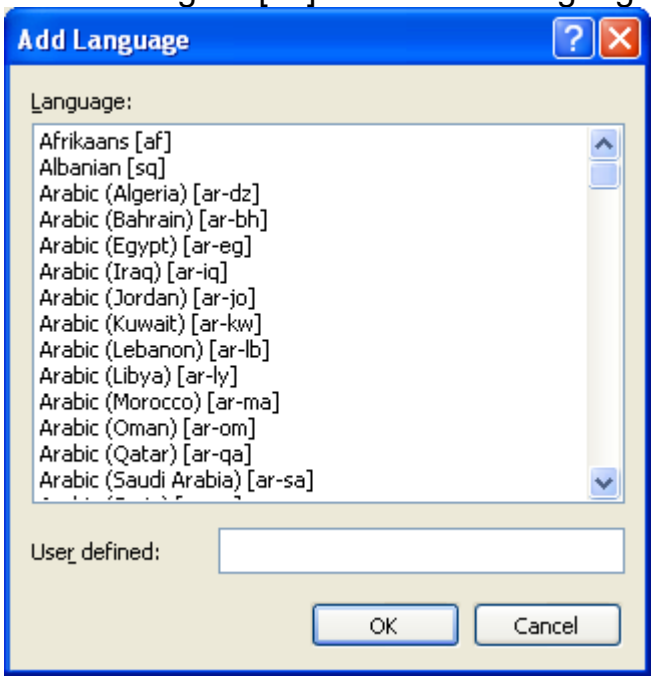

3 Make sure that “English [en]” is indicated on the top of “Language”.



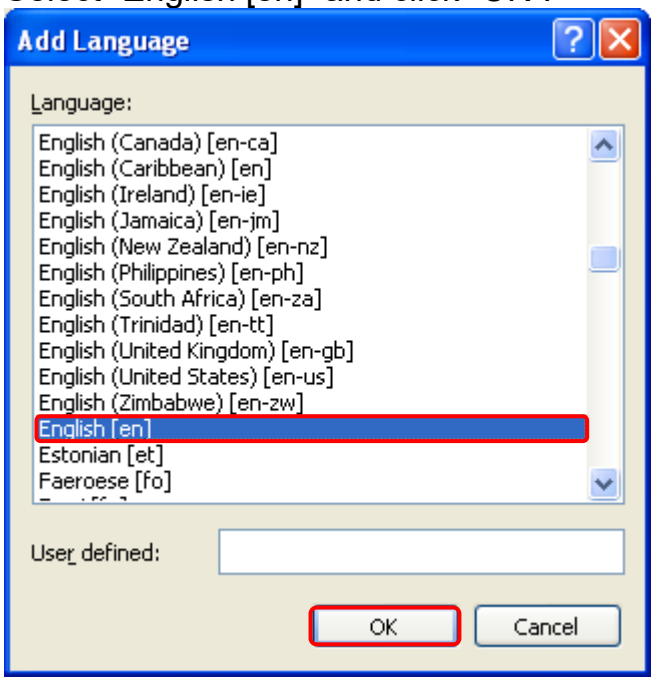
4 Click “Add” if “English [en]” is not indicated.



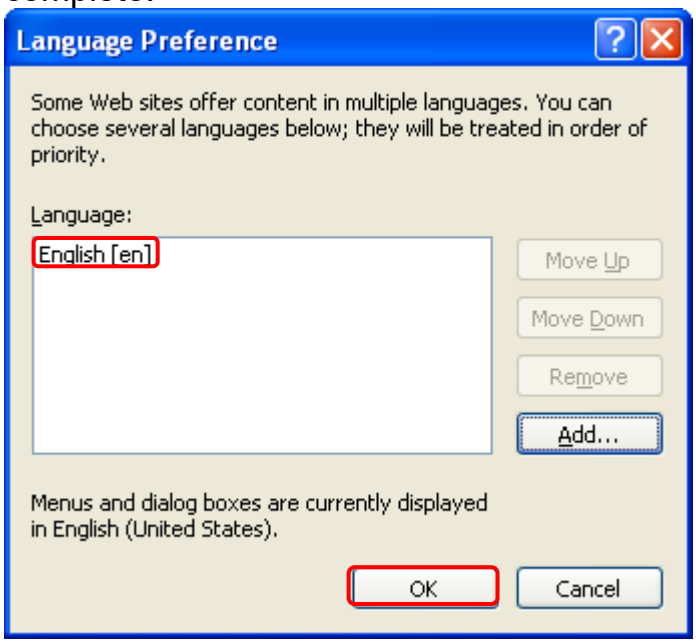

5 Search “English [en]” from “Add Language”.



6 Select “English [en]” and click “OK”.




7 Make sure that “English [en]” is indicated in “Language”, click “OK” to complete.

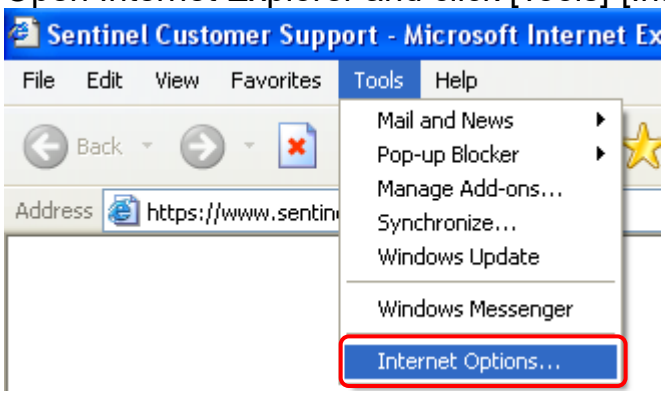


# 6.2 Proxy server setting

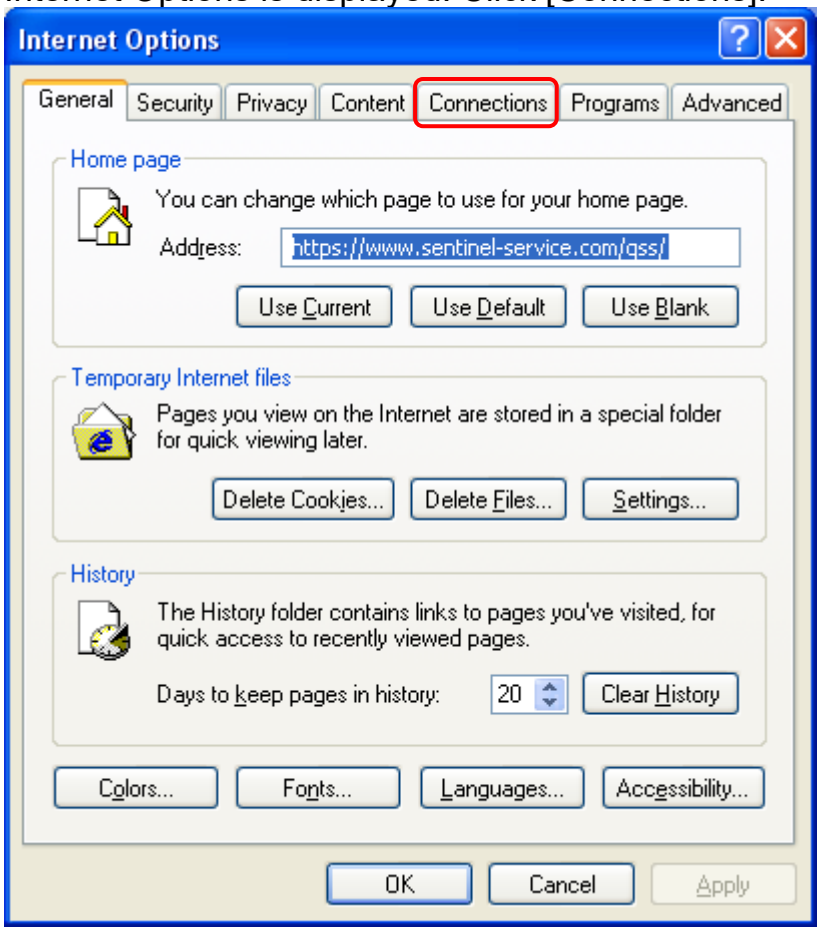
The following setting is needed if proxy server is used in a network of systems monitoring terminal PC that connects with Sentinel customer support.

**NOTE** It is unnecessary for DHCP.

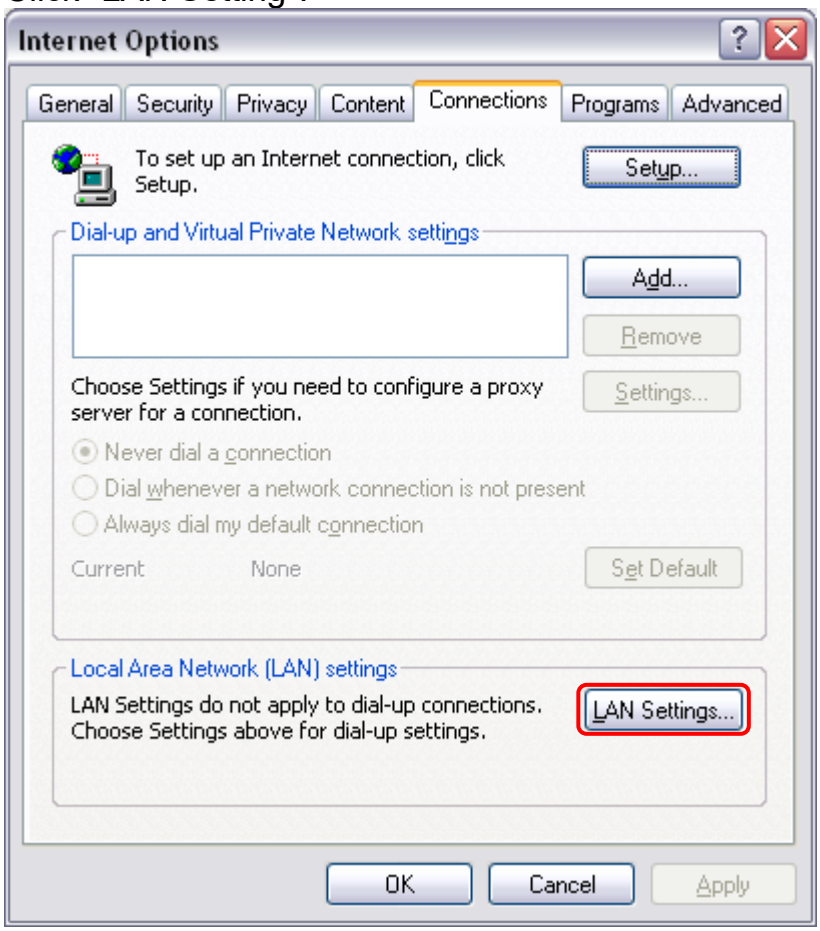
1 Open Internet Explorer and click [Tools]-[Internet Options].



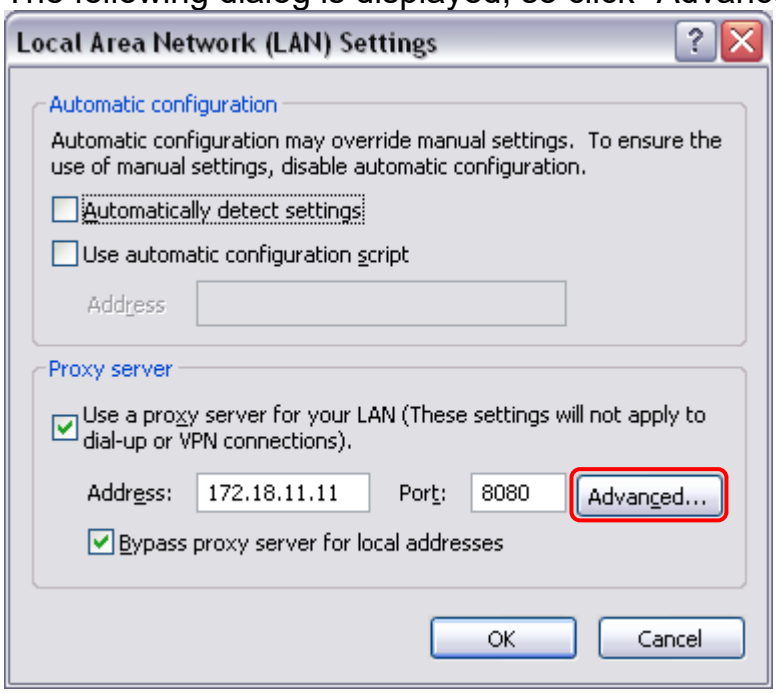

2 Internet Options is displayed. Click [Connections].



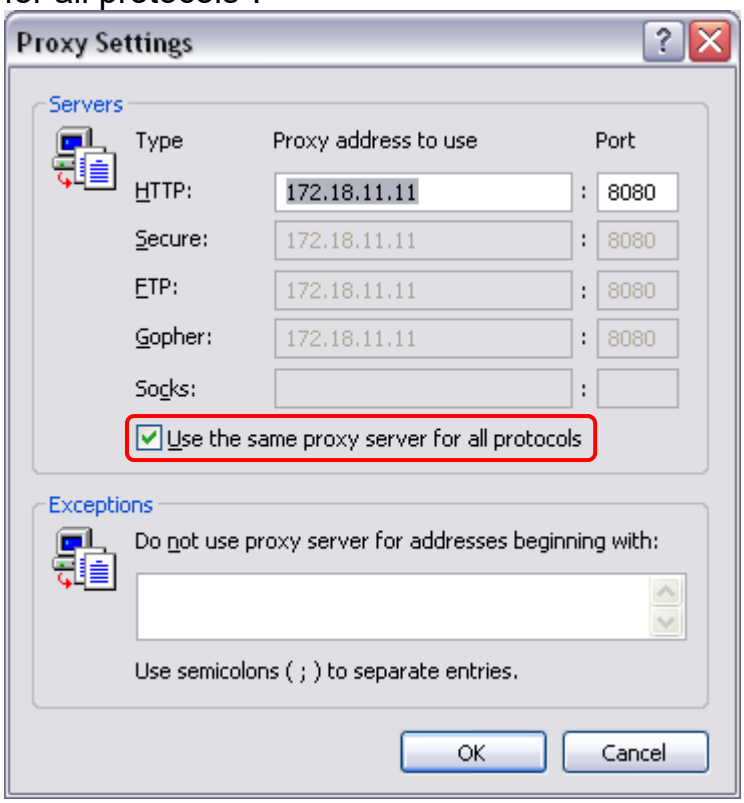
3 Click "LAN Setting".




4 The following dialog is displayed, so click "Advanced".



5 The following dialog is displayed, so tick "Use the same proxy server for all protocols".




6 Click "OK" to end.

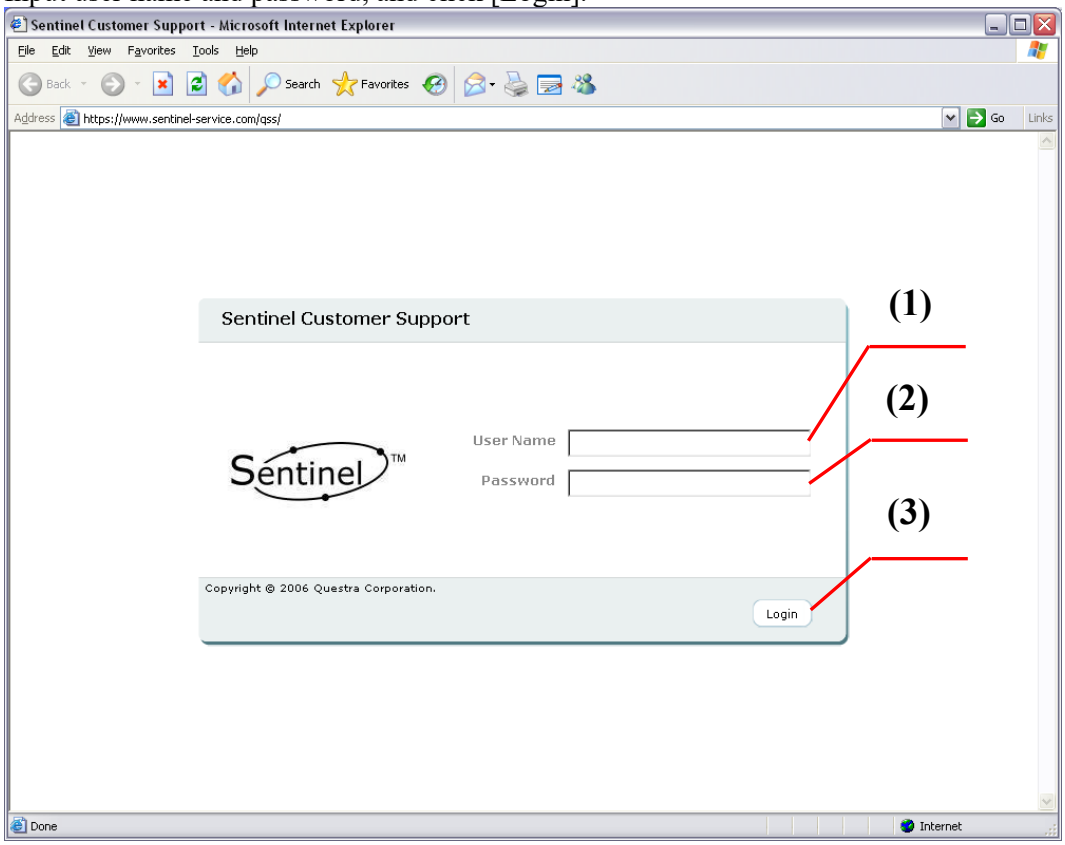
# 6.3 How to start

1 Boot Internet Explorer.

2 Specify https://www.sentinel-service.com/qss/ as address.

**NOTE** Registering this address to “Adding to Favorites” makes access easier from next time.

3 The following log-in screen is displayed.
Input user name and password, and click [Login].

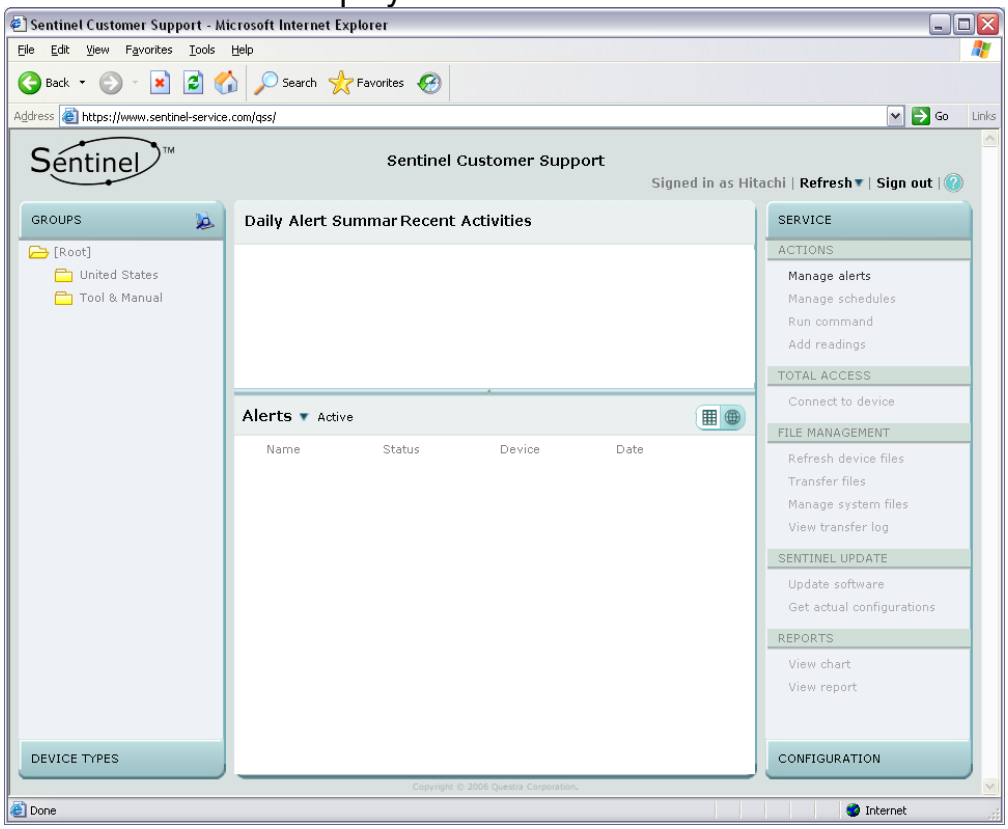



(1) User Name
Input a user name.

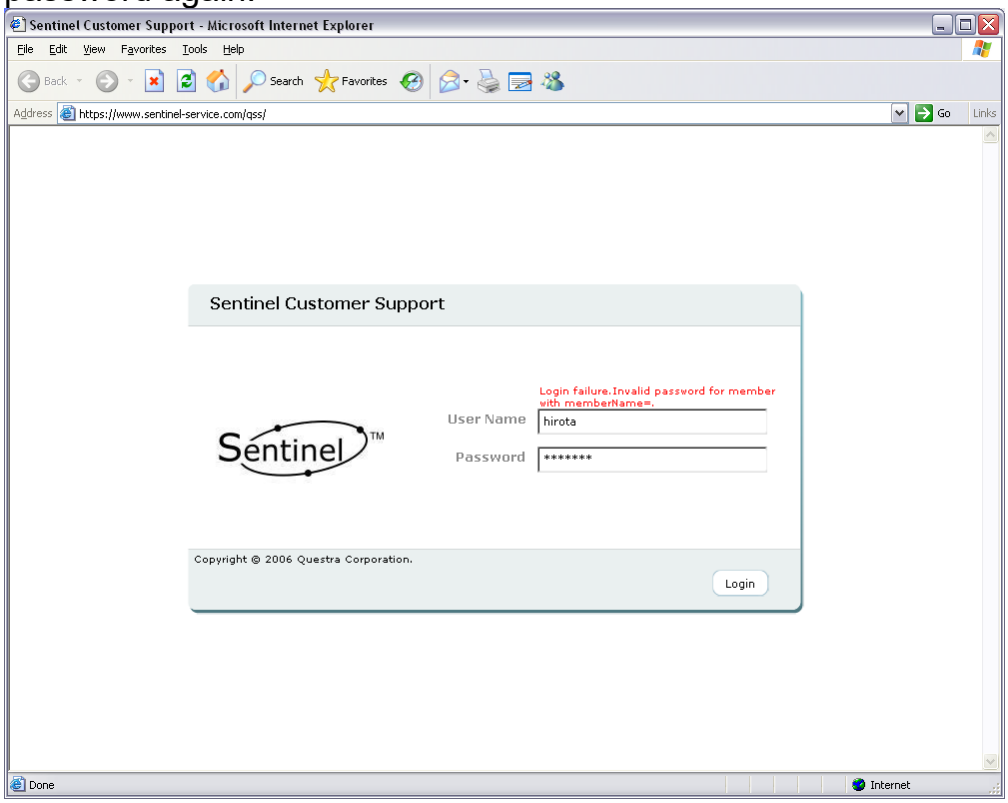
(2) Password
Input a password.

(3) Login
Input User Name, Password and click [Login].

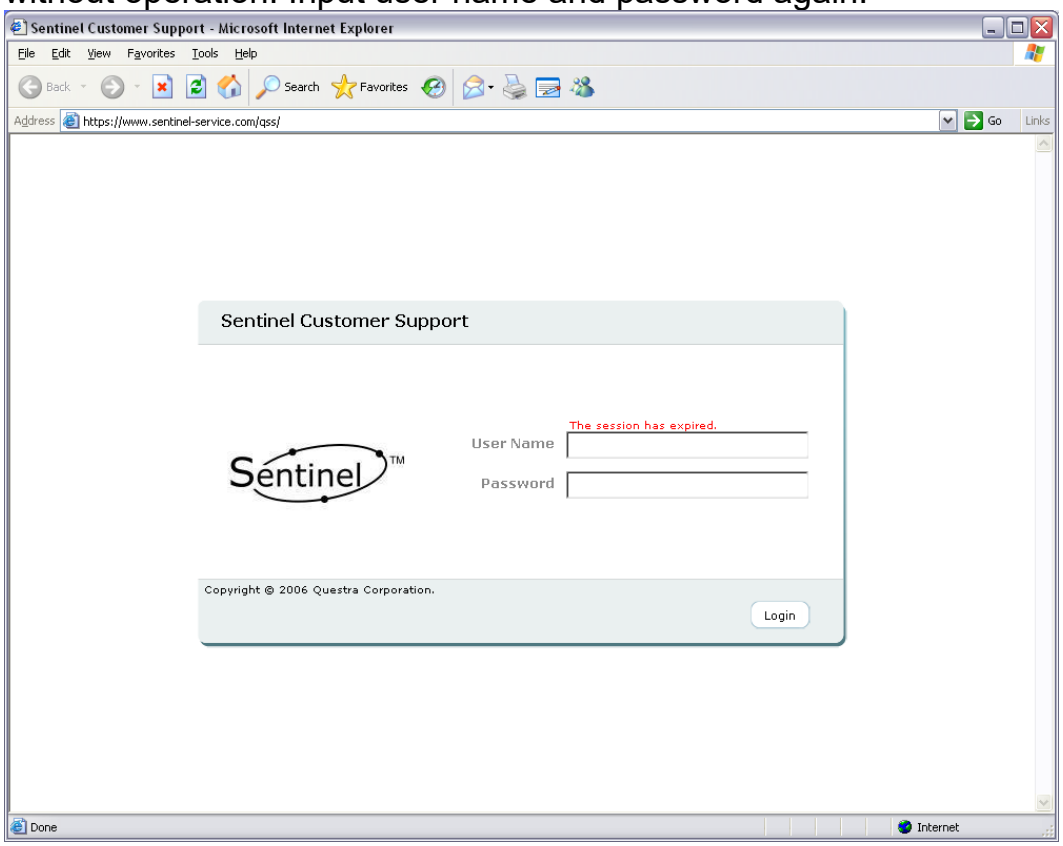
4 If user name and password coincide, the main screen of the following Remote Service is displayed.




5 If user name and password do not coincide, input user name and password again.



6 ” The session has expired.” is indicated after a certain period of time without operation. Input user name and password again.



# Chapter7 Operation way

## 7.1 Way of basic operation

Basic operation of Sentinel Customer Support is performed on internet screen. Operation is possible in the same way as usual internet screen.

Screen structure

- Screen is composed of right, left and middle parts.
- Panels switches display.
- Left and right parts of the screen display the functions for each application.
- If you click the items on the left and right sides of the screen, the content screen is switched to information, setup and operation screen.

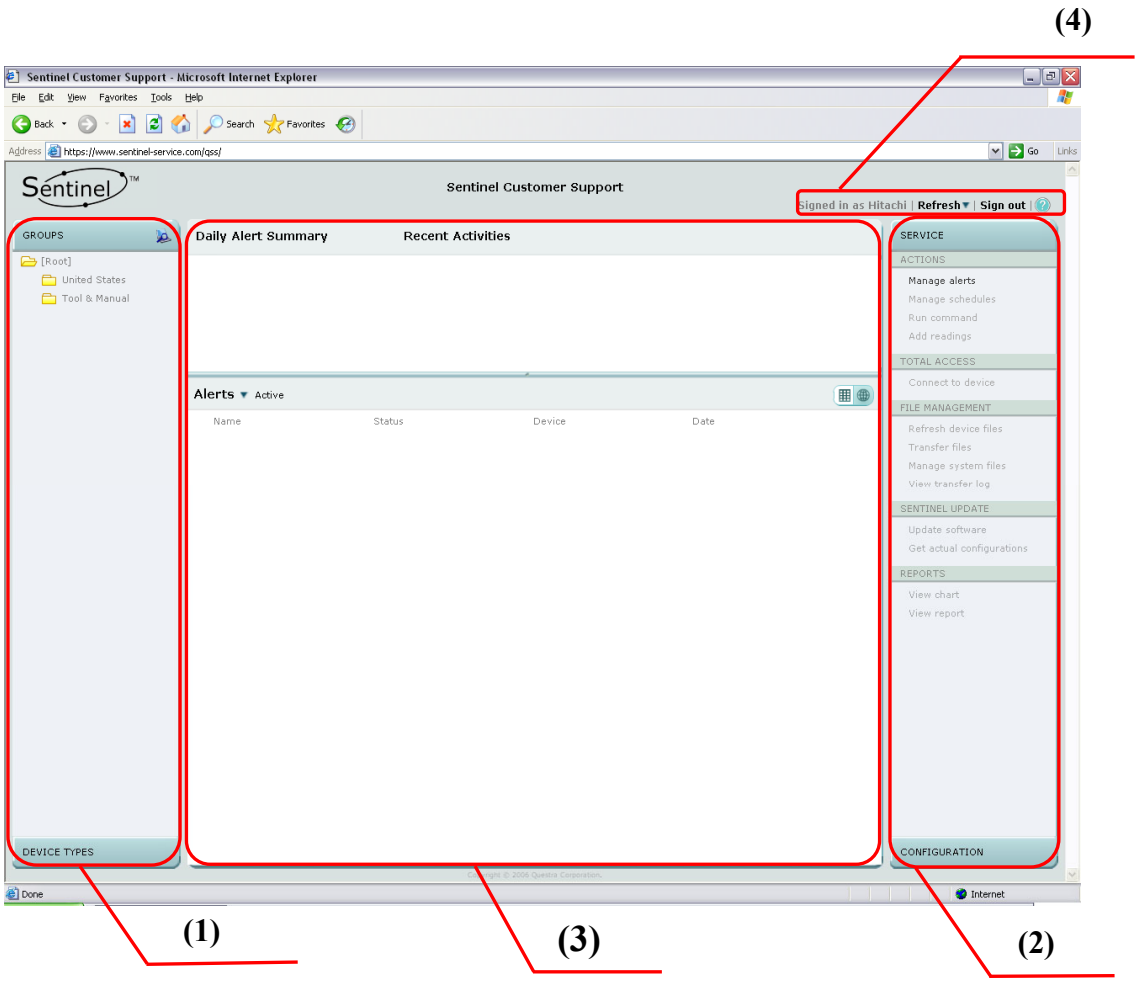



Figure 7-1 Main screen

(1) Navigation Pane

By switching panels, display and selection of [GROUPS] [DEVICE TYPES] are possible.

(2) Action Pane

By switching panels, such operation as [SERVICE] and [CONFIGURATION] can be selected.

(3) Content Pane

Detail operated with [Navigation Pane] and [Action Pane] is reflected.

(4) Log in information.

User log-in information is indicated. Refresh, Sign out and Help operation is performed here.

### 7.1.1 Navigation Pane

By clicking GROUPS and DEVICE TYPES panels in Navigation Pane, [GROUPS] and [DEVICE TYPES] can be displayed.

[GROUPS] displays folder hierarchy of regionally divided groups. They are managed with folder hierarchy.
(Example)

[United States]
- (State)
  - (Customer site)

[Tool & Manual]

**NOTE** To change group setting, administrator user authority is needed.

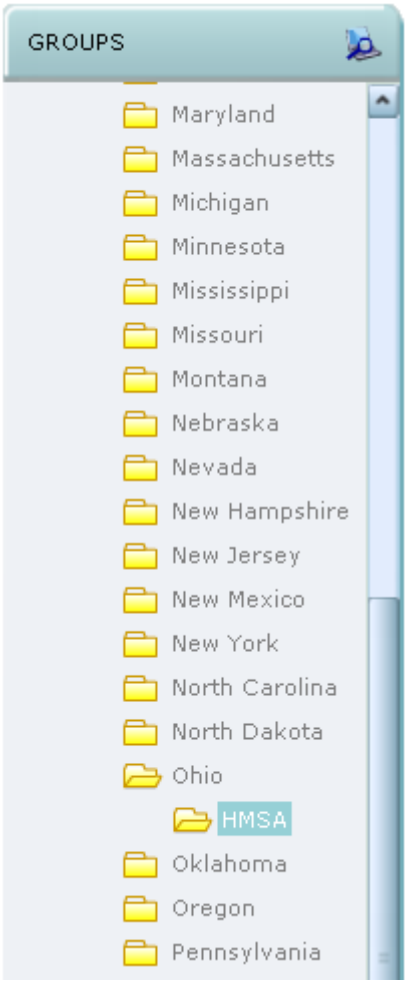



Figure7-2 GROUPS

[DEVICE TYPES] indicates the device type registered in system.

(Example) ECHELON Smart

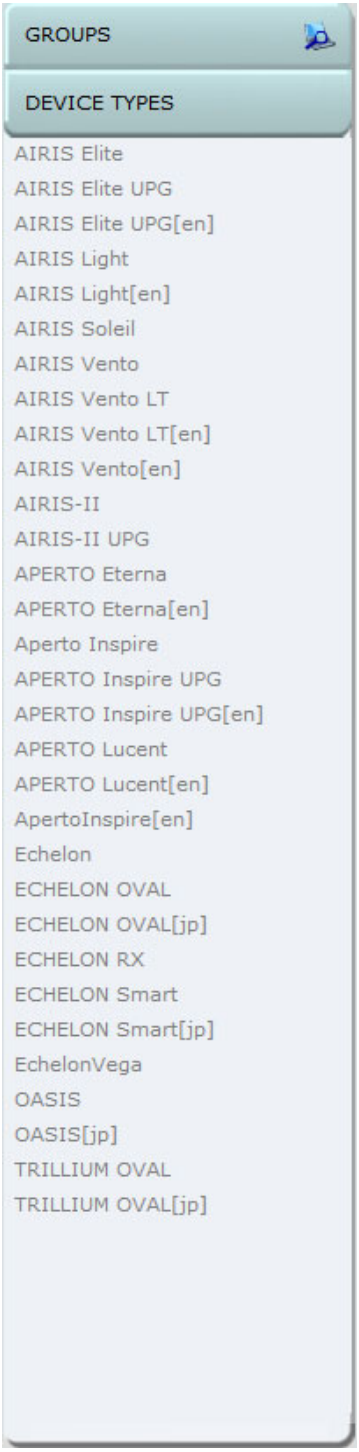



Figure7-3 DEVICE TYPES

## 7.1.2 Content Pane

[Content Pane] indicates device summary and description about groups selected in [Navigation Pane].

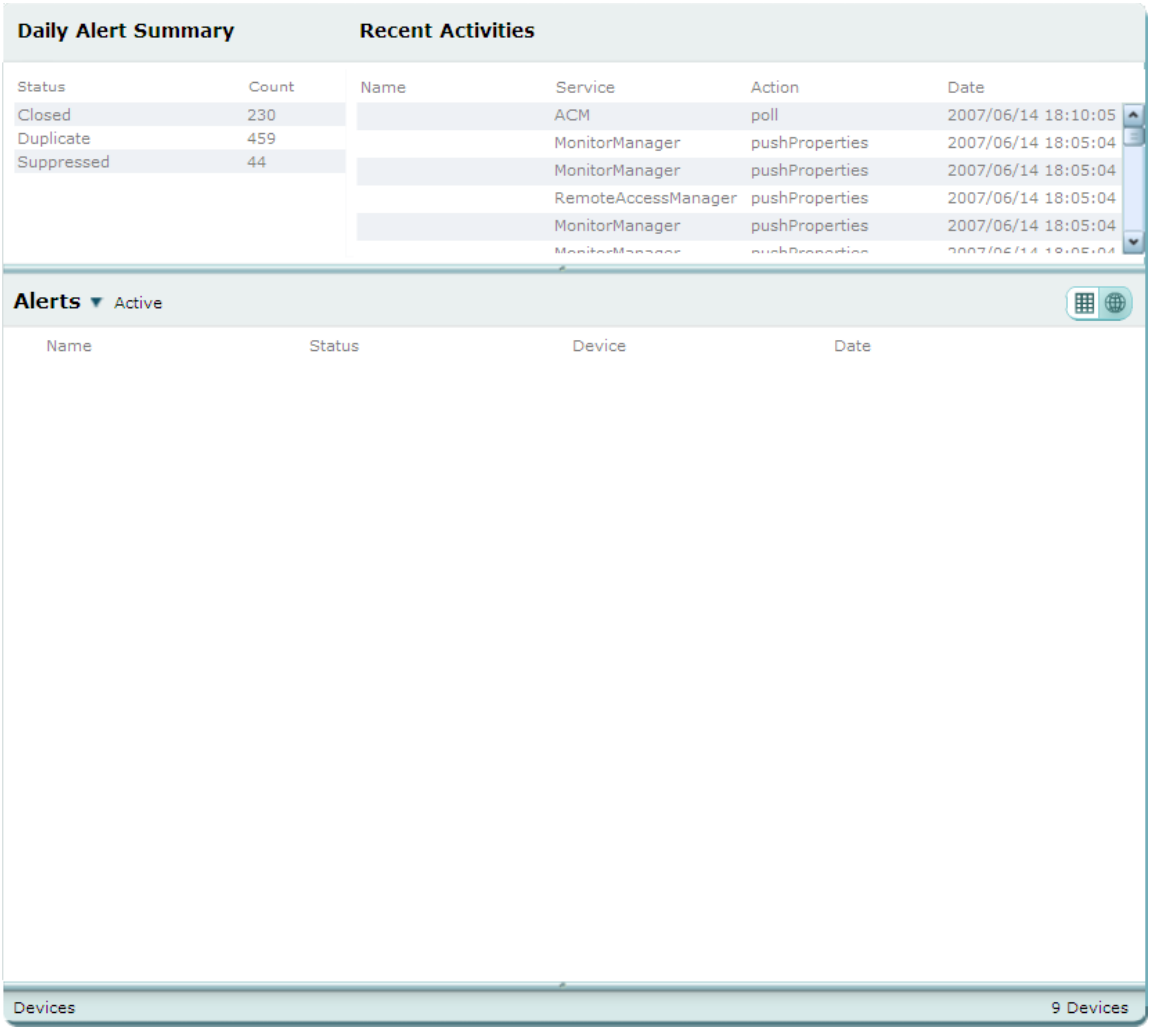



Figure7-4 Content Pane

## 7.1.3 Action Pane

By clicking

and

panels, [SERVICE] and [CONFIGURATION] items can be displayed in [Action Pane].

[SERVICE] indicates device monitoring functions and so on. [CONFIGURATION] indicates personal managing function and system configuration function.

**NOTE** To change [SYSTEM CONFIGURATION], administrator user authority is required.

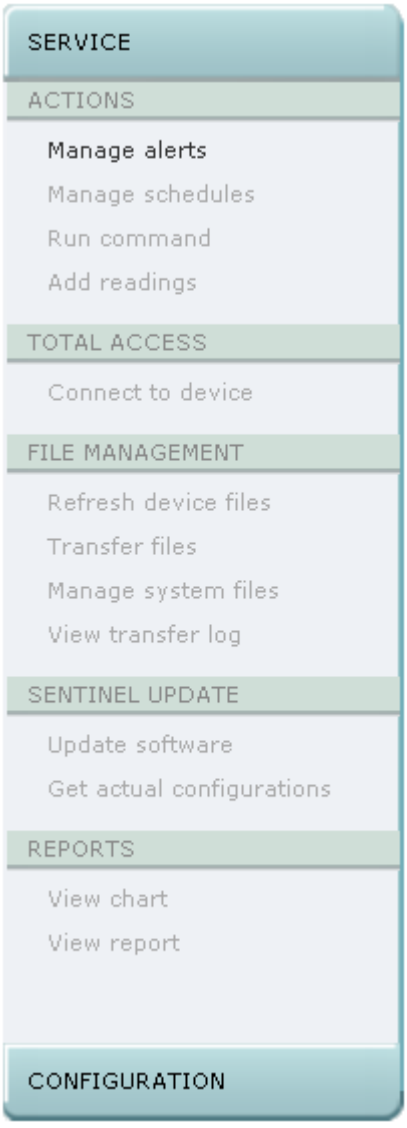



Figure7-5 SERVICE

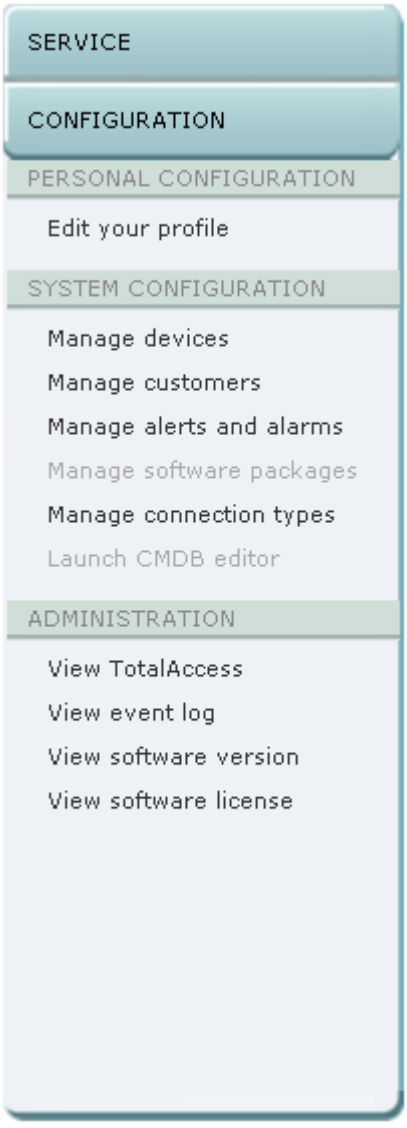



Figure7-6 CONFIGURATION

Table 7-1 Action Pane operation

| Action Pane | List | Task | Description |
|---|---|---|---|
| SERVICE | ACTIONS | Manage Alerts | See Chapter7.3 |
| | | Manage Schedules | Not used. |
| | | Run command | See Chapter 7.4. |
| | | Add readings | See Chapter 7.5. |
| | TOTAL ACCESS | Connect to device | See Chapter 7.7. |
| | FILE MANAGEMENT | Refresh device files | See Chapter 7.6.1. |
| | | Transfer files | See Chapter 7.6.2. |
| | | Manage system files | See Chapter 7.6.3. |
| | | View transfer log | See Chapter 7.6.4. |
| | SENTINEL UPDATE | Update software | See Chapter 7.8. |
| | | Get actual configurations | See Chapter 7.9. |
| | REPORTS | View chart | See Chapter 7.10. |
| | | View report | See Chapter 7.11. |
| CONFIGURATION | PERSONAL CONFIGURATION | Edit your profile | See Chapter7.12. |
| | SYSTEM CONFIGURATION | Manage devices | Administrator user authority is required. |
| | | Manage customers | |
| | | Manage alerts and alarms | |
| | | Manage software updates | |
| | | Manage connection types | |
| | | Launch CMDB editor | |
| | ADMINISTRATION | View TotalAccess | |
| | | View event log | See Chapter 7.13. |
| | | View software version | See Chapter 7.14. |
| | | View software license | See Chapter 7.15. |

## 7.1.4 Refresh

Refresh is screen reloading function.

Time interval to reload a screen can be chosen if [Refresh] button in upper-right corner is clicked. Choose “Now” if refreshing a screen immediately. Besides, choose “Every*****” if refreshing a screen automatically and periodically.

Figure7-7 Refresh

## 7.1.5 Help

It is possible to look up items and so on of the page opened through on-line help. If you click on the upper right, on line help is displayed on another window.

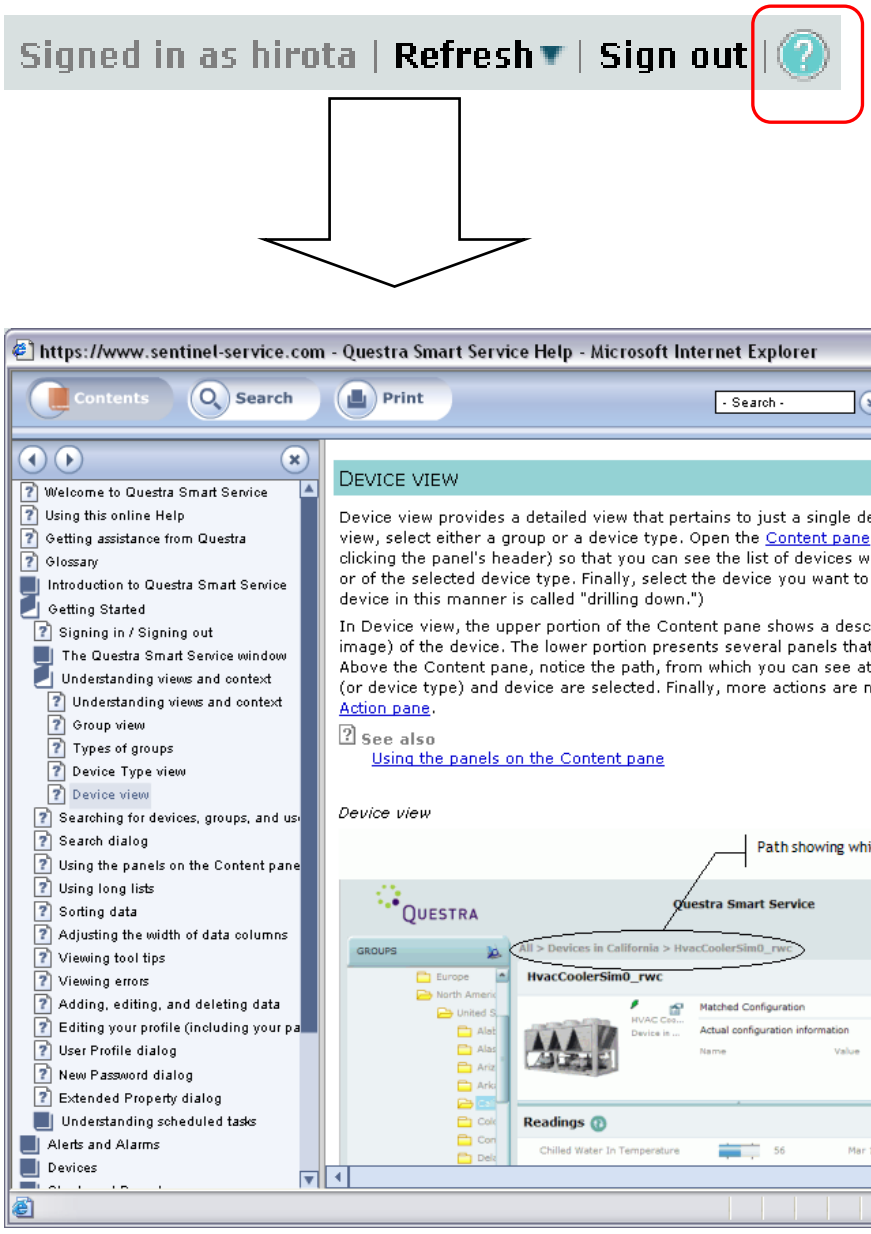



Figure7-8 Help

## 7.1.6 Exporting URL

URL in the state where a group and a device are chosen can be exported, and [Groups] screen and [Devices] screen can be chosen from its address.

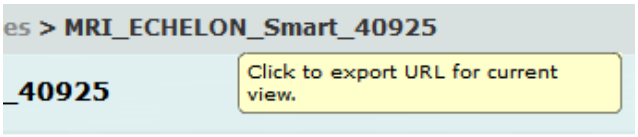
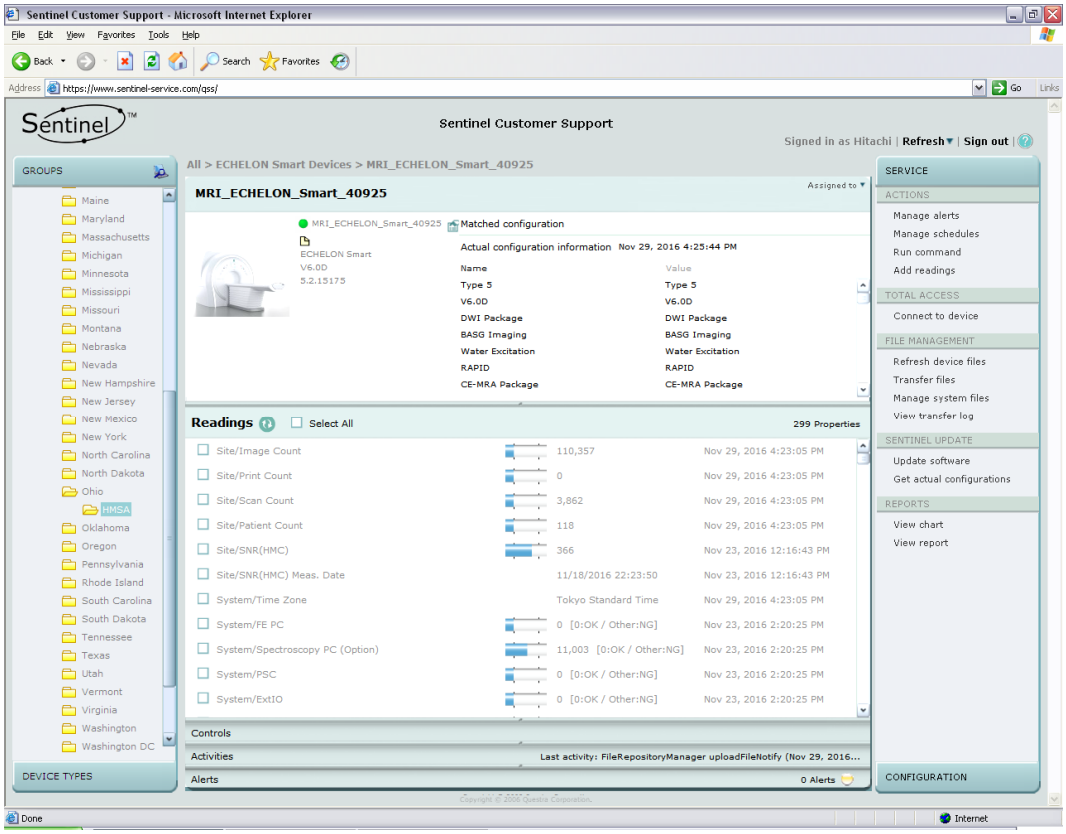


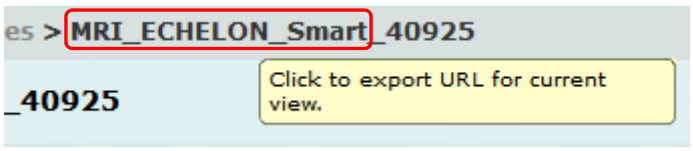

Figure7-9 Exporting URL

The following is a procedure for exporting URL.

1 Display a screen, ([Groups] screen or [Devices] screen), into which URL is desirable to export.

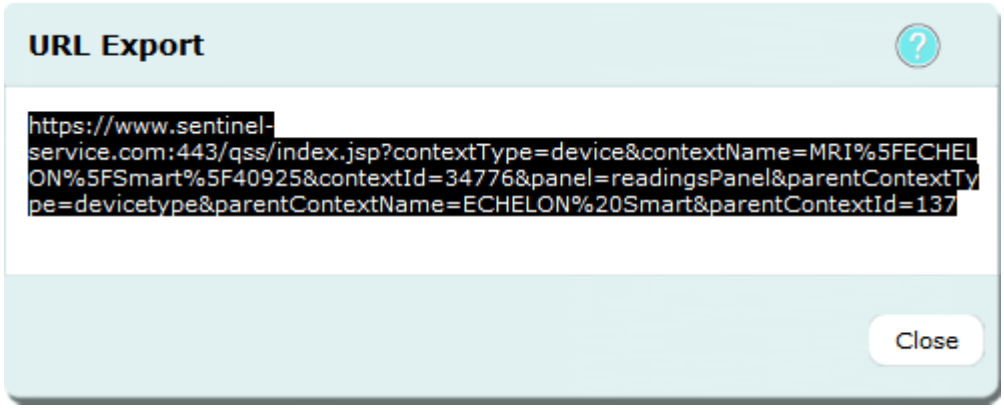



2 Click a device name (or group name) at the top of the content frame.



3 URL is exported.

4 Choose URL and copy the address from right-clicking menu.



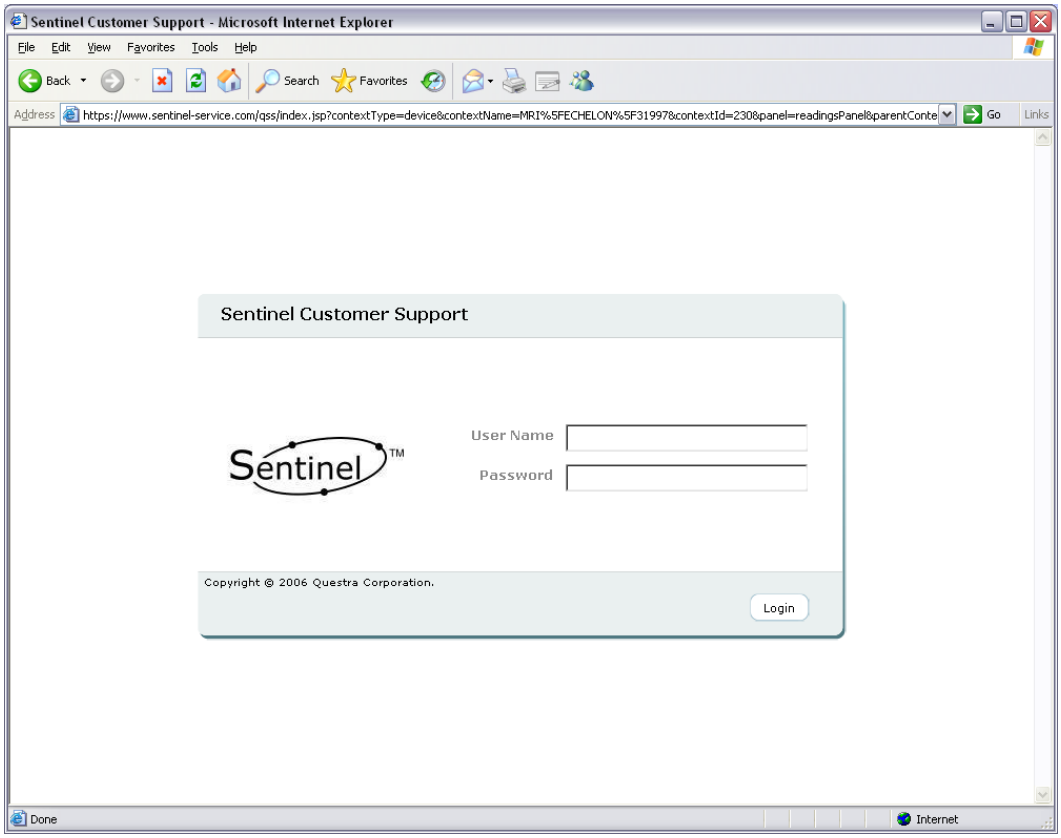

5 Paste it to a text editor such as Notepad and save it.

The following is a procedure for logging in from exported URL.

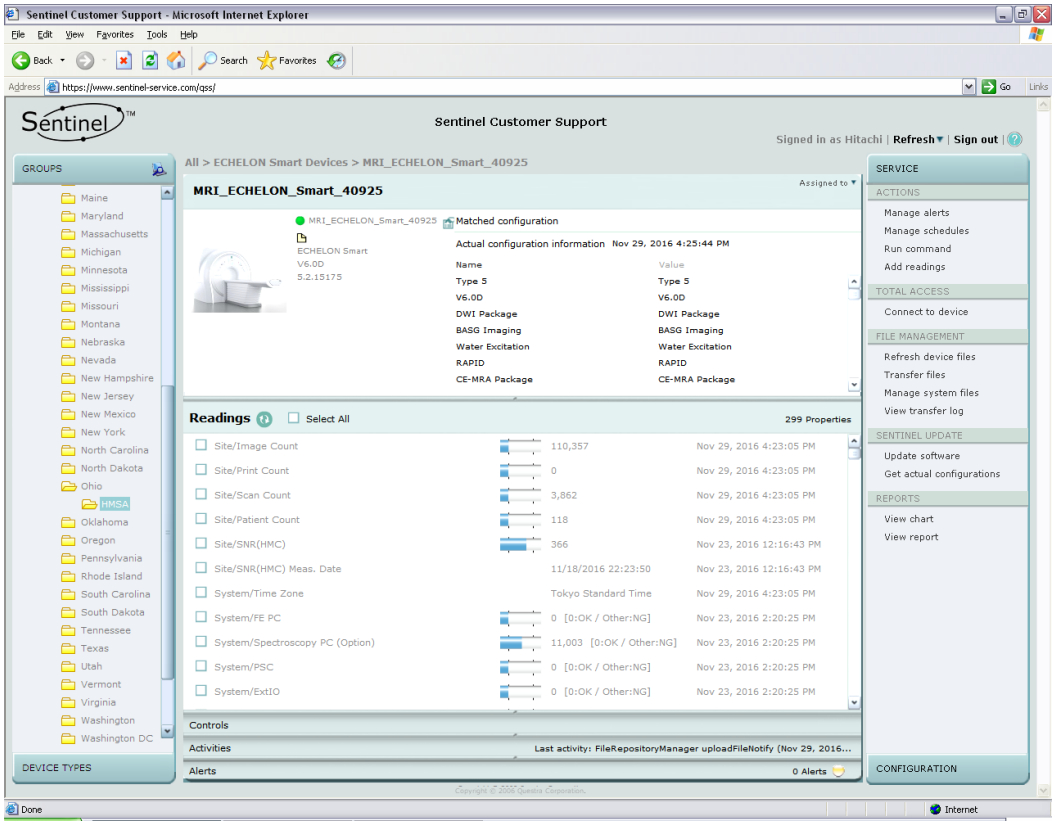
1 Open the URL saved before by a web browser.

2 Log-in screen is displayed.

If this screen is added to “Add to Favorites”, log-in becomes convenient later.



3 If inputting a user name and password and logging in, a screen at the time of having been exporting URL is displayed.



# 7.2 Group view

## 7.2.1 Basic operation

If you select any group from [GROUPS], list of the devices registered in its group and lower-level group is displayed and the latest operating condition and alert presence can be confirmed.

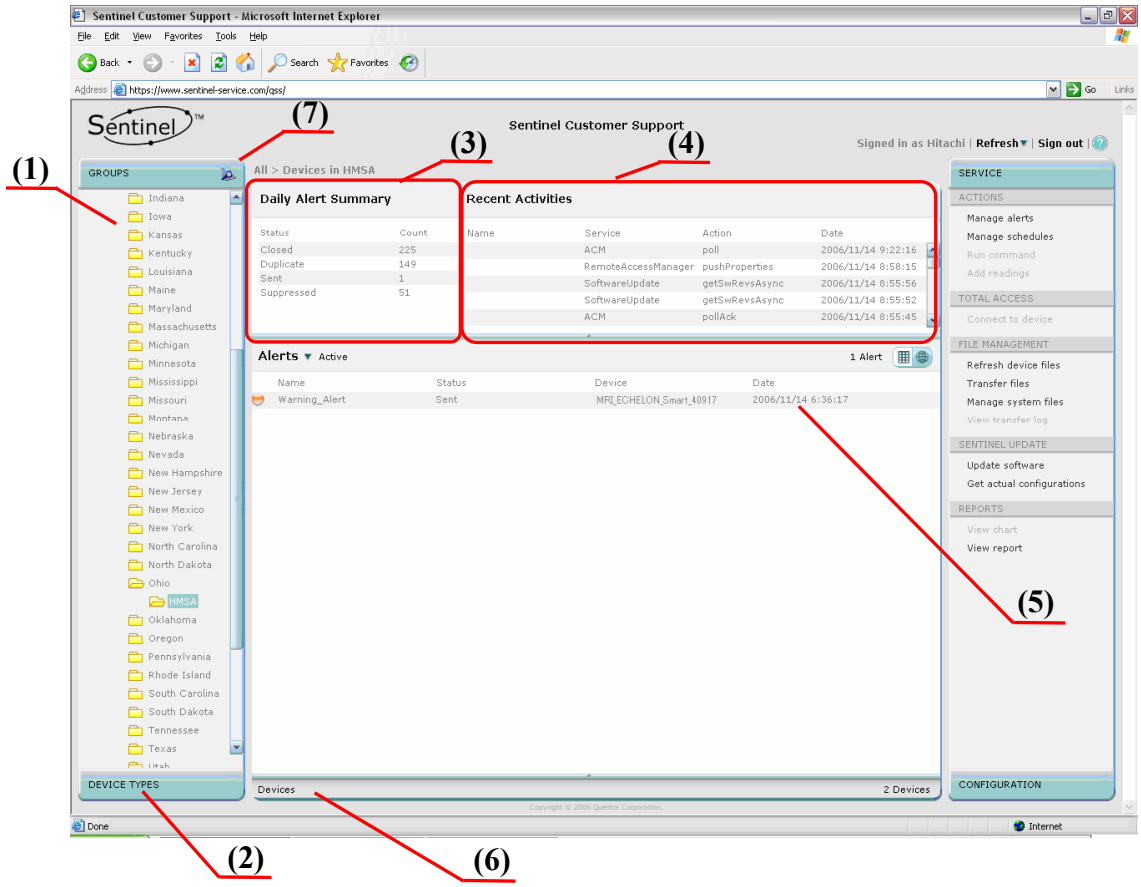



Figure7-10 Group selection

(1) GROUPS

Any group can be selected from [GROUPS] and device registered in its group and lower-level group can be selected.

(2) DEVICE TYPES

Any device type can be selected from [DEVICE TYPES] and its device type device can be selected.

(3) Daily Alert Summary

By selecting group, Daily Alert Summary is displayed.

(4) Recent Activities

By selecting group, [Recent Activities] is displayed.

(5) Alerts

By clicking this window, [Alerts] screen is displayed.

(6) Devices

By clicking this window, [Devices] screen is displayed.

(7) Finding devices

By clicking , finding devices becomes possible.

## 7.2.2 Finding devices

Device Search enables finding devices.

By clicking icon, Device Search screen is displayed.

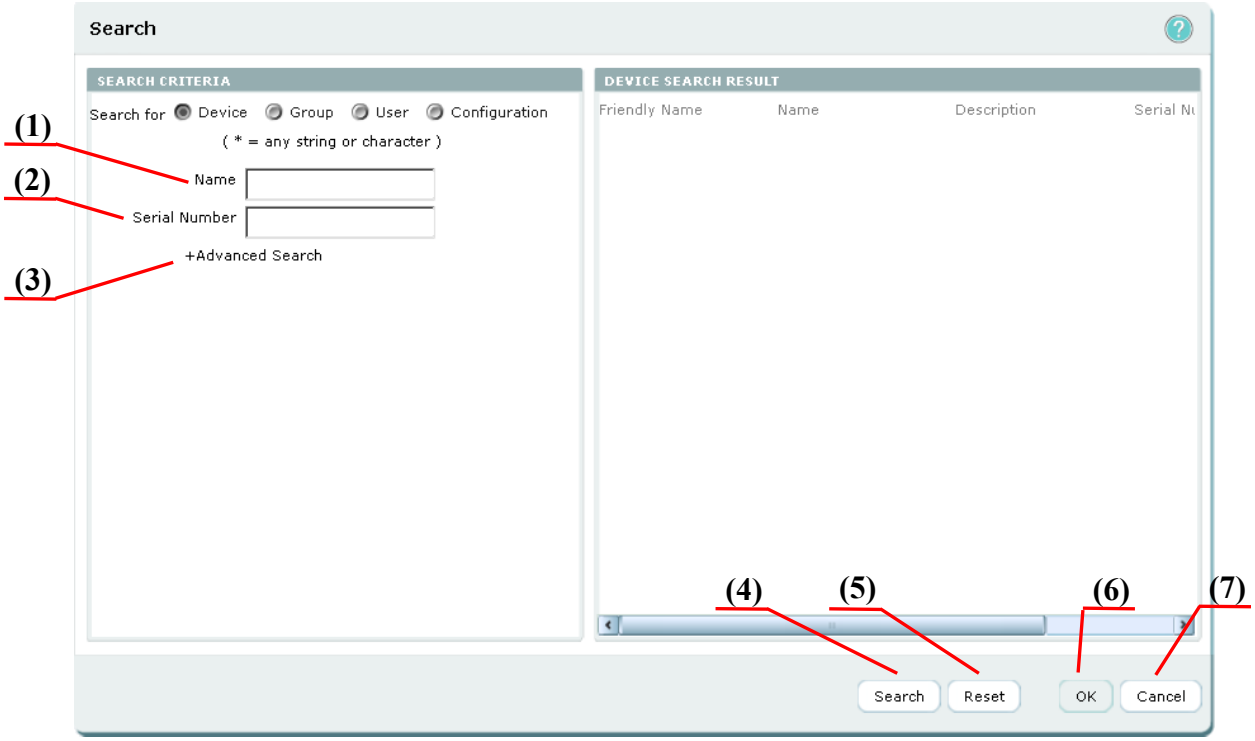



Figure7-11 Finding devices

(1) Name

Device search is performed with name.

Example) MRI_ECHELON_Smart_40925

(2) Serial Number

Device search is performed with serial number.

Example) 40925

(3) Advanced Search

This is used to set up for more advanced search.

(4) Search

By clicking [Search] button, search begins.

(5) Reset

By clicking [Reset] button, entry is deleted.

(6) OK

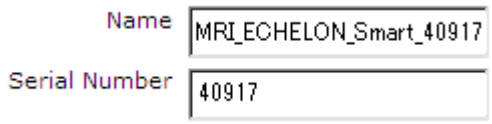
By clicking [OK] button, selected device is indicated.

(7) Cancel

By clicking [Cancel] button, this screen closes.

The following is device search procedure.

1 Fill in device name or serial number.

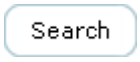



If searching by system name, it is possible to search in a flexible way by using wildcard "*" or "%" to input a system name.

Table 7-2 Wild card description

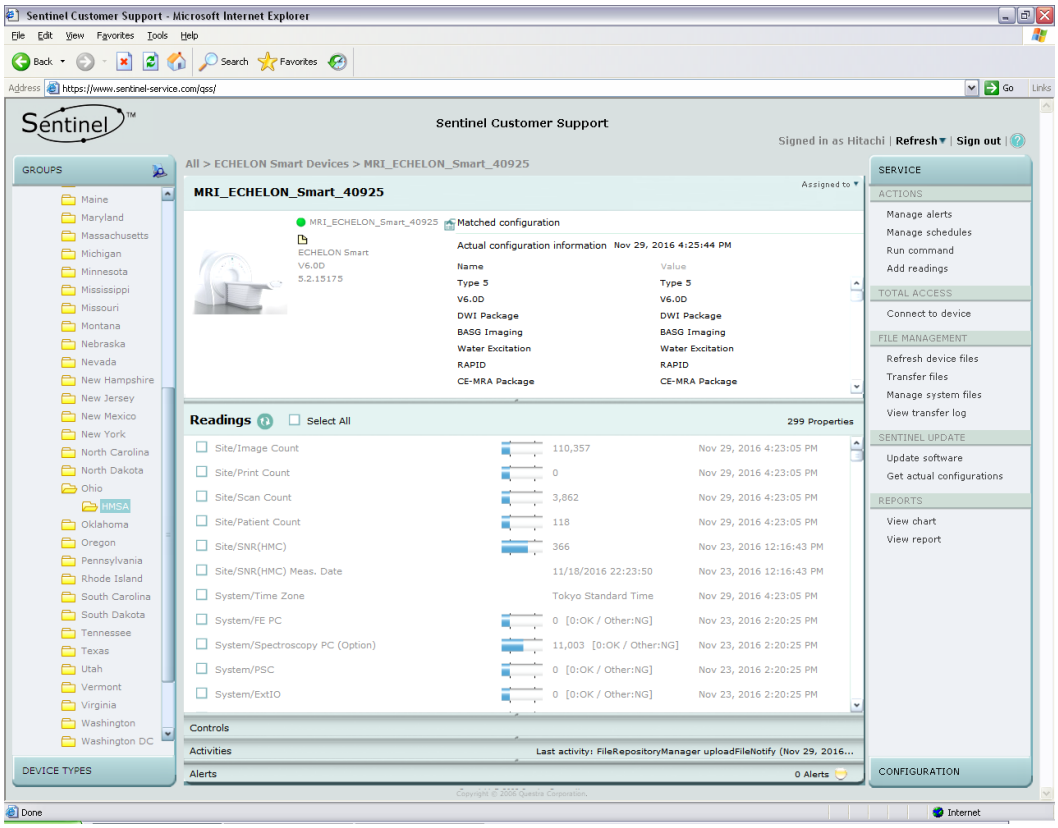
| To find… | Enter in Name field… |
|---|---|
| all devices whose names begin with the string "abc" | abc* or abc% |
| all devices whose names end with the string "abc" | *abc or %abc |
| all devices whose names include the string "abc" | *abc* or %abc% |
| only the device whose name is "abc" | abc |

2 Click [Search] button.




3 Search result is listed on screen.

4 Select displayed device name, click [OK] button and its description is indicated.



The following is more advanced search procedure.

1 Click [Advanced Search] to display next screen.

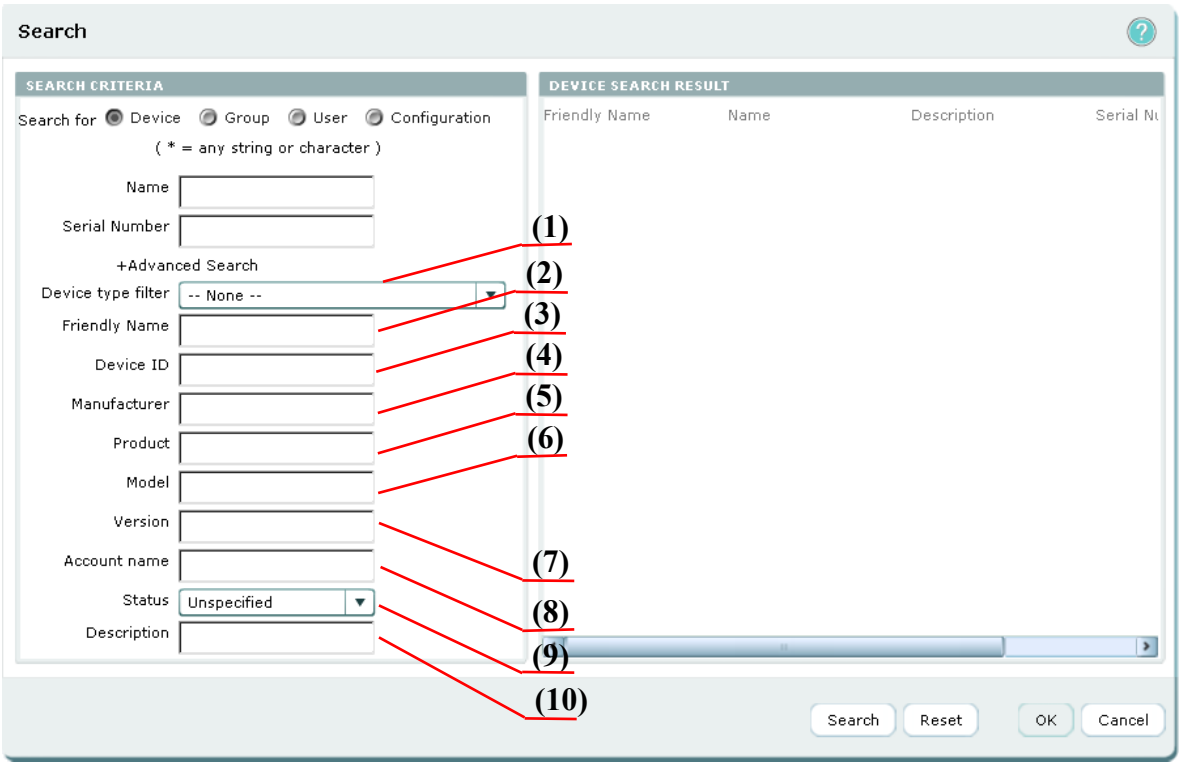



Figure7-12 Advanced Search

(1) Device type filter

Device search is performed with device type name.

(2) Friendly Name

Friendly Name is performed with friendly name.

(3) Device ID

Device search is performed with device ID.

(4) Manufacturer **NOTE1**

Device search is performed with maker name.

(5) Product **NOTE1**

Device search is performed with product name.

(6) Model **NOTE1**

Device search is performed with model name.

(7) Version **NOTE1**

Device search is performed with version name.

(8) Account name

Device search is performed with account name.

(9) Status

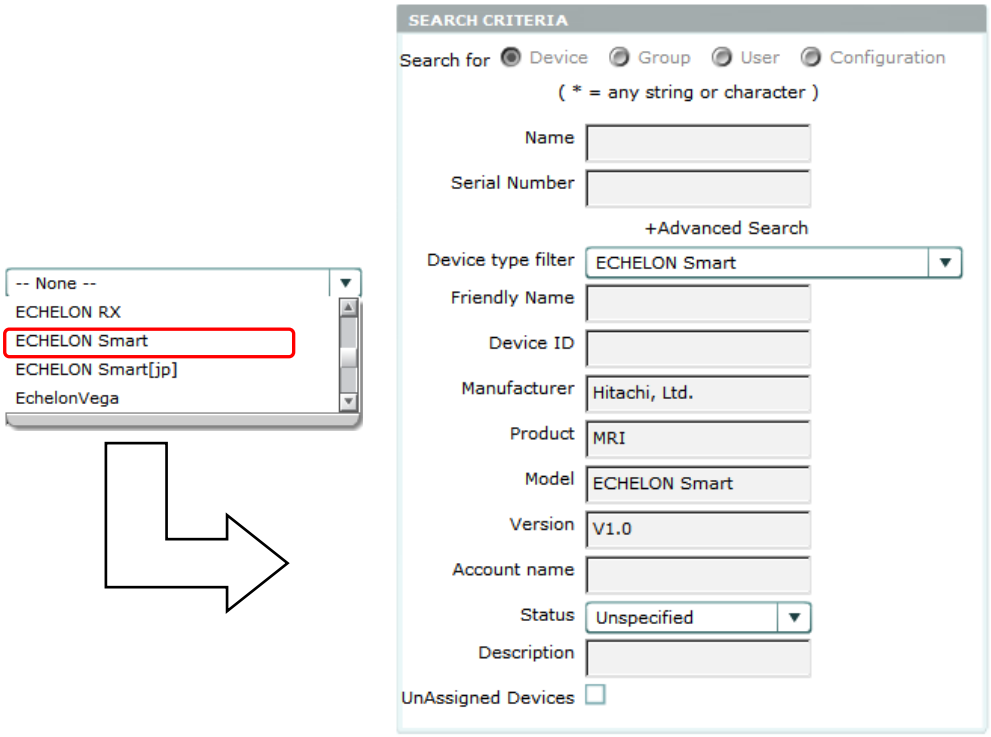
Device search is performed with status.

(10) Description

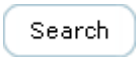
Device search is performed with description.

**NOTE1** If Device type filter is selected, manufacturer, product, model and version are automatically filled in.

## 2 Select or enter items to filter.

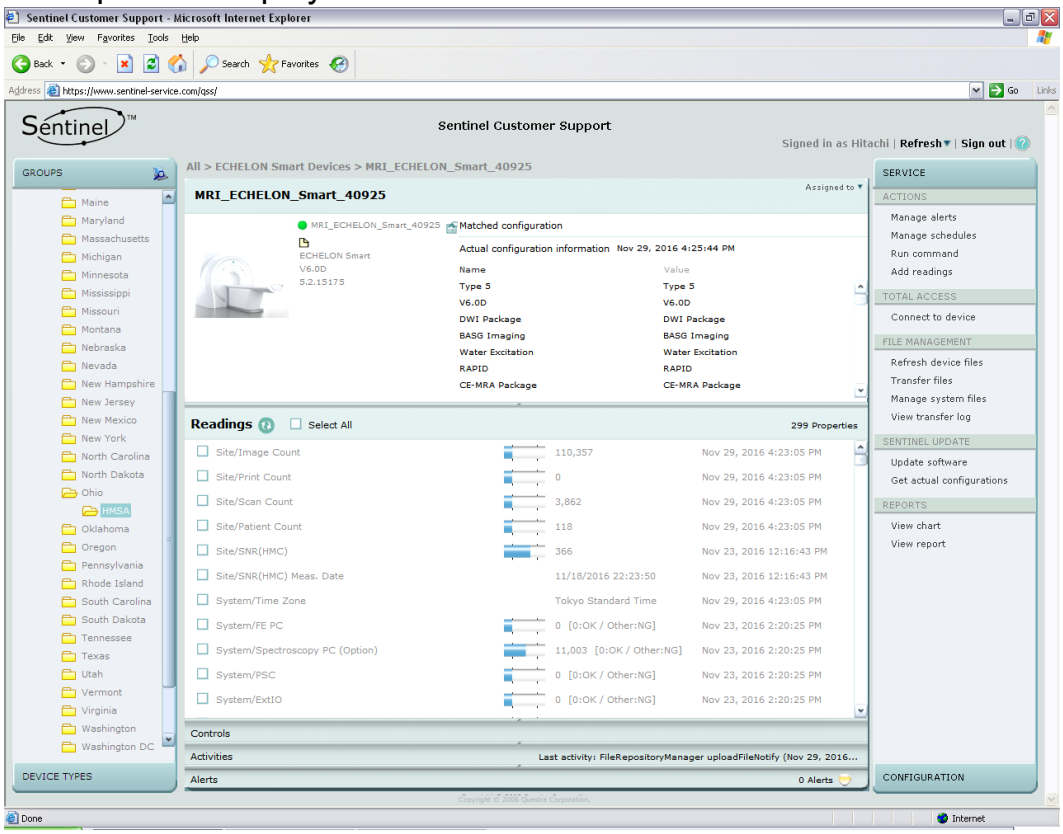



## 3 Click [Search] button.




## 4 Search result is listed on screen.

5 Select the device name being indicated, click [OK] button and its description is displayed.



## 7.2.3 Daily Alert Summary

By selecting any group from [GROUPS], [Daily Alert Summary] indicates the number of device alert registered in its group and lower-level group.

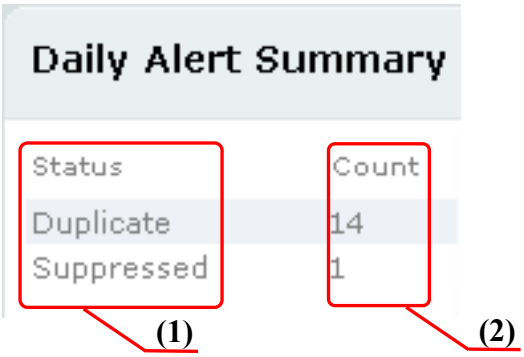



Figure7-13 Daily Alert Summary

(1) Status
Alert status is indicated.

(2) Count
The number of alert is indicated.

Table7-3 Alert status

| Definitions of alert states | | |
|---|---|---|
| Active | Pending | This is the alert request's initial state when it is created. The alert request is "pending" processing. |
| | Submitted | The processing of the alert request has begun; it has been submitted to the alert processor. |
| | Sent | The processing of the alert request is completed; it has been successfully sent to the alert processor. |
| Completed | Acknowledged | A user has reviewed the alert request and acknowledged that it exists. |
| | Closed | The alarm condition has been cleared or otherwise handled, and no more user action is required. The alert request is closed. |
| | Duplicate | The alert request pertains to the same alarm and alert as another alert request for the same device that is currently being processed. This alert request, therefore, is a duplicate and can be ignored. |
| | Suppressed | The alert escalator has exhausted all escalation levels for the alert request, and processing has reached the end. Therefore, all automatic processing is now suppressed. |

## 7.2.4 Recent Activities

By selecting any group from [GROUPS], [Recent Activities] indicates operation detail of the device registered in its group and lower-level group.

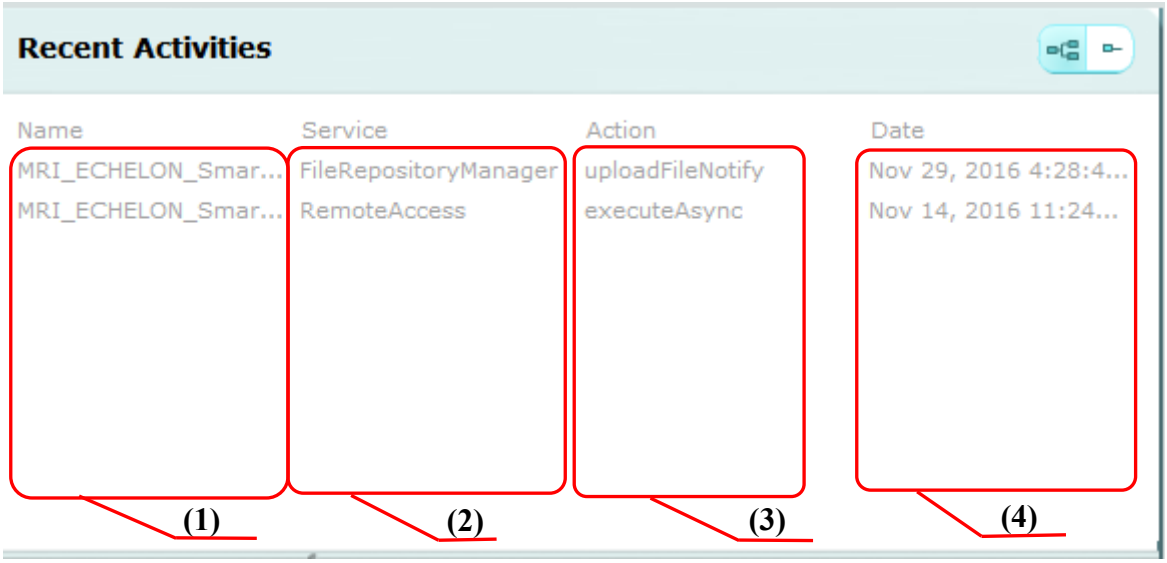



Figure7-14 Recent Activities

(1) Name
Device name is indicated.

(2) Service
Service content is indicated.

(3) Action
Action content is indicated.

(4) Date
Action date is indicated.

## 7.2.5 Alerts

By selecting any group from [GROUPS], [Alerts] indicates alert detail of device registered in its group and lower-level group.

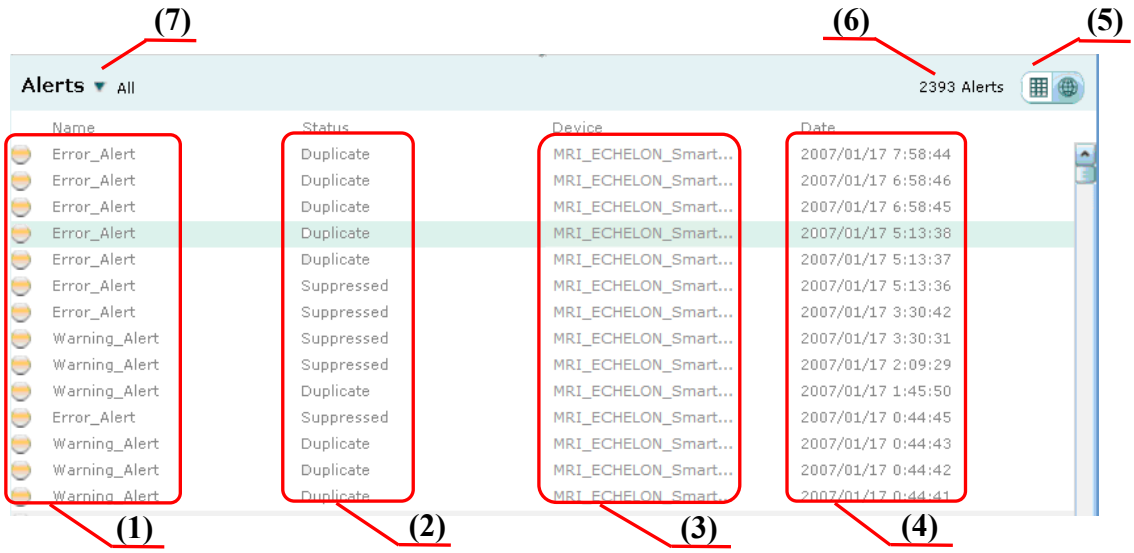



Figure7-15 Alerts

(1) Name

Alert name is indicated.

An icon on the side of Alert name indicates Alert status.

Table7-4 Alert status

| # | Icon | Description |
|---|---|---|
| 1 | (Orange icon) | It is displayed if Alert is being delivered. |
| 2 | (Yellow icon) | It is displayed if Alert is already delivered. |
| 3 | No icon | Alert is closed. Refer to Chapter 7.3. |

(2) Status

Alert status name is indicated.

(3) Device

Device name is indicated.

(4) Date

Alert occurrence date is indicated.

(5) Display switching

[Table alerts] and [Map alerts] display are switched.

(6) The number of alert

The number of alert is indicated.

(7) Narrowing display down

By clicking ▼, indicating which status alert can be selected

Active status is indicated by default.

The following is alert detail status narrowing down procedure.

1 By clicking ▼ at the time of Table alerts, Alert status items are indicated as below.

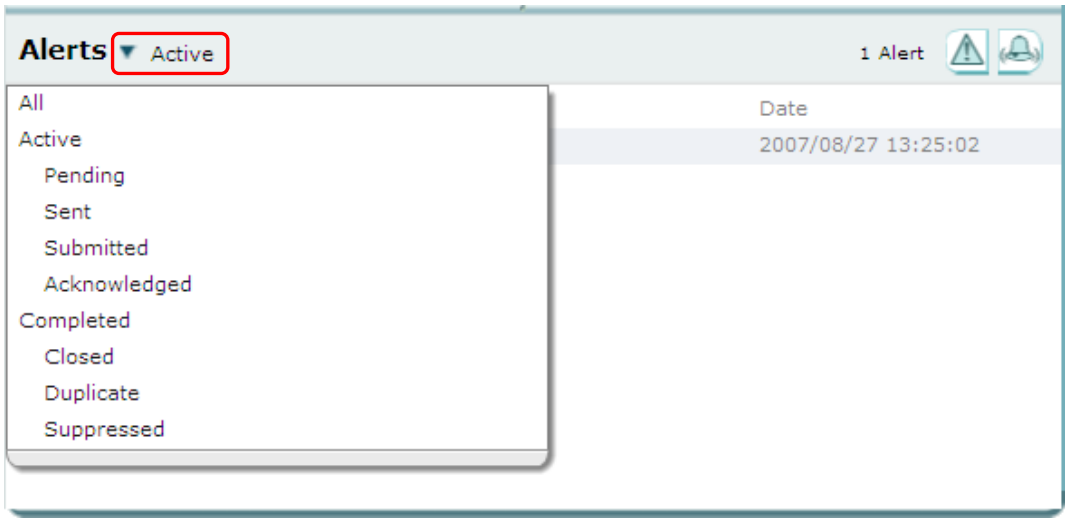



Figure7-16 Alert status items to narrow down.

2 Select status to narrow down so that its status alert detail is indicated.

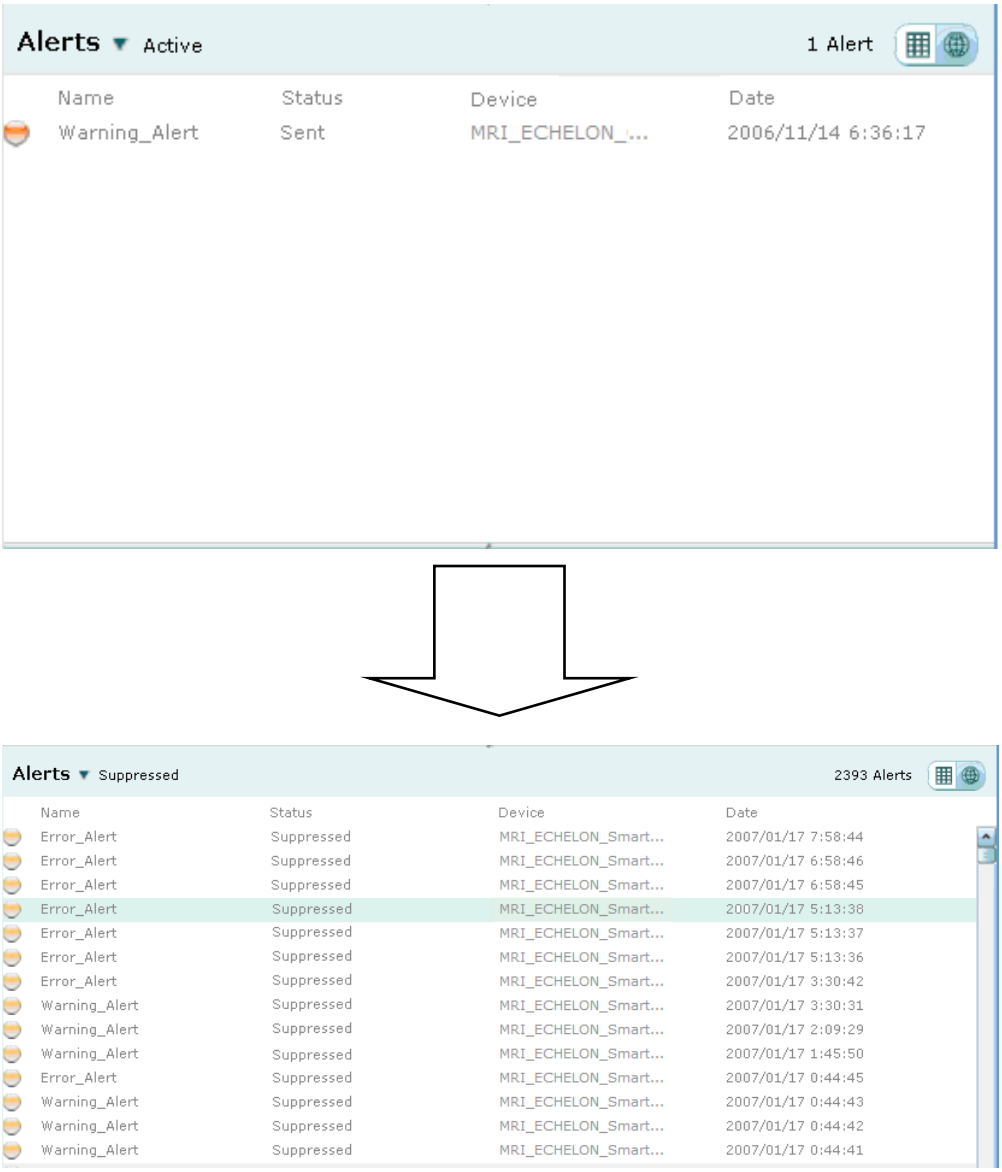


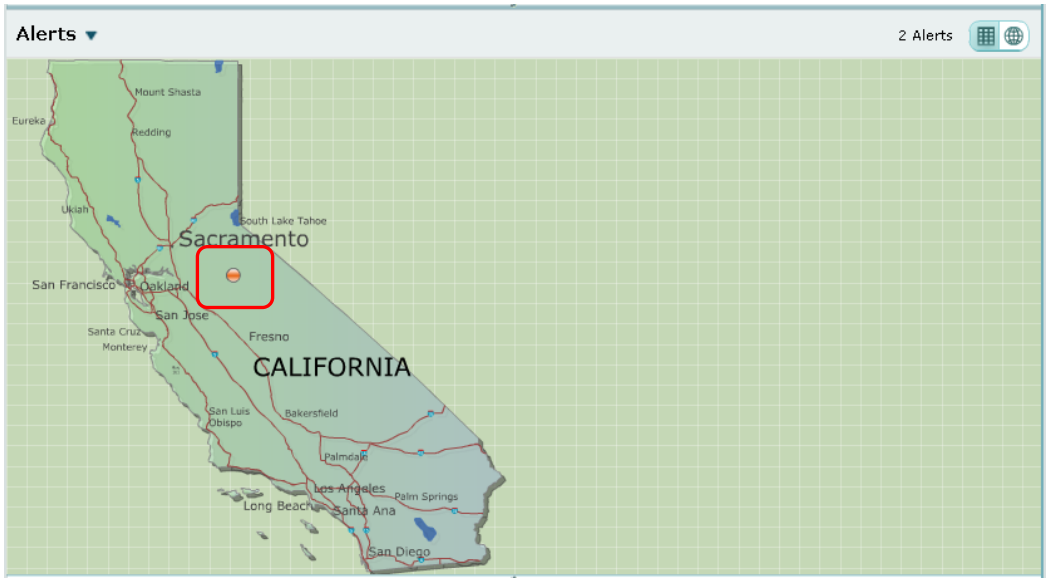

Figure7-17 Alert indication narrowing down

The following is mapping switch procedure.

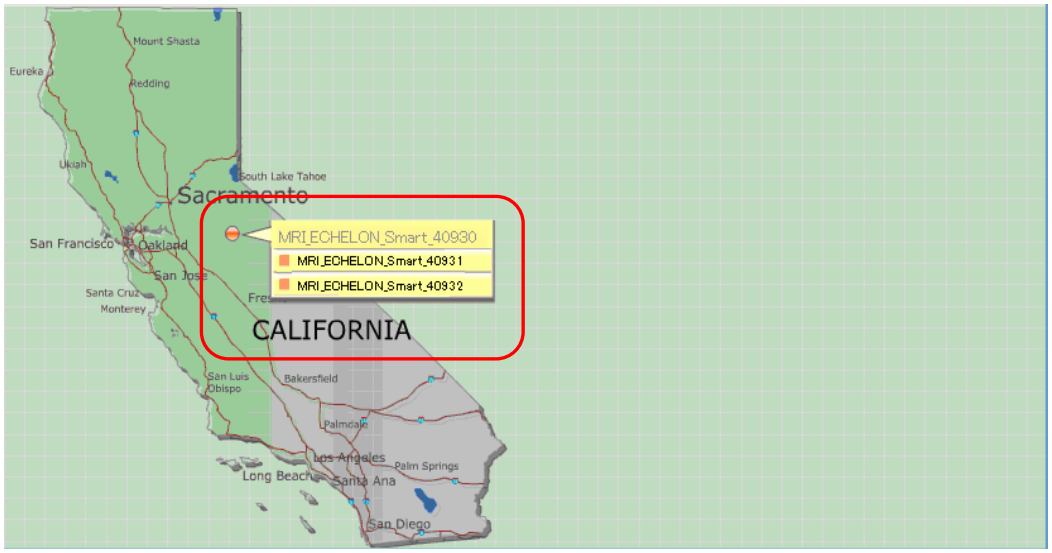
1 Click and [Map alerts] is on screen.

**NOTE** Map display is possible only if group is country or state unit.

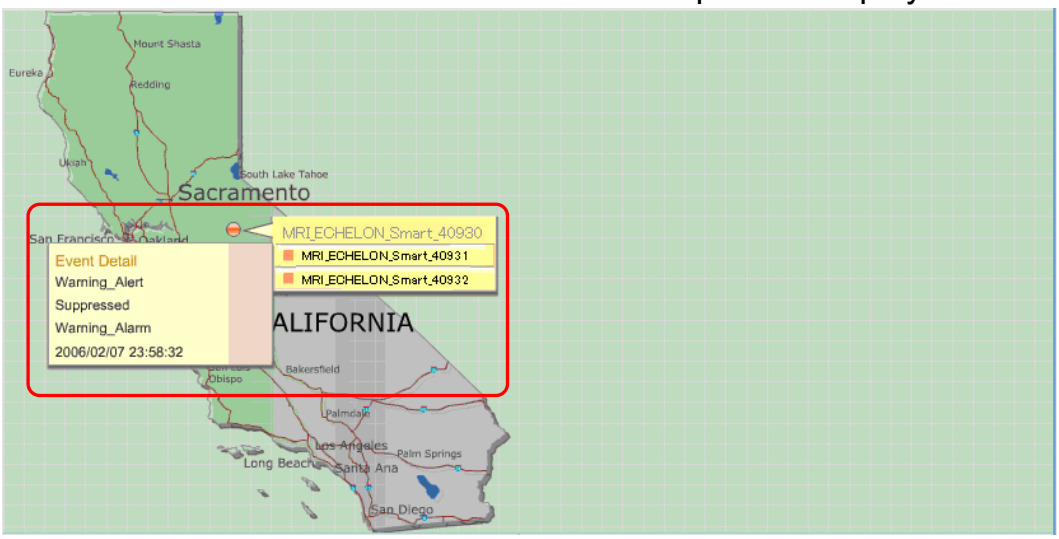
2 means alert occurrence place.




3 Click and alert occurrence device name is indicated.



4 Select ■ of indicated device and alert description is displayed.




**NOTE** Let administrator user know if alert coordinate is not accurately indicated and request for correcting coordinate.

By selecting device, Alerts occurring in device and Alarm are indicated.

Alerts: This is such processing as server sending e-mail to customers at the time of Alarm occurrence.

Alarms: Alarms is sent to server if the value exceeding threshold exists in monitoring property.

The following is Alarm indication procedure.

1 Select device to open [Alerts] window.

2 Click so that [Alarms] is displayed instead and Alarms description is indicated.

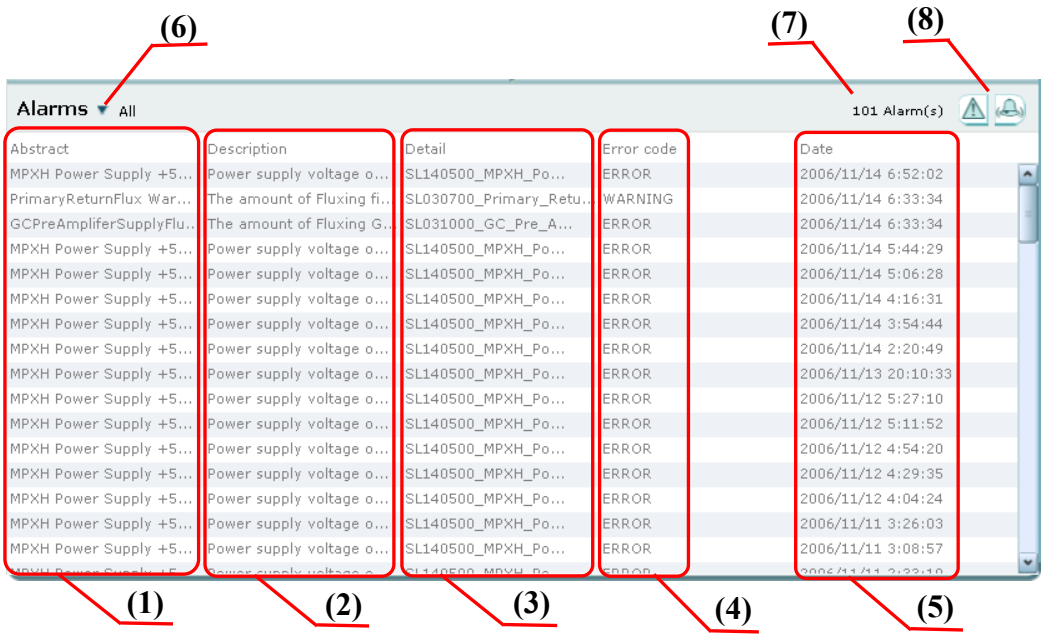



Figure7-18 Alarms

(1) Abstract

Alarms summary is indicated.

(2) Description

Alarms description is indicated.

(3) Detail

Alarms detail is indicated.

(4) Error code

Error code is indicated.

(5) Date

Alarm occurrence date is indicated.

(6) Display narrowing down.
By clicking ▼, error code Alert to indicate can be selected. All are indicated by default.

(7) The number of Alarms
The number of Alarms is indicated.

(8) Display switch
If clicking , [Alarms] and [Alerts] display are switched.

## 3 During [Alarms] display, by clicking ▼, error code is indicated as follows.

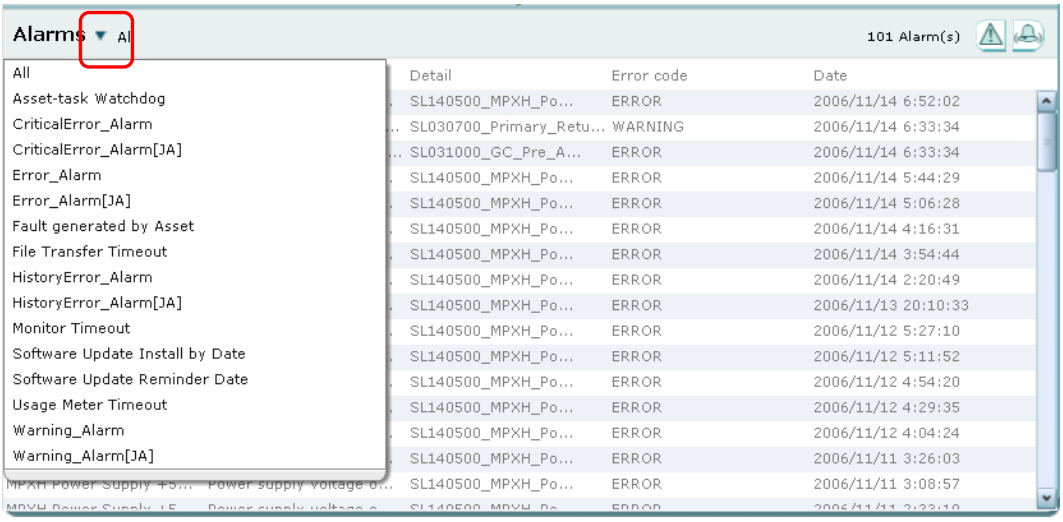



Figure7-19 Narrowing down Alarm error code item

4 If you select error code to narrow down, its error code alarm description is indicated.

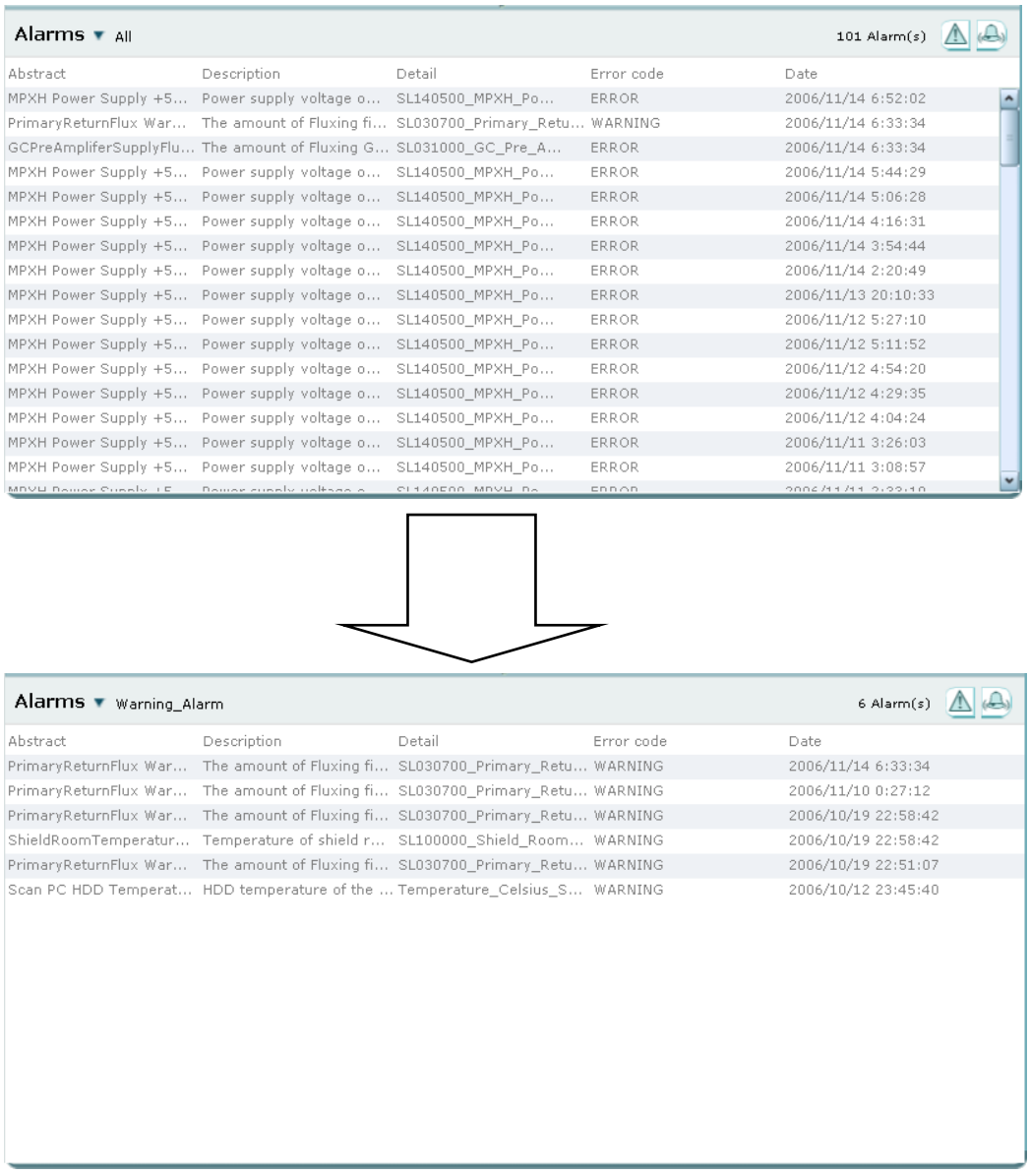



Figure7-20 [Alarms] display narrowing down

## 7.2.6 Devices

If you select any group from [GROUPS], [Devices] indicates the information about device registered under its group.

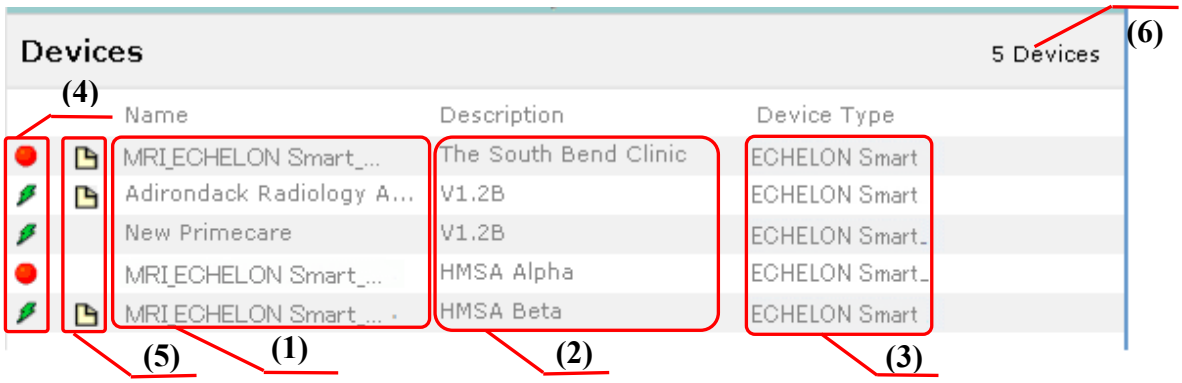



Figure7-21 Devices

(1) Name

Device name is indicated.

(2) Description

Site address description is indicated.

(3) Device Type

Device type is indicated.

(4) Online status

Device online status is indicated like the following table. It takes 3 minutes to refresh online status.

Table7-5 Device status

| # | Status | Description |
|---|---|---|
| 1 | (Red dot) | The device is offline. |
| 2 | (Lightning bolt) | Device is online with high-speed connection. |
| 3 | (Green dot) | Device is online, but connection speed is slow. |
| 4 | (Yellow dot) | The Enterprise cannot determine if the device is online or offline. |
| 5 | (Gray dot) | The device is contactable. |

(5) Upload of files

The status of file upload is displayed. By clicking , uploaded "File Listing" can be referred to.

(6) The number of devices

The number of devices registered in group is indicated.

If selecting any device, registered device summary, [Device Profile], [Readings], [Controls], [Activities] and [Alerts] can be confirmed.

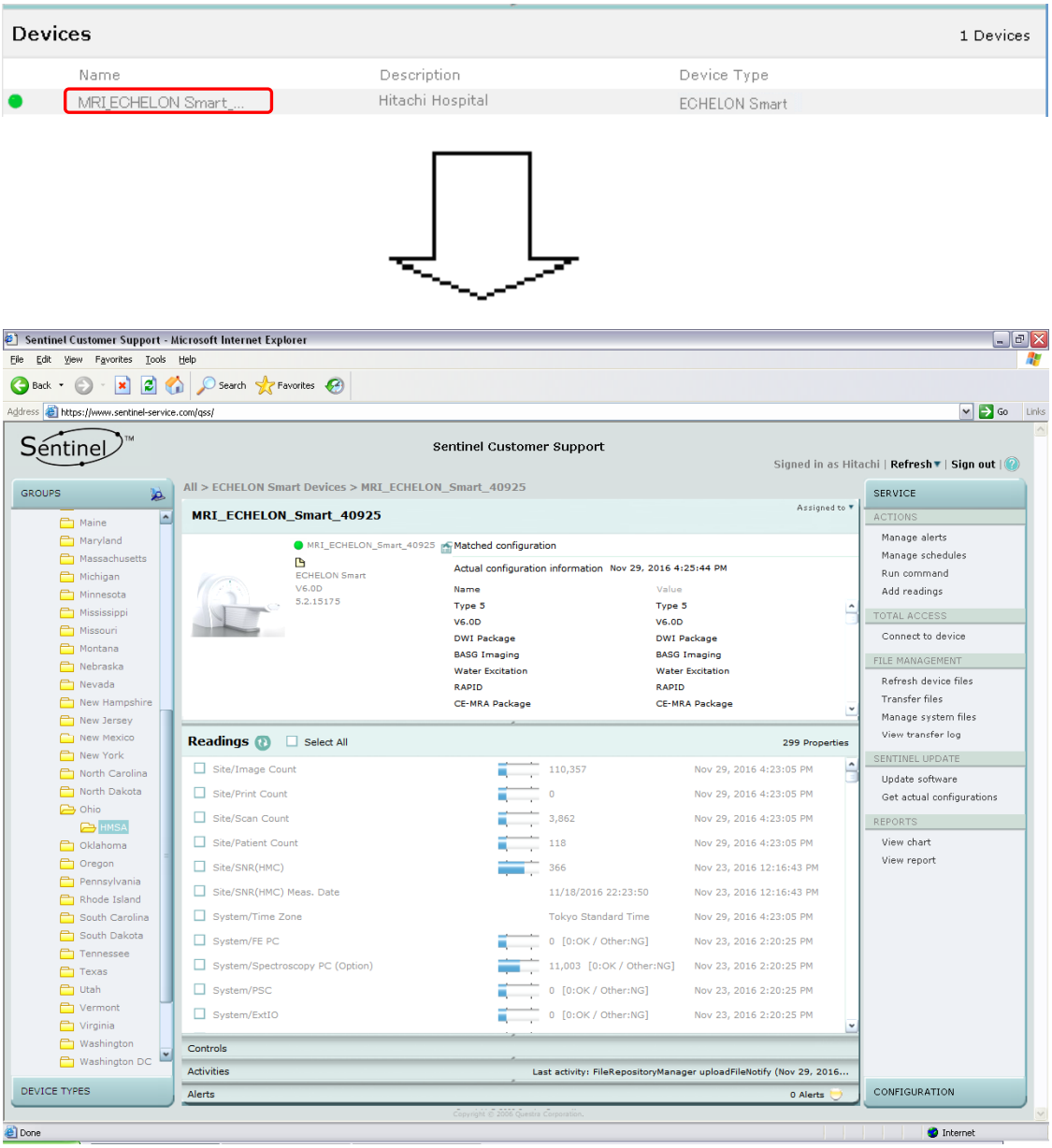



Figure7-22 Device selection

By clicking , “File Listing” can be referred to.

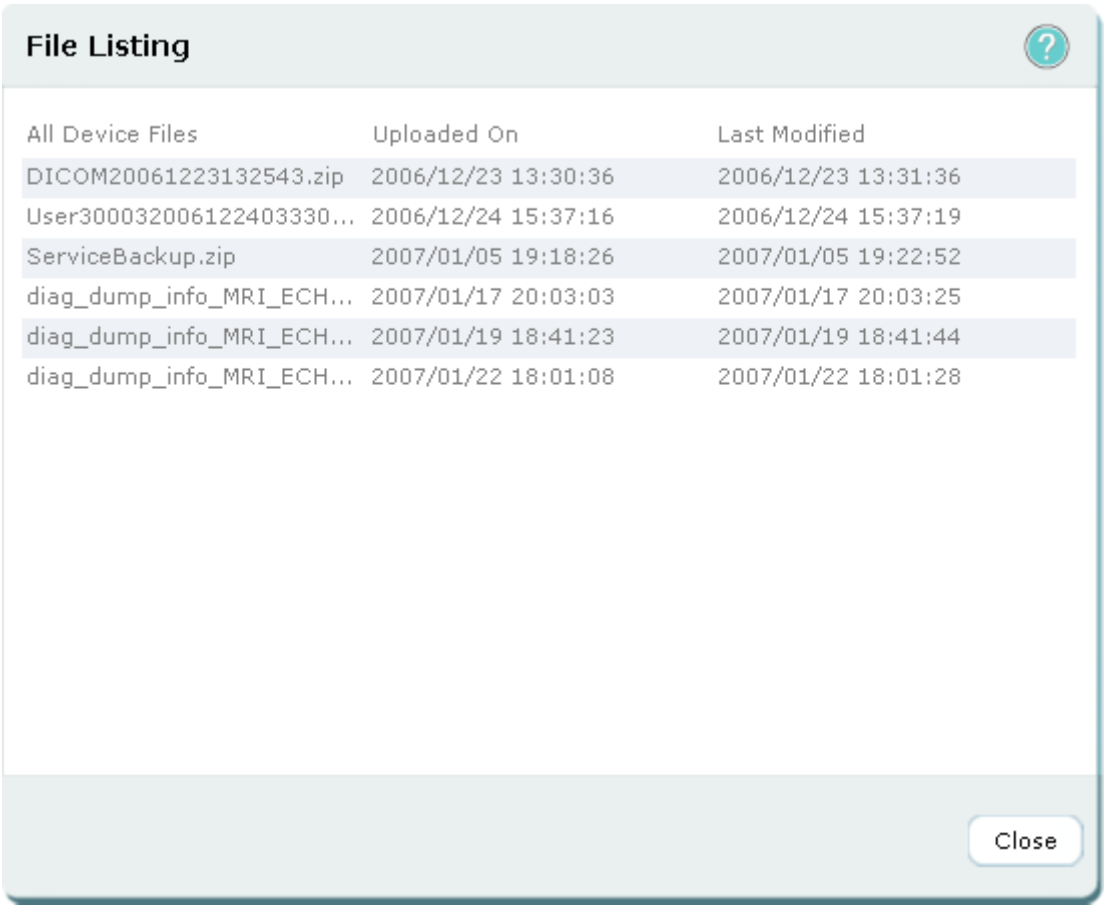



Figure7-23 File Listing

**NOTE** No files can be downloaded, etc from this screen. Refer to Chapter 7.6 for “File Management”.

## 7.2.7 Device Profile

If you select device, its device summary is indicated.

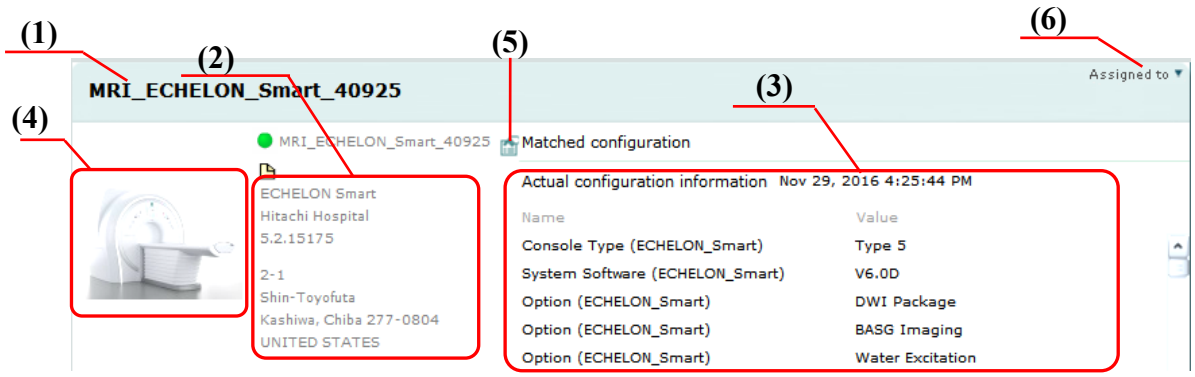



Figure7-24 Device summary

(1) Device name

Device name is indicated.

(2) Device information

Device information is indicated. Table indicates device online status. It takes 3 minutes to refresh online status.

(3) Actual configuration information

The following software installed in device is indicated.

・System software

・Option

・Service pack

・Connection Type (Broad Band)

(4) Image

Device image is displayed.

(5) Device Profile

By clicking , Device Profile is indicated. The status of file upload is displayed. By clicking , uploaded “File Listing” can be referred to.

(6) Assigned to

The person in charge of the device is displayed.

By clicking , [Device Profile] screen is displayed.

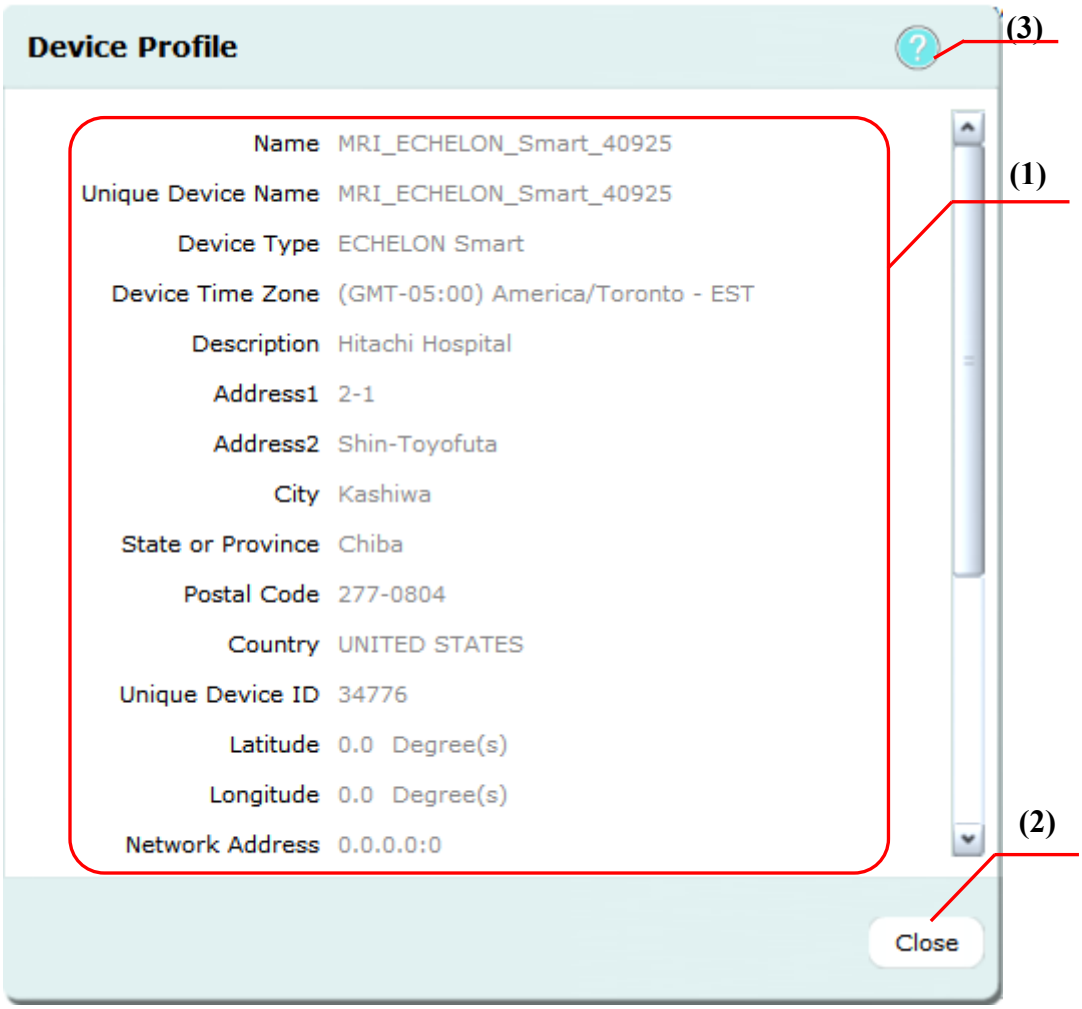



Figure7-25 Device Profile

(1) Device Profile

Table7-6 Device Profile items

| | | |
|---|---|---|
| 1. | Name | Device name is indicated. |
| 2. | Unique Device Name | Unique device name is indicated. |
| 3. | Device Type | Device type is indicated. |
| 4. | Device Time Zone | The time zone where the device is located. |
| 5. | Description | Device location building name and so on is indicated. |
| 6. | Address1 | Device location place Address 1 is indicated. |
| 7. | Address2 | Device location place Address 2 is indicated. |
| 8. | City | Device location place city is indicated. |
| 9. | State or Province | Device location place state or province is indicated. |

| | | |
|---|---|---|
| 10. | Postal Code | Device location place postal code is indicated. |
| 11. | Country | Device location place country is indicated. |
| 12. | Unique Device ID | Device ID is indicated. |
| 13. | Latitude | Device location place latitude is indicated. |
| 14. | Longitude | Device location place longitude is indicated. |
| 15. | Network address | Network address is indicated.<br>**NOTE:** It is indicated only at the time of direct connection to server. |
| 16. | Network accessible | Network access status is indicated.<br>**NOTE:** It is indicated only at the time of direct connection to server. |
| 17. | Serial Number | Serial number is indicated. |
| 18. | Retry count | The number of Retry is indicated. |
| 19. | Retry Interval | Retry interval is indicated. |
| 20. | Current Poll interval | Current polling interval is indicated. |
| 21. | Pending poll interval | The latest polling interval is indicated if configuration changes. |

(2) Close

By clicking [Close] button, this screen closes.

(3) Help

By clicking , on-line help is displayed.

By clicking Assigned to, the person in charge of the device is displayed.

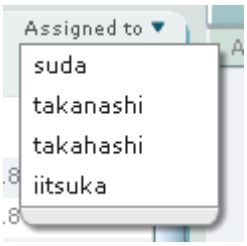



Figure7-26 Assigned to

**NOTE** Please select the group that belongs the device when you select the device.

## 7.2.8 Readings

Device monitoring target value can be confirmed in [Readings] screen. Select device and [Readings] window opens.

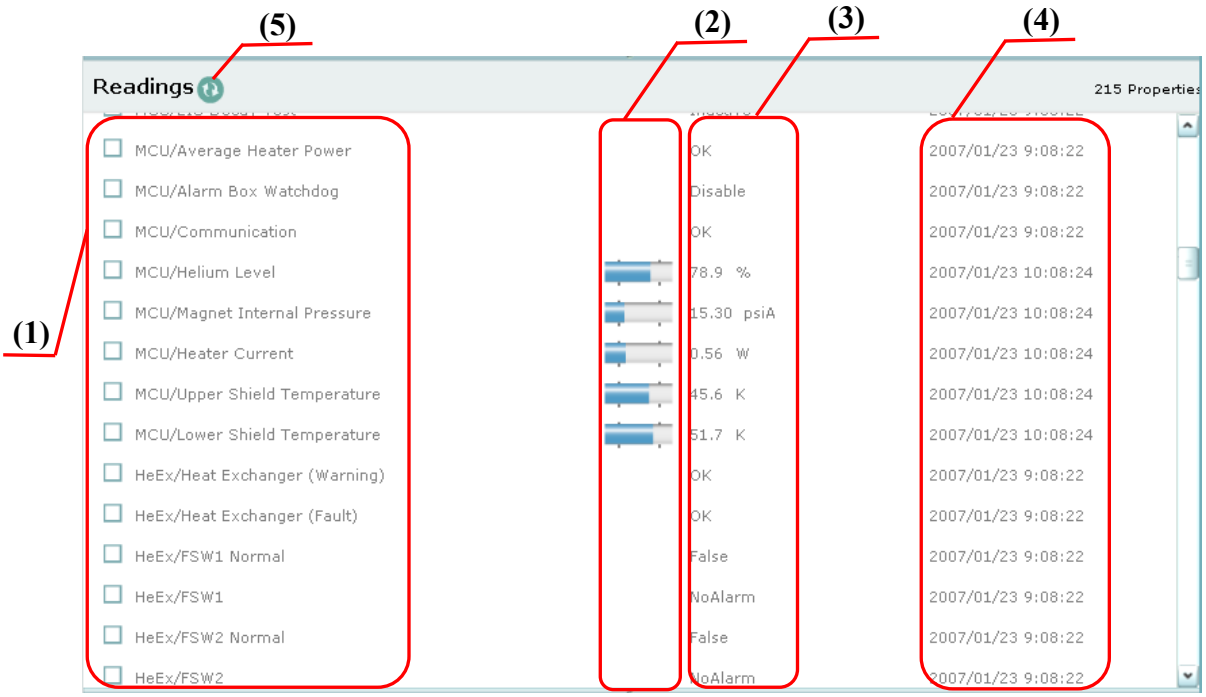



Figure7-27 Readings

(1) Property name

Property name is indicated. Tick ☐ at the time of individual reading.

(2) Property graph

Graph is colored in blue if property value is normal value and it is colored in red at the time of aberrant value. No graph is displayed for the property having no value.

(3) Value

Property value is indicated.

(4) Date

Property value acquisition date is indicated.

(5) Update

If ↻ is clicked, the latest value of property whose ☐ is ticked is read.

By pointing the cursor to property, its description is indicated.

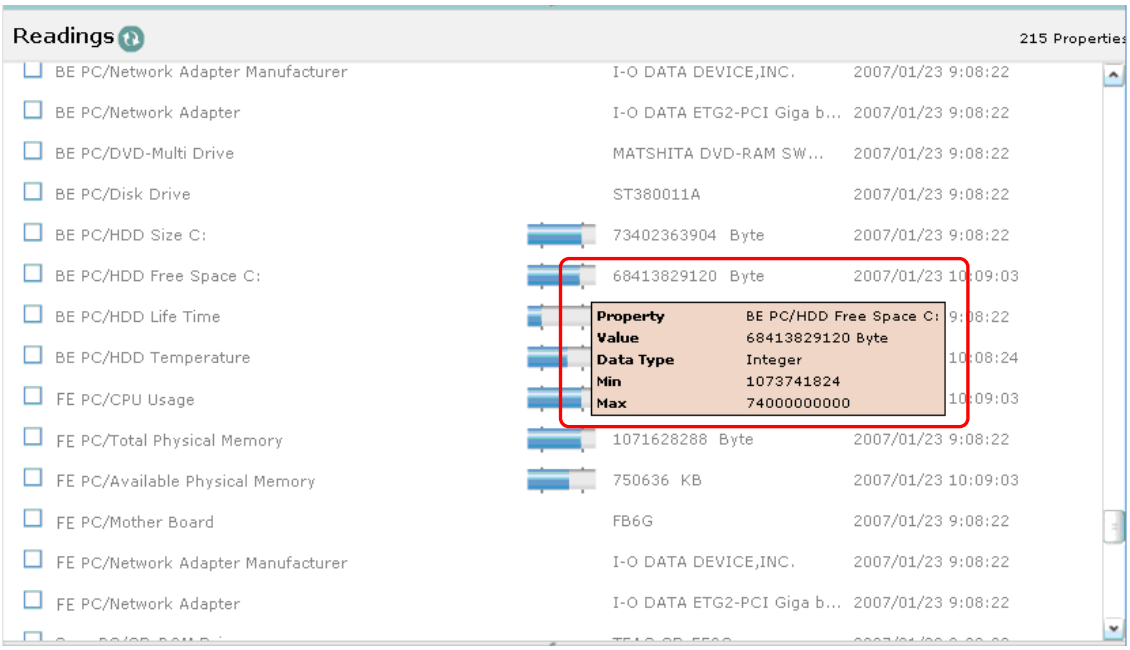



Figure7-28 Property selection

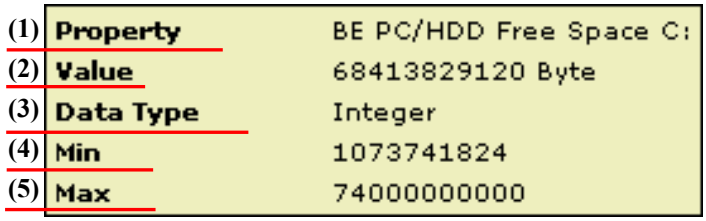



Figure7-29 Property example

(1) Property

Property name is indicated.

(2) Value

Property value and unit are indicated.

**NOTE** "Not available" is indicated at the time of no property value.

(3) Data Type

Property value data type is indicated.

(4) Min

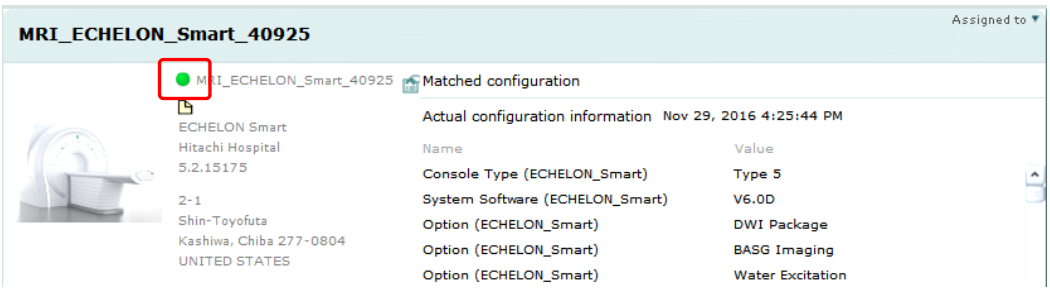
Property minimum value is indicated.

(5) Max

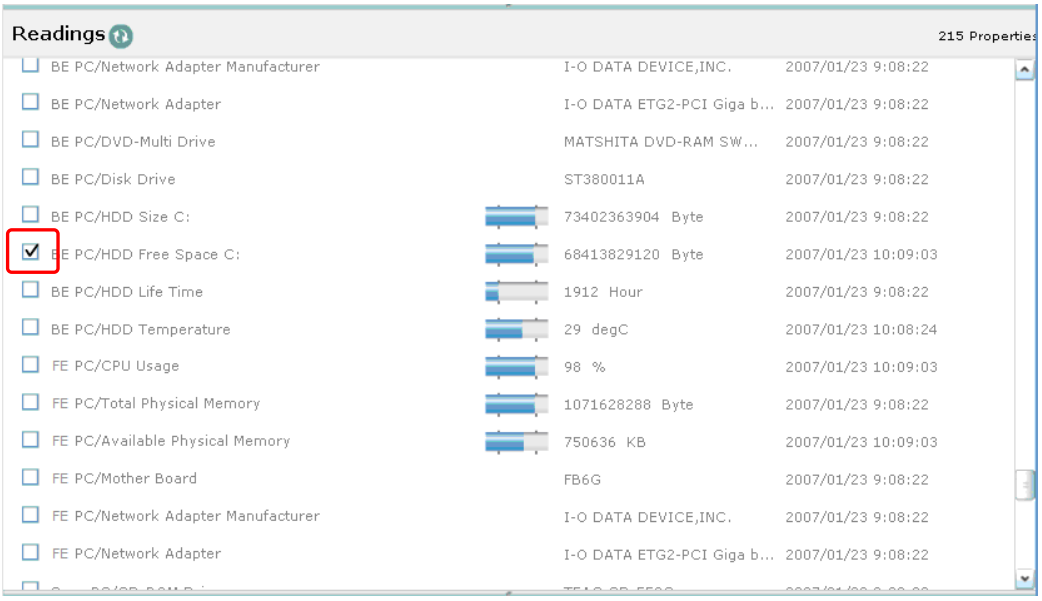
Property maximal value is indicated.

A value of device monitoring target is periodically acquired, but a value of the latest property can be acquired from Reading screen. Follow the next procedure to operate.

1 Confirm a device to read is online.

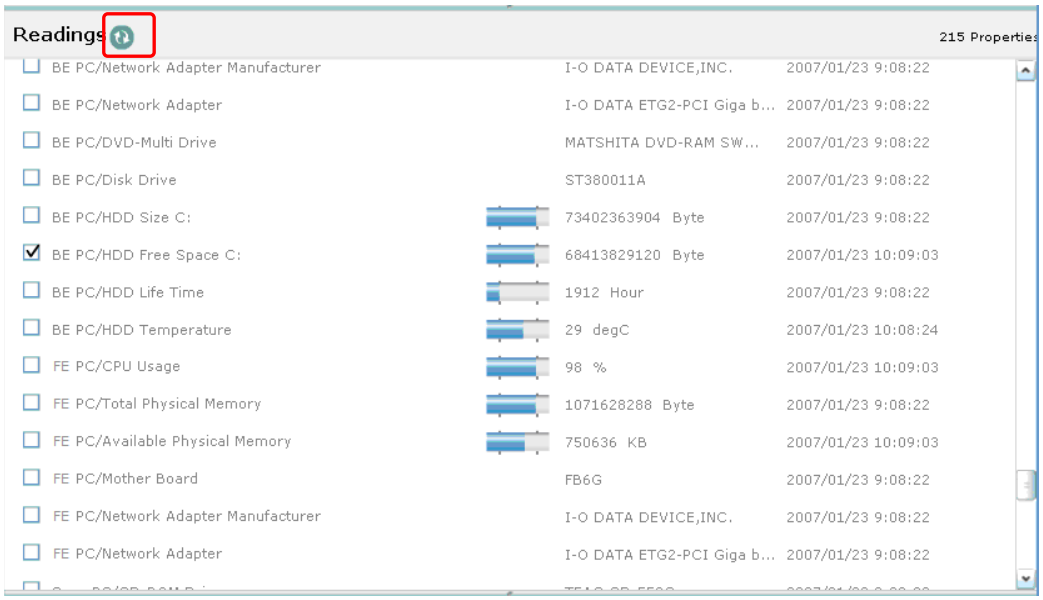



2 Tick ☐ of property whose value is acquired from Readings screen.

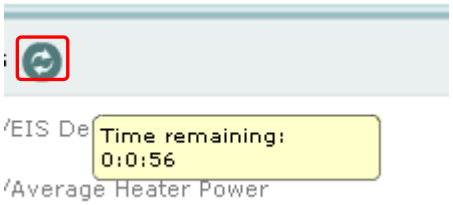



**NOTE** The number of ☐ to tick at once is 30 or less.

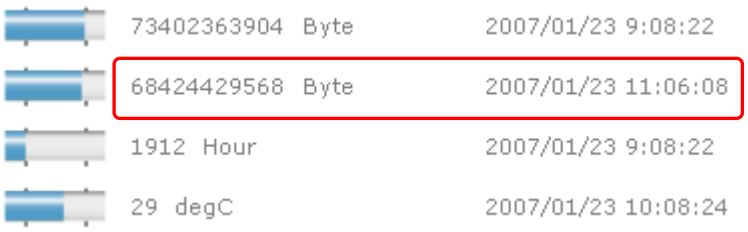
3 Click refresh button .




4 Put a mouse on Refresh button to indicate time until the latest value is acquired.




5 The latest value is acquired.



## 7.2.9 Activities

[Activities] screen indicates selected device activities.

Choose device and open [Activities] window.

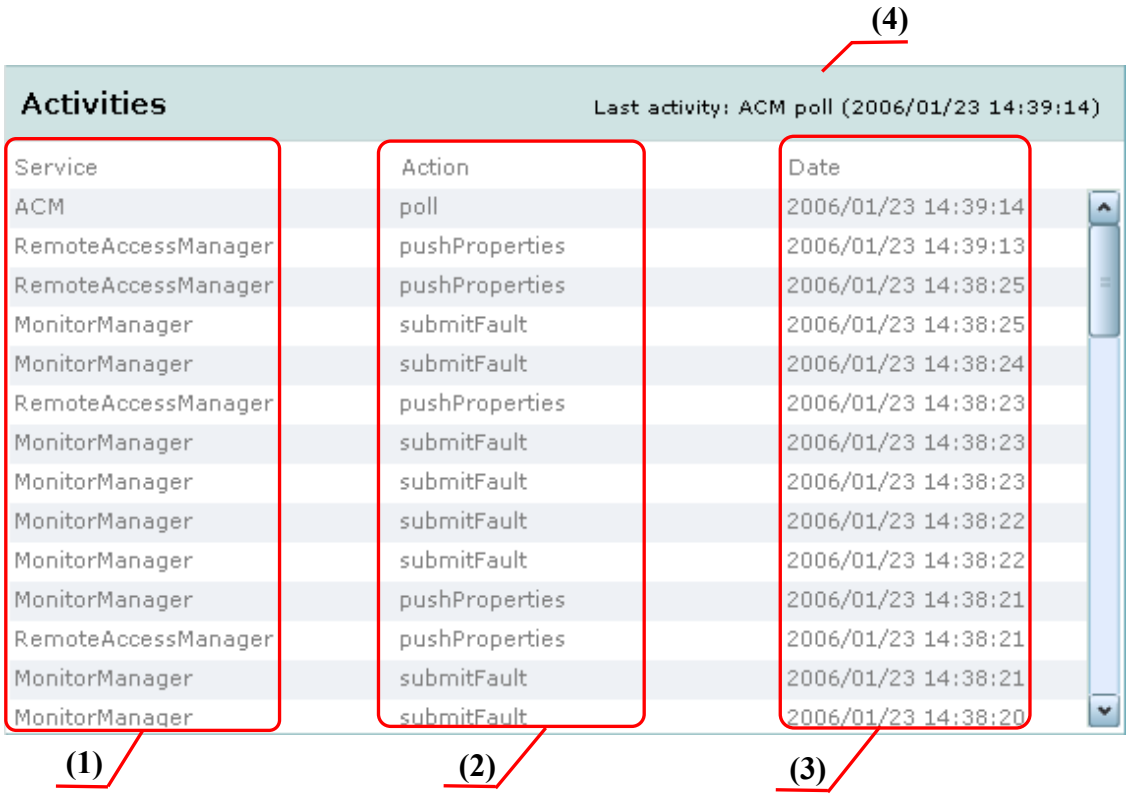



Figure7-30 Activities

(1) Service

Operated service name is indicated.

(2) Action

Service action detail is indicated.

(3) Date

Action date is indicated.

(4) Last activity

The latest activity date is indicated.

## 7.2.10 ECHELON Smart monitoring items

Since ECHELON Smart, the following items are monitored. Notification mail is sent to customers if monitoring item value corresponds to warnings or error conditions. Furthermore, notification mail is also sent if errors occur to systems.

Table7-7 ECHELON Smart monitoring items

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| Common | | | | | |
| Site/Image Count | - | - | - | - | 1 hour |
| Site/Print Count | - | - | - | - | 1 hour |
| Site/Scan Count | - | - | - | - | 1 hour |
| Site/Patient Count | - | - | - | - | 1 hour |
| Site/SNR(HMC) | - | - | - | - | 24 hours |
| Site/SNR(HMC) Meas. Date | - | - | - | - | 24 hours |
| System/Time Zone | - | - | - | - | 24 hours |
| System/FE PC | - | 0 | ≠0 | - | 1 hour |
| System/Spectroscopy PC (Option) | - | - | - | - | 1 hour |
| System/PSC | - | 0 | ≠0 | - | 1 hour |
| System/ExtIO | - | 0 | ≠0 | - | 1 hour |
| System/HTTPS Response Time | Sec. | - | - | - | 24 hours |
| MR-RFIP-1N | | | | | |
| System/TIP Board-1 | - | 0 | ≠0 | - | 1 hour |
| System/TIP Board-2 | - | 0 | ≠0 | - | 1 hour |
| System/TIP Board-3 | - | 0 | ≠0 | - | 1 hour |
| System/TIP Board-4 | - | 0 | ≠0 | - | 1 hour |
| Magnet/Magnet System(Alarm) | - | Normal | - | Fault<br>(Quench Alarm,<br>Shield Temp. Alarm,<br>Helium Level Alarm,<br>Pressure High Alarm<br>or<br>Pressure Low Alarm<br>are other than Normal.) | 1 hour |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| Magnet/Magnet System(Warning) | - | Normal | Warning (Helium Level Warning, Compressor Pressure Alarm, Compressor Helium Discharge Alarm, Compressor Helium After cooler Alarm or Compressor water outlet Alarm are other than Normal.) | - | 1 hour |
| Magnet/Magnet System (Quench Alarm) | - | Normal | - | (Press ERDU) | 1 hour |
| Magnet/Magnet System (Shield Temp. Alarm) | - | Normal | - | - (More than 60K.) | 1 hour |
| Magnet/Magnet System (Helium Level Alarm) | - | Normal | - | - (Less than 56.7%) | 1 hour |
| Magnet/Magnet System (Pressure High Alarm) | - | Normal | - | - (More than 4500Pa) | 1 hour |
| Magnet/Magnet System (Pressure Low Alarm) | - | Normal | - | - (Less than 500Pa) | 1 hour |
| Magnet/Gas-Bypass | - | - | - | - | 1 hour |
| Magnet/Compressor System(Alarm) | - | Normal | Warning (Compressor Pressure Alarm, Compressor Helium Discharge Alarm, Compressor Helium After cooler Alarm or Compressor water outlet Alarm are other than Normal.) | - | 1 hour |
| Magnet/Cable Disconnection (MR system - SVU) | - | Normal | - | - | 1 hour |
| Magnet/Magnet Critical Error | - | Normal | - | Fault (In the case of no communication between SVU and MR system) | 1 hour |
| Magnet/Magnet System (Helium Level Warning) | - | Normal | - (Less than 66.7%) | - | 1 hour |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| Magnet/Compressor Pressure Alarm | - | Normal | - (Pressure: More than 2.55MPa Compressor control terminal #1, #2 more than 10MΩ) | - | 1 hour |
| Magnet/Compressor Helium Discharge Alarm | - | Normal | - (Gass temp.: More than 90℃ Compressor control terminal #3, #4 more than 10MΩ) | - | 1 hour |
| Magnet/Compressor Helium After cooler Alarm | - | Normal | - (Gass temp.: More than 60℃ Control terminal #5, #9 more than 10MΩ) | - | 1 hour |
| Magnet/Compressor Water Outlet Alarm | - | Normal | - (Cooling water temp.: More than 60℃ Compressor control terminal #10, #11 more than 10MΩ) | - | 1 hour |
| Magnet/SVU (+DC48V Error) | - | Normal | - (Supply voltage abnormality in SVU) | - | 1 hour |
| Magnet/SVU (+DC24V Error) | - | Normal | - (Supply voltage abnormality in SVU) | - | 1 hour |
| Magnet/SVU (+DC5V Error) | - | Normal | - (Supply voltage abnormality in SVU) | - | 1 hour |
| Magnet/SVU (-DC5V Error) | - | Normal | - (Supply voltage abnormality in SVU) | - | 1 hour |
| Magnet/Li-Bat Low Alarm | - | Normal | - | - (Less than 11.2VDC) | 1 hour |
| Magnet/Li-Bat High Alarm | - | Normal | - (More than 16.8VDC) | - | 1 hour |
| Magnet/Supply Power of Helium Level | - | Normal | - (Supply voltage abnormality of helium measurement) | - | 1 hour |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| Magnet/Measure Voltage of Helium Level | - | Normal | - (Supply voltage abnormality of helium measurement) | - | 1 hour |
| Magnet/Circuit of pressure control | - | Normal | - (Pressure Heater error) | - | 1 hour |
| Magnet/EIS Control | - | Normal | - (EIS error) | - | 1 hour |
| Magnet/Helium Level | % | - | - | - | 1 hour |
| Magnet/Pressure | Pa | - | - | - | 1 hour |
| Magnet/Pressure Heater Output | mW | - | - | - | 1 hour |
| Magnet/Bore Temp. | K | - | - | - | 1 hour |
| Magnet/Shield Temp. | K | - | - | - | 1 hour |
| Magnet/Li-Bat Voltage | VDC | - | - | - | 1 hour |
| Magnet/SVU Version | - | - | - | - | 1 hour |
| Magnet/SVU Serial Number(Upper) | - | - | - | - | 1 hour |
| Magnet/SVU Serial Number(Lower) | - | - | - | - | 1 hour |
| Magnet/Helium Warning Notification | - | Normal | - (Less than 68%) | - | 1 hour |
| Sense/SENSE (Warning) | - | Normal | Warning | - | 1 hour |
| Sense/SENSE (Fault) | - | Normal | - | Fault | 1 hour |
| Sense/GC Flow Alarm | - | Normal | - | Fault | 1 hour |
| Sense/GPA Flow Alarm | - | Normal | - | Fault | 1 hour |
| Sense/Valve (Standby) | - | Normal | - | Standby | 1 hour |
| Sense/Valve Abnormal | - | Normal | - | Fault | 1 hour |
| Sense/Communication | - | Normal | - | Fault | 1 hour |
| Sense/Compressor Flow Alarm | - | Normal | - | Fault | 1 hour |
| Sense/Primary Supply Temp Alarm | - | Normal | - | Fault | 1 hour |
| Sense/Primary Supply Temperature | degC | - | - | - | 1 hour |
| Sense/GC Return Flow | l/min | - | - | - | 1 hour |
| Sense/GPA Return Flow | l/min | - | - | - | 1 hour |
| Sense/Compressor Return Flow | l/min | - | - | - | 1 hour |
| Sense/Version | - | - | - | - | 1 hour |
| Sense/PCB Power Supply(+3.3V) | V | - | - | - | 1 hour |
| Sense/PCB Power Supply(+24V) | V | - | - | - | 1 hour |
| Sense/PCB Temperature | degC | - | - | - | 1 hour |
| Sense/DIPSW1-1 | - | - | - | - | 1 hour |
| Sense/DIPSW1-2 | - | - | - | - | 1 hour |
| Sense/DIPSW1-3 | - | - | - | - | 1 hour |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| Sense/DIPSW1-4 | - | - | - | - | 1 hour |
| Sense/DIPSW1-5 | - | - | - | - | 1 hour |
| Sense/DIPSW1-6 | - | - | - | - | 1 hour |
| Sense/DIPSW1-7 | - | - | - | - | 1 hour |
| Sense/DIPSW1-8 | - | - | - | - | 1 hour |
| Sense/DIPSW2-1 | - | - | - | - | 1 hour |
| Sense/DIPSW2-2 | - | - | - | - | 1 hour |
| Sense/DIPSW2-3 | - | - | - | - | 1 hour |
| Sense/DIPSW2-4 | - | - | - | - | 1 hour |
| Sense/DIPSW2-5 | - | - | - | - | 1 hour |
| Sense/DIPSW2-6 | - | - | - | - | 1 hour |
| Sense/DIPSW2-7 | - | - | - | - | 1 hour |
| Sense/DIPSW2-8 | - | - | - | - | 1 hour |
| Sense/Primary Supply Temp Warning | - | Normal | Warning | - | 1 hour |
| Sense/Compressor Flow Warning | - | Normal | Warning | - | 1 hour |
| Sense/GC Flow Warning | - | Normal | Warning | - | 1 hour |
| Sense/GPA Flow Warning | - | Normal | Warning | - | 1 hour |
| Sense/DIPSW3-1 | - | - | - | - | 1 hour |
| Sense/DIPSW3-2 | - | - | - | - | 1 hour |
| Sense/DIPSW3-3 | - | - | - | - | 1 hour |
| Sense/DIPSW3-4 | - | - | - | - | 1 hour |
| Sense/DIPSW3-5 | - | - | - | - | 1 hour |
| Sense/DIPSW3-6 | - | - | - | - | 1 hour |
| Sense/DIPSW3-7 | - | - | - | - | 1 hour |
| Sense/DIPSW3-8 | - | - | - | - | 1 hour |
| Sense/DIPSW4-1 | - | - | - | - | 1 hour |
| Sense/DIPSW4-2 | - | - | - | - | 1 hour |
| Sense/DIPSW4-3 | - | - | - | - | 1 hour |
| Sense/DIPSW4-4 | - | - | - | - | 1 hour |
| Sense/DIPSW4-5 | - | - | - | - | 1 hour |
| Sense/DIPSW4-6 | - | - | - | - | 1 hour |
| Sense/DIPSW4-7 | - | - | - | - | 1 hour |
| Sense/DIPSW4-8 | - | - | - | - | 1 hour |
| GC/GC Temperature | - | Normal | - | Fault | 1 hour |
| RFPA/Power Supply | - | Normal | - | Fault | 1 hour |
| RFPA/Peak Heat | - | Normal | - | Fault | 1 hour |
| RFPA/Drive Power | - | Normal | - | Fault | 1 hour |
| RFPA/Average Power Heat | - | Normal | - | Fault | 1 hour |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| RFPA/Peak Power | - | Normal | - | Fault | 1 hour |
| RFPA/Average Power | - | Normal | - | Fault | 1 hour |
| RFPA/Voltage Standing Wave Ratio | - | Normal | - | Fault | 1 hour |
| RFPA/Gate Pulse Width | - | Normal | - | Fault | 1 hour |
| RFPA/Gate Duty | - | Normal | - | Fault | 1 hour |
| RFPA/RF Power Amplifier (Wait) | - | Normal | - | Wait | 1 hour |
| RFPA/RF Power Amplifier (Standby) | - | Normal | - | Standby | 1 hour |
| RFPA/Cable | - | Normal | - | Fault | 1 hour |
| RFPA/Communication | - | Normal | - | Fault | 1 hour |
| RFPA/Status | - | Normal | - | Fatal | 1 hour |
| RFPA/Forward Power | W | 0～25000 | - | - | 1 hour |
| RFPA/Reflected Power | W | 0～25000 | - | - | 1 hour |
| RFPA/MEMORY BROKEN | - | Normal | - | Fault | 1 hour |
| RFPA/OVER HEAT | - | Normal | - | Fault | 1 hour |
| RFPA/DEVICE | - | Normal | - | Fault | 1 hour |
| RFPA/HV LOW | - | Normal | - | Fault | 1 hour |
| GPA/GPA Error | - | Normal | - | Fault | 1 hour |
| GPA/X Axis Error | - | Normal | - | Fault | 1 hour |
| GPA/Y Axis Error | - | Normal | - | Fault | 1 hour |
| GPA/Z Axis Error | - | Normal | - | Fault | 1 hour |
| GPA/Primary Power Error | - | Normal | - | Fault | 1 hour |
| GPA/Communication PCB Error | - | Normal | - | Fault | 1 hour |
| GPA/External Status Error | - | Normal | - | Fault | 1 hour |
| GPA/External Clock Error | - | Normal | - | Fault | 1 hour |
| GPA/Status Error | - | Normal | - | Fatal | 1 hour |
| GPA/Communication Error | - | Normal | - | Fault | 1 hour |
| GPA/Error Code Overflow | - | Normal | - | Fault | 1 hour |
| GPA/GPA TYPE1 | - | - | - | - | 1 hour |
| GPA/GPA TYPE2 | - | - | - | - | 1 hour |
| GPA/Error Initial 1 | - | - | - | - | 1 hour |
| GPA/Error No 1 | - | - | - | - | 1 hour |
| GPA/Error Initial 2 | - | - | - | - | 1 hour |
| GPA/Error No 2 | - | - | - | - | 1 hour |
| GPA/Error Initial 3 | - | - | - | - | 1 hour |
| GPA/Error No 3 | - | - | - | - | 1 hour |
| GPA/Error Initial 4 | - | - | - | - | 1 hour |
| GPA/Error No 4 | - | - | - | - | 1 hour |
| GPA/Error Initial 5 | - | - | - | - | 1 hour |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| GPA/Error No 5 | - | - | - | - | 1 hour |
| GPA/Error Initial 6 | - | - | - | - | 1 hour |
| GPA/Error No 6 | - | - | - | - | 1 hour |
| GPA/Error Initial 7 | - | - | - | - | 1 hour |
| GPA/Error No 7 | - | - | - | - | 1 hour |
| GPA/Error Initial 8 | - | - | - | - | 1 hour |
| GPA/Error No 8 | - | - | - | - | 1 hour |
| GPA/Error Initial 9 | - | - | - | - | 1 hour |
| GPA/Error No 9 | - | - | - | - | 1 hour |
| GPA/Error Initial 10 | - | - | - | - | 1 hour |
| GPA/Error No 10 | - | - | - | - | 1 hour |
| GPA/Error Initial 11 | - | - | - | - | 1 hour |
| GPA/Error No 11 | - | - | - | - | 1 hour |
| GPA/Error Initial 12 | - | - | - | - | 1 hour |
| GPA/Error No 12 | - | - | - | - | 1 hour |
| GPA/Error Initial 13 | - | - | - | - | 1 hour |
| GPA/Error No 13 | - | - | - | - | 1 hour |
| GPA/Error Initial 14 | - | - | - | - | 1 hour |
| GPA/Error No 14 | - | - | - | - | 1 hour |
| GPA/Error Initial 15 | - | - | - | - | 1 hour |
| GPA/Error No 15 | - | - | - | - | 1 hour |
| GPA/Error Initial 16 | - | - | - | - | 1 hour |
| GPA/Error No 16 | - | - | - | - | 1 hour |
| GPA/X Tune Parameter 1 | - | - | - | - | 1 hour |
| GPA/X Tune Parameter 2 | - | - | - | - | 1 hour |
| GPA/X Tune Parameter 3 | - | - | - | - | 1 hour |
| GPA/X Tune Parameter 4 | - | - | - | - | 1 hour |
| GPA/Y Tune Parameter 1 | - | - | - | - | 1 hour |
| GPA/Y Tune Parameter 2 | - | - | - | - | 1 hour |
| GPA/Y Tune Parameter 3 | - | - | - | - | 1 hour |
| GPA/Y Tune Parameter 4 | - | - | - | - | 1 hour |
| GPA/Z Tune Parameter 1 | - | - | - | - | 1 hour |
| GPA/Z Tune Parameter 2 | - | - | - | - | 1 hour |
| GPA/Z Tune Parameter 3 | - | - | - | - | 1 hour |
| GPA/Z Tune Parameter 4 | - | - | - | - | 1 hour |
| Temperature & Humidity/Shield Room Temperature | degC | 5～32 | <5 or >32 | - | 1 hour |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| Temperature & Humidity/Shield Room Humidity | % | 0～80 | >80 | - | 1 hour |
| Temperature & Humidity/Machine Room Temperature | degC | 5～32 | <5 or >32 | - | 1 hour |
| Temperature & Humidity/Machine Room Humidity | % | 0～80 | >80 | - | 1 hour |
| Temperature & Humidity/Shield Room Communication | - | Normal | Warning | - | 1 hour |
| Temperature & Humidity/Machine Room Communication | - | Normal | Warning | - | 1 hour |
| Decoupler/Decoupler | - | Normal | - | Fault | 1 hour |
| KP/1KP | - | Normal | - | Fault | 1 hour |
| KP/2KP | - | Normal | - | Fault | 1 hour |
| KP/3KP | - | Normal | - | Fault | 1 hour |
| KP/4KP | - | Normal | - | Fault | 1 hour |
| Door/DOOR | - | CLOSE | - | - | 1 hour |
| MPX/MRI System | - | Enable | - | - | 1 hour |
| MPX/MR POWER | - | ON | - | - | 1 hour |
| MPX/ECO MODE(GPA) | - | OFF | - | - | 1 hour |
| MPX/ECO MODE(COMP) | - | OFF | - | - | 1 hour |
| MPX/MPXH2 Power Supply(+24V) | V | 22.6～26.4 | <22.6 or >26.4 | - | 1 hour |
| MPX/MPXH2 Power Supply(+5V) | V | 4.5～5.5 | <4.5 or >5.5 | - | 1 hour |
| MPX/MPXH2 Power Supply(+3.3V) | V | 2.97～3.63 | <2.97 or >3.63 | - | 1 hour |
| MPX/MPXH2 Version | - | - | - | - | 1 hour |
| MPX/DIPSW1-1 | - | OFF | - | - | 1 hour |
| MPX/DIPSW1-2 | - | OFF | - | - | 1 hour |
| MPX/DIPSW1-3 | - | OFF | - | - | 1 hour |
| MPX/DIPSW1-4 | - | OFF | - | - | 1 hour |
| MPX/DIPSW1-5 | - | OFF | - | - | 1 hour |
| MPX/DIPSW1-6 | - | OFF | - | - | 1 hour |
| MPX/DIPSW1-7 | - | OFF | - | - | 1 hour |
| MPX/DIPSW1-8 | - | OFF | - | - | 1 hour |
| MPX/DIPSW2-1 | - | OFF | - | - | 1 hour |
| MPX/DIPSW2-2 | - | OFF | - | - | 1 hour |
| MPX/DIPSW2-3 | - | OFF | - | - | 1 hour |
| MPX/DIPSW2-4 | - | OFF | - | - | 1 hour |
| MPX/DIPSW2-5 | - | OFF | - | - | 1 hour |
| MPX/DIPSW2-6 | - | OFF | - | - | 1 hour |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| MPX/DIPSW2-7 | - | OFF | - | - | 1 hour |
| MPX/DIPSW2-8 | - | OFF | - | - | 1 hour |
| MPX/DIPSW3-1 | - | OFF | - | - | 1 hour |
| MPX/DIPSW3-2 | - | OFF | - | - | 1 hour |
| MPX/DIPSW3-3 | - | OFF | - | - | 1 hour |
| MPX/DIPSW3-4 | - | OFF | - | - | 1 hour |
| MPX/DIPSW3-5 | - | OFF | - | - | 1 hour |
| MPX/DIPSW3-6 | - | OFF | - | - | 1 hour |
| MPX/DIPSW3-7 | - | OFF | - | - | 1 hour |
| MPX/DIPSW3-8 | - | OFF | - | - | 1 hour |
| MPX/DIPSW16-1 | - | OFF | - | - | 1 hour |
| MPX/DIPSW16-2 | - | OFF | - | - | 1 hour |
| MPX/DIPSW16-3 | - | OFF | - | - | 1 hour |
| MPX/DIPSW16-4 | - | OFF | - | - | 1 hour |
| MPX/DIPSW16-5 | - | OFF | - | - | 1 hour |
| MPX/DIPSW16-6 | - | OFF | - | - | 1 hour |
| MPX/DIPSW16-7 | - | OFF | - | - | 1 hour |
| MPX/DIPSW16-8 | - | OFF | - | - | 1 hour |
| MPX/DIPSW17-1 | - | OFF | - | - | 1 hour |
| MPX/DIPSW17-2 | - | OFF | - | - | 1 hour |
| MPX/DIPSW17-3 | - | OFF | - | - | 1 hour |
| MPX/DIPSW17-4 | - | OFF | - | - | 1 hour |
| MPX/DIPSW17-5 | - | OFF | - | - | 1 hour |
| MPX/DIPSW17-6 | - | OFF | - | - | 1 hour |
| MPX/DIPSW17-7 | - | OFF | - | - | 1 hour |
| MPX/DIPSW17-8 | - | OFF | - | - | 1 hour |
| MR-IRCP-M1 | | | | | |
| Magnet/Magnet System (Alarm) | - | Normal | - | Fault | 1 hour |
| Magnet/Magnet System (Warning) | - | Normal | Warning | - | 1 hour |
| Magnet/Magnet System (Quench Alarm) | - | Normal | - | - | 1 hour |
| Magnet/Magnet System (Shield Temp. Alarm) | - | Normal | - | - | 1 hour |
| Magnet/Magnet System (Helium Level Alarm) | - | Normal | - | - | 1 hour |
| Magnet/Magnet System (Pressure High Alarm) | - | Normal | - | - | 1 hour |
| Magnet/Magnet System (Pressure Low Alarm) | - | Normal | - | - | 1 hour |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| Magnet/Gas-Bypass | - | - | - | - | 1 hour |
| Magnet/Compressor System (Alarm) | - | Normal | Warning | - | 1 hour |
| Magnet/Cable Disconnection (MR System - SVU) | - | Normal | - | - | 1 hour |
| Magnet/Magnet Critical Error | - | Normal | - | Fault | 1 hour |
| Magnet/Magnet System (Helium Level Warning) | - | Normal | - | - | 1 hour |
| Magnet/Compressor Pressure Alarm | - | Normal | - | - | 1 hour |
| Magnet/Compressor Helium Discharge Alarm | - | Normal | - | - | 1 hour |
| Magnet/Compressor Helium After Cooler Alarm | - | Normal | - | - | 1 hour |
| Magnet/Compressor Water Outlet Alarm | - | Normal | - | - | 1 hour |
| Magnet/SVU (+DC48V Error) | - | Normal | - | - | 1 hour |
| Magnet/SVU (+DC24V Error) | - | Normal | - | - | 1 hour |
| Magnet/SVU (+DC5V Error) | - | Normal | - | - | 1 hour |
| Magnet/SVU (-DC5V Error) | - | Normal | - | - | 1 hour |
| Magnet/Li-Bat Low Alarm | - | Normal | - | - | 1 hour |
| Magnet/Li-Bat High Alarm | - | Normal | - | - | 1 hour |
| Magnet/Supply Power of Helium Level | - | Normal | - | - | 1 hour |
| Magnet/Measure Voltage of Helium Level | - | Normal | - | - | 1 hour |
| Magnet/EIS Control | - | Normal | - | - | 1 hour |
| Magnet/Helium Level | % | - | - | - | 1 hour |
| Magnet/Pressure | Pa | - | - | - | 1 hour |
| Magnet/Pressure Heater Output | mW | - | - | - | 1 hour |
| Magnet/Bore Temp. | K | - | - | - | 1 hour |
| Magnet/Shield Temp. | K | - | - | - | 1 hour |
| Magnet/Li-Bat Voltage | VDC | - | - | - | 1 hour |
| Magnet/SVU Version | - | - | - | - | 1 hour |
| Magnet/SVU_Serial_Number | - | - | - | - | 1 hour |
| Magnet/Helium Warning Notification | - | Normal | - | - | 1 hour |
| Magnet/Cold Head Warning Notification | - | Normal | Warning | - | 1 hour |
| Magnet/Cold Head Error Notification | - | Normal | - | Fault | 1 hour |
| Sense/SENSE (Warning) | - | Normal | Warning | - | 1 hour |
| Sense/SENSE (Fault) | - | Normal | - | Fault | 1 hour |
| Sense/Compressor Flow Alarm | - | Normal | - | Fault | 1 hour |
| Sense/GC Flow Alarm | - | Normal | - | Fault | 1 hour |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| Sense/GPA Flow Alarm | - | Normal | - | Fault | 1 hour |
| Sense/Valve (Standby) | - | Normal | - | | 1 hour |
| Sense/Valve Abnormal | - | Normal | - | Fault | 1 hour |
| Sense/Communication | - | Normal | - | Fault | 1 hour |
| Sense/Primary Supply Temp Alarm | - | Normal | - | Fault | 1 hour |
| Sense/Water Leak Alarm | - | Normal | - | Fault | 1 hour |
| Sense/Primary Supply Temp Warning | - | Normal | Warning | - | 1 hour |
| Sense/Compressor Flow Warning | - | Normal | Warning | - | 1 hour |
| Sense/GC Flow Warning | - | Normal | Warning | - | 1 hour |
| Sense/GPA Flow Warning | - | Normal | Warning | - | 1 hour |
| Sense/Compressor Flow Connection | - | Normal | Warning | - | 1 hour |
| Sense/GC Flow Connection | - | Normal | Warning | - | 1 hour |
| Sense/GPA Flow Connection | - | Normal | Warning | - | 1 hour |
| Sense/SENSE_Board_ID | - | - | - | | 24 hours |
| Sense/SENSE_Board_Work | - | - | - | | 24 hours |
| Sense/Board Revision | - | - | - | | 24 hours |
| Sense/Firmware Version | - | - | - | | 24 hours |
| Sense/Primary Supply Temperature | degC | - | - | | 1 hour |
| Sense/GC Return Flow | l/min | - | - | - | 1 hour |
| Sense/GPA Return Flow | l/min | - | - | - | 1 hour |
| Sense/Compressor Return Flow | l/min | - | - | - | 1 hour |
| Sense/PCB Power Supply (+24V) | V | 21.6～26.4 | <21.6 or >26.4 | - | 1 hour |
| Sense/PCB Power Supply (+3.3V) | V | 2.97～3.63 | <2.97 or >3.63 | - | 1 hour |
| Sense/PCB Temperature | degC | 5～32 | <5 or >32 | - | 1 hour |
| Sense/DIPSW1-1 | - | - | - | - | 24 hours |
| Sense/DIPSW1-2 | - | - | - | - | 24 hours |
| Sense/DIPSW1-3 | - | - | - | - | 24 hours |
| Sense/DIPSW1-4 | - | - | - | - | 24 hours |
| Sense/DIPSW1-5 | - | - | - | - | 24 hours |
| Sense/DIPSW1-6 | - | - | - | - | 24 hours |
| Sense/DIPSW1-7 | - | - | - | - | 24 hours |
| Sense/DIPSW1-8 | - | - | - | - | 24 hours |
| Sense/DIPSW2-1 | - | - | - | - | 24 hours |
| Sense/DIPSW2-2 | - | - | - | - | 24 hours |
| Sense/DIPSW2-3 | - | - | - | - | 24 hours |
| Sense/DIPSW2-4 | - | - | - | - | 24 hours |
| Sense/DIPSW2-5 | - | - | - | - | 24 hours |
| Sense/DIPSW2-6 | - | - | - | - | 24 hours |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| Sense/DIPSW2-7 | - | - | - | - | 24 hours |
| Sense/DIPSW2-8 | - | - | - | - | 24 hours |
| Sense/MIZU FW WDT Reset | - | OFF | - | - | 1 hour |
| RFPA/Power Supply | - | Normal | - | Fault | 1 hour |
| RFPA/Peak Heat | - | Normal | - | Fault | 1 hour |
| RFPA/Drive Power | - | Normal | - | Fault | 1 hour |
| RFPA/Average Power Heat | - | Normal | - | Fault | 1 hour |
| RFPA/Peak Power | - | Normal | - | Fault | 1 hour |
| RFPA/Average Power | - | Normal | - | Fault | 1 hour |
| RFPA/Voltage Standing Wave Ratio | - | Normal | - | Fault | 1 hour |
| RFPA/Gate Pulse Width | - | Normal | - | Fault | 1 hour |
| RFPA/Gate Duty | - | Normal | - | Fault | 1 hour |
| RFPA/RF Power Amplifier (Wait) | - | Normal | - | - | 1 hour |
| RFPA/RF Power Amplifier (Standby) | - | Normal | - | - | 1 hour |
| RFPA/Cable | - | Normal | - | Fault | 1 hour |
| RFPA/Communication | - | Normal | - | Fault | 1 hour |
| RFPA/Status | - | Normal | - | Fatal | 1 hour |
| RFPA/Forward Power | W | 0～25000 | - | - | 1 hour |
| RFPA/Reflected Power | W | 0～25000 | - | - | 1 hour |
| RFPA/MEMORY BROKEN | - | Normal | - | Fault | 1 hour |
| RFPA/OVER HEAT | - | Normal | - | Fault | 1 hour |
| RFPA/DEVICE | - | Normal | - | Fault | 1 hour |
| RFPA/HV LOW | - | Normal | - | Fault | 1 hour |
| GPA/GPA Error | - | Normal | - | Fault | 1 hour |
| GPA/X Axis Error | - | Normal | - | Fault | 1 hour |
| GPA/Y Axis Error | - | Normal | - | Fault | 1 hour |
| GPA/Z Axis Error | - | Normal | - | Fault | 1 hour |
| GPA/Primary Power Error | - | Normal | - | Fault | 1 hour |
| GPA/Communication PCB Error | - | Normal | - | Fault | 1 hour |
| GPA/External Status Error | - | Normal | - | Fault | 1 hour |
| GPA/Status Error | - | Normal | - | Fatal | 1 hour |
| GPA/Communication Error | - | Normal | - | Fault | 1 hour |
| GPA/Error Code Overflow | - | Normal | - | Fault | 1 hour |
| GPA/HV ON Error | - | Normal | - | Fault | 1 hour |
| GPA/External Clock Warning | - | Normal | - | Warning | 1 hour |
| GPA/GPA_TYPE | - | - | - | - | 24 hours |
| GPA/Error_Code1 | - | - | - | - | 1 hour |
| GPA/Error_Code2 | - | - | - | - | 1 hour |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| GPA/Error_Code3 | - | - | - | - | 1 hour |
| GPA/Error_Code4 | - | - | - | - | 1 hour |
| GPA/Error_Code5 | - | - | - | - | 1 hour |
| GPA/Error_Code6 | - | - | - | - | 1 hour |
| GPA/Error_Code7 | - | - | - | - | 1 hour |
| GPA/Error_Code8 | - | - | - | - | 1 hour |
| GPA/Error_Code9 | - | - | - | - | 1 hour |
| GPA/Error_Code10 | - | - | - | - | 1 hour |
| GPA/Error_Code11 | - | - | - | - | 1 hour |
| GPA/Error_Code12 | - | - | - | - | 1 hour |
| GPA/Error_Code13 | - | - | - | - | 1 hour |
| GPA/Error_Code14 | - | - | - | - | 1 hour |
| GPA/Error_Code15 | - | - | - | - | 1 hour |
| GPA/Error_Code16 | - | - | - | - | 1 hour |
| GPA/X Tune Parameter 1 | - | - | - | - | 24 hours |
| GPA/X Tune Parameter 2 | - | - | - | - | 24 hours |
| GPA/X Tune Parameter 3 | - | - | - | - | 24 hours |
| GPA/X Tune Parameter 4 | - | - | - | - | 24 hours |
| GPA/Y Tune Parameter 1 | - | - | - | - | 24 hours |
| GPA/Y Tune Parameter 2 | - | - | - | - | 24 hours |
| GPA/Y Tune Parameter 3 | - | - | - | - | 24 hours |
| GPA/Y Tune Parameter 4 | - | - | - | - | 24 hours |
| GPA/Z Tune Parameter 1 | - | - | - | - | 24 hours |
| GPA/Z Tune Parameter 2 | - | - | - | - | 24 hours |
| GPA/Z Tune Parameter 3 | - | - | - | - | 24 hours |
| GPA/Z Tune Parameter 4 | - | - | - | - | 24 hours |
| KP/1KP | - | Normal | - | Fault | 1 hour |
| KP/2KP | - | Normal | - | Fault | 1 hour |
| KP/3KP | - | Normal | - | Fault | 1 hour |
| KP/4KP | - | Normal | - | Fault | 1 hour |
| Door/DOOR | - | CLOSE | - | - | 1 hour |
| MRM/MRI System | - | Enable | - | - | 1 hour |
| MRM/MR POWER | - | ON | - | - | 1 hour |
| MRM/ECO MODE (COMP) | - | OFF | - | - | 1 hour |
| MRM/MRM_Rack_ID | - | Normal | - | - | 1 hour |
| MRM/MRM_Board_ID | - | Normal | - | - | 1 hour |
| MRM/MRM_Board_Work | - | Normal | - | - | 1 hour |
| MRM/Board Revision | - | Normal | - | - | 1 hour |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| MRM/FPGA Revision | - | Normal | - | - | 1 hour |
| MRM/MRM FW Version | - | Normal | - | - | 1 hour |
| MRM/SRM Module Link Error | - | Normal | - | - | 1 hour |
| MRM/RFPA Unit Error | - | Normal | - | - | 1 hour |
| MRM/GPA Unit Error | - | Normal | - | - | 1 hour |
| MRM/SENSE Unit Error | - | Normal | - | - | 1 hour |
| MRM/GANTRY Sensor Error | - | Normal | - | - | 1 hour |
| MRM/MR ON | - | OFF | - | - | 1 hour |
| MRM/MRM Firmware Startup Completion | - | OFF | - | - | 1 hour |
| MRM/DIPSW1-1 | - | OFF | - | - | 24 hours |
| MRM/DIPSW1-2 | - | OFF | - | - | 24 hours |
| MRM/DIPSW1-3 | - | OFF | - | - | 24 hours |
| MRM/DIPSW1-4 | - | OFF | - | - | 24 hours |
| MRM/DIPSW1-5 | - | OFF | - | - | 24 hours |
| MRM/DIPSW1-6 | - | OFF | - | - | 24 hours |
| MRM/DIPSW1-7 | - | OFF | - | - | 24 hours |
| MRM/DIPSW1-8 | - | OFF | - | - | 24 hours |
| MRM/DIPSW2-1 | - | OFF | - | - | 24 hours |
| MRM/DIPSW2-2 | - | OFF | - | - | 24 hours |
| MRM/DIPSW2-3 | - | OFF | - | - | 24 hours |
| MRM/DIPSW2-4 | - | OFF | - | - | 24 hours |
| MRM/DIPSW2-5 | - | OFF | - | - | 24 hours |
| MRM/DIPSW2-6 | - | OFF | - | - | 24 hours |
| MRM/DIPSW2-7 | - | OFF | - | - | 24 hours |
| MRM/DIPSW2-8 | - | OFF | - | - | 24 hours |
| MRM/DIPSW3-1 | - | OFF | - | - | 24 hours |
| MRM/DIPSW3-2 | - | OFF | - | - | 24 hours |
| MRM/DIPSW3-3 | - | OFF | - | - | 24 hours |
| MRM/DIPSW3-4 | - | OFF | - | - | 24 hours |
| MRM/DIPSW3-5 | - | OFF | - | - | 24 hours |
| MRM/DIPSW3-6 | - | OFF | - | - | 24 hours |
| MRM/DIPSW3-7 | - | OFF | - | - | 24 hours |
| MRM/DIPSW3-8 | - | OFF | - | - | 24 hours |
| MRM/DIPSW4-1 | - | OFF | - | - | 24 hours |
| MRM/DIPSW4-2 | - | OFF | - | - | 24 hours |
| MRM/DIPSW4-3 | - | OFF | - | - | 24 hours |
| MRM/DIPSW4-4 | - | OFF | - | - | 24 hours |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| MRM/DIPSW4-5 | - | OFF | - | - | 24 hours |
| MRM/DIPSW4-6 | - | OFF | - | - | 24 hours |
| MRM/DIPSW4-7 | - | OFF | - | - | 24 hours |
| MRM/DIPSW4-8 | - | OFF | - | - | 24 hours |
| MRM/DIPSW5-1 | - | OFF | - | - | 24 hours |
| MRM/DIPSW5-2 | - | OFF | - | - | 24 hours |
| MRM/DIPSW5-3 | - | OFF | - | - | 24 hours |
| MRM/DIPSW5-4 | - | OFF | - | - | 24 hours |
| MRM/DIPSW5-5 | - | OFF | - | - | 24 hours |
| MRM/DIPSW5-6 | - | OFF | - | - | 24 hours |
| MRM/DIPSW5-7 | - | OFF | - | - | 24 hours |
| MRM/DIPSW5-8 | - | OFF | - | - | 24 hours |
| MRM/DIPSW6-1 | - | OFF | - | - | 24 hours |
| MRM/DIPSW6-2 | - | OFF | - | - | 24 hours |
| MRM/DIPSW6-3 | - | OFF | - | - | 24 hours |
| MRM/DIPSW6-4 | - | OFF | - | - | 24 hours |
| MRM/DIPSW6-5 | - | OFF | - | - | 24 hours |
| MRM/DIPSW6-6 | - | OFF | - | - | 24 hours |
| MRM/DIPSW6-7 | - | OFF | - | - | 24 hours |
| MRM/DIPSW6-8 | - | OFF | - | - | 24 hours |
| MRM/DIPSW7-1 | - | OFF | - | - | 24 hours |
| MRM/DIPSW7-2 | - | OFF | - | - | 24 hours |
| MRM/DIPSW7-3 | - | OFF | - | - | 24 hours |
| MRM/DIPSW7-4 | - | OFF | - | - | 24 hours |
| MRM/DIPSW7-5 | - | OFF | - | - | 24 hours |
| MRM/DIPSW7-6 | - | OFF | - | - | 24 hours |
| MRM/DIPSW7-7 | - | OFF | - | - | 24 hours |
| MRM/DIPSW7-8 | - | OFF | - | - | 24 hours |
| MRM/DIPSW8-1 | - | OFF | - | - | 24 hours |
| MRM/DIPSW8-2 | - | OFF | - | - | 24 hours |
| MRM/DIPSW8-3 | - | OFF | - | - | 24 hours |
| MRM/DIPSW8-4 | - | OFF | - | - | 24 hours |
| MRM/DIPSW8-5 | - | OFF | - | - | 24 hours |
| MRM/DIPSW8-6 | - | OFF | - | - | 24 hours |
| MRM/DIPSW8-7 | - | OFF | - | - | 24 hours |
| MRM/DIPSW8-8 | - | OFF | - | - | 24 hours |
| MRM/Machine Room Temperature | degC | 5～32 | <5 or >32 | - | 1 hour |
| MRM/Machine Room Humidity | % | 0～80 | >80 | - | 1 hour |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| MRM/MRM Power Supply (+12V) | V | 10.8 ～ 13.2 | <10.8 or >13.2 | - | 1 hour |
| MRM/MRM Power Supply (+5V) | V | 4.5～5.5 | <4.5 or >5.5 | - | 1 hour |
| MRM/MRM Power Supply (+3.3V) | V | 2.97～3.63 | <2.97 or >3.63 | - | 1 hour |
| MRM/MRM FW WDT Reset | - | OFF | - | - | 1 hour |
| CONSOLE/CONSOLE_Board_ID | - | - | - | - | 24 hours |
| CONSOLE/CONSOLE_Board_Work | - | - | - | - | 24 hours |
| CONSOLE/Board Revision | - | - | - | - | 24 hours |
| CONSOLE/FPGA Revision | - | - | - | - | 24 hours |
| CONSOLE/Firmware Version | - | - | - | - | 24 hours |
| CONSOLE/OPECALL | - | OFF | - | - | 1 hour |
| CONSOLE/BUZZER | - | OFF | - | - | 1 hour |
| CONSOLE/ECG | - | OFF | - | - | 1 hour |
| CONSOLE/I2S Link Error | - | - | - | - | 1 hour |
| CONSOLE/I2S Link Error (OPIF to EXIF) | - | Normal | - | Fault | 1 hour |
| CONSOLE/I2S Link Error (EXIF to MRM) | - | Normal | - | Fault | 1 hour |
| CONSOLE/I2S Link Error (MRM to SRM) | - | Normal | - | Fault | 1 hour |
| CONSOLE/I2S Link Error (SRM to MRM) | - | Normal | - | Fault | 1 hour |
| CONSOLE/I2S Link Error (MRM to EXIF) | - | Normal | - | Fault | 1 hour |
| CONSOLE/I2S Link Error (EXIF to OPIF) | - | Normal | - | Fault | 1 hour |
| CONSOLE/DIPSW1-1 | - | - | - | - | 24 hours |
| CONSOLE/DIPSW1-2 | - | - | - | - | 24 hours |
| CONSOLE/DIPSW1-3 | - | - | - | - | 24 hours |
| CONSOLE/DIPSW1-4 | - | - | - | - | 24 hours |
| CONSOLE/DIPSW1-5 | - | - | - | - | 24 hours |
| CONSOLE/DIPSW1-6 | - | - | - | - | 24 hours |
| CONSOLE/DIPSW1-7 | - | - | - | - | 24 hours |
| CONSOLE/DIPSW1-8 | - | - | - | - | 24 hours |
| CONSOLE/DIPSW2-1 | - | - | - | - | 24 hours |
| CONSOLE/DIPSW2-2 | - | - | - | - | 24 hours |
| CONSOLE/DIPSW2-3 | - | - | - | - | 24 hours |
| CONSOLE/DIPSW2-4 | - | - | - | - | 24 hours |
| CONSOLE/DIPSW2-5 | - | - | - | - | 24 hours |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| CONSOLE/DIPSW2-6 | - | - | - | - | 24 hours |
| CONSOLE/DIPSW2-7 | - | - | - | - | 24 hours |
| CONSOLE/DIPSW2-8 | - | - | - | - | 24 hours |
| CONSOLE/Board_ID_(I.Box) | - | - | - | - | 24 hours |
| CONSOLE/Board_Work_(I.Box) | - | - | - | - | 24 hours |
| CONSOLE/I.Box_Serial_Number | - | - | - | - | 24 hours |
| CONSOLE/I.Box Revision | - | - | - | - | 24 hours |
| CONSOLE/OPIF FW WDT Reset | - | OFF | - | - | 1 hour |
| SRM/General Status | - | - | - | - | 1 hour |
| SRM/SRM CPU Status | - | - | - | - | 1 hour |
| SRM/SRM Board Status | - | - | - | - | 1 hour |
| SRM/PNLIF Board Detect Status | - | - | - | - | 1 hour |
| SRM/TDRV Board Detect Status | - | - | - | - | 1 hour |
| SRM/Gantry Monitor Power Status | - | - | - | - | 1 hour |
| SRM/Manual Evacuate Sw Status | - | - | - | - | 1 hour |
| SRM/Origin Position Detect Status | - | - | - | - | 1 hour |
| SRM/Patient Fan Status | - | - | - | - | 1 hour |
| SRM/Laser Status | - | - | - | - | 1 hour |
| SRM/Illumination Status | - | - | - | - | 1 hour |
| SRM/Release SW LED Status | - | - | - | - | 1 hour |
| SRM/Remote Mode Transition Status | - | - | - | - | 1 hour |
| SRM/CPU Error | - | Normal | - | Fault | 1 hour |
| SRM/Limit Switch Sensor Error | - | Normal | - | Fault | 1 hour |
| SRM/Gantry Panel Error | - | Normal | - | Fault | 1 hour |
| SRM/PNLIF Communication Error | - | Normal | - | Fault | 1 hour |
| SRM/TDRV Communication Error | - | Normal | - | Fault | 1 hour |
| SRM/Up Down Moving Error | - | Normal | - | Fault | 1 hour |
| SRM/Longitudinal Moving Error | - | Normal | - | Fault | 1 hour |
| SRM/ExTmpHum Sensor Error | - | Normal | - | Fault | 1 hour |
| SRM/SRM_Board_ID | - | - | - | - | 24 hours |
| SRM/SRM_Board_Work | - | - | - | - | 24 hours |
| SRM/Board Revision | - | - | - | - | 24 hours |
| SRM/FPGA1 Revision | - | - | - | - | 24 hours |
| SRM/FPGA2 Revision | - | - | - | - | 24 hours |
| SRM/FW Version | - | - | - | - | 24 hours |
| SRM/CAN I/F Version | - | - | - | - | 24 hours |
| SRM/DSW2-1 | - | - | - | - | 24 hours |
| SRM/DSW2-2 | - | - | - | - | 24 hours |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| SRM/DSW2-3 | - | - | - | - | 24 hours |
| SRM/DSW2-4 | - | - | - | - | 24 hours |
| SRM/DSW2-5 | - | - | - | - | 24 hours |
| SRM/DSW2-6 | - | - | - | - | 24 hours |
| SRM/DSW2-7 | - | - | - | - | 24 hours |
| SRM/DSW2-8 | - | - | - | - | 24 hours |
| SRM/DSW3-1 | - | - | - | - | 24 hours |
| SRM/DSW3-2 | - | - | - | - | 24 hours |
| SRM/DSW3-3 | - | - | - | - | 24 hours |
| SRM/DSW3-4 | - | - | - | - | 24 hours |
| SRM/DSW3-5 | - | - | - | - | 24 hours |
| SRM/DSW3-6 | - | - | - | - | 24 hours |
| SRM/DSW3-7 | - | - | - | - | 24 hours |
| SRM/DSW3-8 | - | - | - | - | 24 hours |
| SRM/DSW4-1 | - | - | - | - | 24 hours |
| SRM/DSW4-2 | - | - | - | - | 24 hours |
| SRM/DSW4-3 | - | - | - | - | 24 hours |
| SRM/DSW4-4 | - | - | - | - | 24 hours |
| SRM/SRM Power Supply (+24V) | V | 21.6 ～ 26.4 | <21.6 or >26.4 | - | 1 hour |
| SRM/SRM Power Supply (+12V) | V | 10.8 ～ 13.2 | <10.8 or >13.2 | - | 1 hour |
| SRM/SRM Power Supply (+5V) | V | 4.5 ～ 5.5 | <4.5 or >5.5 | - | 1 hour |
| SRM/SRM Power Supply (+3.3V1) | V | 2.97 ～ 3.63 | <2.97 or >3.63 | - | 1 hour |
| SRM/SRM Power Supply (+3.3V2) | V | 2.97 ～ 3.63 | <2.97 or >3.63 | - | 1 hour |
| SRM/Longitudinal Full Stroke Value | mm | - | - | - | 24 hours |
| SRM/Longitudinal Absolute Position Value | mm | - | - | - | 1 hour |
| SRM/TABLE_General_Status | - | - | - | - | 1 hour |
| SRM/TABLE_UP/DOWN_Position | - | - | - | - | 1 hour |
| SRM/TABLE_IN/OUT_Position | - | - | - | - | 1 hour |
| SRM/OPECALL DETECT LEVEL | - | - | - | - | 1 hour |
| PNLIF/PNLIF Board Detect Status | - | - | - | - | 1 hour |
| PNLIF/PNLIF Serial Communication Error | - | - | - | - | 1 hour |
| PNLIF/PANEL-R Detect Status | - | - | - | - | 1 hour |
| PNLIF/PANEL-L Detect Status | - | - | - | - | 1 hour |
| PNLIF/Check Sum Error (SRM to PNLIF) | - | - | - | - | 1 hour |
| PNLIF/Com-ID Error (SRM to PNLIF) | - | - | - | - | 1 hour |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| PNLIF/Link Up Status (SRM to PNLIF) | - | - | - | - | 1 hour |
| PNLIF/Check Sum Error (PNLIF to SRM) | - | - | - | - | 1 hour |
| PNLIF/Com-ID Error (PNLIF to SRM) | - | - | - | - | 1 hour |
| PNLIF/Link Up Status (PNLIF to SRM) | - | - | - | - | 1 hour |
| PNLIF/PNLIF_Board_ID | - | - | - | - | 24 hours |
| PNLIF/PNLIF_Board_Work | - | - | - | - | 24 hours |
| PNLIF/Board Revision | - | - | - | - | 24 hours |
| PNLIF/FPGA1 Revision | - | - | - | - | 24 hours |
| PNLIF/FPGA2 Revision | - | - | - | - | 24 hours |
| PNLIF/DSW2-1 | - | - | - | - | 24 hours |
| PNLIF/DSW2-2 | - | - | - | - | 24 hours |
| PNLIF/DSW2-3 | - | - | - | - | 24 hours |
| PNLIF/DSW2-4 | - | - | - | - | 24 hours |
| PNLIF/DSW2-5 | - | - | - | - | 24 hours |
| PNLIF/DSW2-6 | - | - | - | - | 24 hours |
| PNLIF/DSW2-7 | - | - | - | - | 24 hours |
| PNLIF/DSW2-8 | - | - | - | - | 24 hours |
| PNLIF/PNLIF Power Supply (+24V) | V | 21.6 ～ 26.4 | <21.6 or >26.4 | - | 1 hour |
| PNLIF/PNLIF Power Supply (+5V) | V | 4.5 ～ 5.5 | <4.5 or >5.5 | - | 1 hour |
| PNLIF/PNLIF Power Supply (+3.3V1) | V | 2.97 ～ 3.63 | <2.97 or >3.63 | - | 1 hour |
| TDRV/TDRV Board Detect Status | - | - | - | - | 1 hour |
| TDRV/TDRV Serial Communication Error | - | - | - | - | 1 hour |
| TDRV/Check Sum Error (SRM to TDRV) | - | - | - | - | 1 hour |
| TDRV/Com-ID Error (SRM to TDRV) | - | - | - | - | 1 hour |
| TDRV/Link Up Status (SRM to TDRV) | - | - | - | - | 1 hour |
| TDRV/Check Sum Error (TDRV to SRM) | - | - | - | - | 1 hour |
| TDRV/Com-ID Error (TDRV to SRM) | - | - | - | - | 1 hour |
| TDRV/Link Up Status (TDRV to SRM) | - | - | - | - | 1 hour |
| TDRV/TDRV_Board_ID | - | - | - | - | 24 hours |
| TDRV/TDRV_Board_Work | - | - | - | - | 24 hours |
| TDRV/Board Revision | - | - | - | - | 24 hours |
| TDRV/FPGA1 Revision | - | - | - | - | 24 hours |
| TDRV/DSW2-1 | - | - | - | - | 24 hours |
| TDRV/DSW2-2 | - | - | - | - | 24 hours |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| TDRV/DSW2-3 | - | - | - | - | 24 hours |
| TDRV/DSW2-4 | - | - | - | - | 24 hours |
| TDRV/DSW2-5 | - | - | - | - | 24 hours |
| TDRV/DSW2-6 | - | - | - | - | 24 hours |
| TDRV/DSW2-7 | - | - | - | - | 24 hours |
| TDRV/DSW2-8 | - | - | - | - | 24 hours |
| TDRV/DSW3-1 | - | - | - | - | 24 hours |
| TDRV/DSW3-2 | - | - | - | - | 24 hours |
| TDRV/DSW3-3 | - | - | - | - | 24 hours |
| TDRV/DSW3-4 | - | - | - | - | 24 hours |
| TDRV/DSW3-5 | - | - | - | - | 24 hours |
| TDRV/DSW3-6 | - | - | - | - | 24 hours |
| TDRV/DSW3-7 | - | - | - | - | 24 hours |
| TDRV/DSW3-8 | - | - | - | - | 24 hours |
| TDRV/DSW4-1 | - | - | - | - | 24 hours |
| TDRV/DSW4-2 | - | - | - | - | 24 hours |
| TDRV/DSW4-3 | - | - | - | - | 24 hours |
| TDRV/DSW4-4 | - | - | - | - | 24 hours |
| TDRV/DSW4-5 | - | - | - | - | 24 hours |
| TDRV/DSW4-6 | - | - | - | - | 24 hours |
| TDRV/DSW4-7 | - | - | - | - | 24 hours |
| TDRV/DSW4-8 | - | - | - | - | 24 hours |
| TDRV/TDRV Power Supply (+24V) | V | 21.6 ～ 26.4 | <21.6 or >26.4 | - | 1 hour |
| TDRV/TDRV Power Supply (+5V) | V | 4.5 ～ 5.5 | <4.5 or >5.5 | - | 1 hour |
| TDRV/TDRV Power Supply (+3.3) | V | 2.97 ～ 3.63 | <2.97 or >3.63 | - | 1 hour |
| TDRV/Longitudinal Motor Voltage | V | - | - | - | 1 hour |
| TDRV/Longitudinal Encoder Voltage | V | - | - | - | 1 hour |
| GCSNAP/GC Snap SW CH1 | - | - | - | - | 1 hour |
| GCSNAP/GC Snap SW CH2 | - | - | - | - | 1 hour |
| GCSNAP/GC Snap SW CH3 | - | - | - | - | 1 hour |
| GCSNAP/GC Snap SW CH4 | - | - | - | - | 1 hour |
| ExtTmpHum /Shield Room Temperature | degC | 5～32 | <5 or >32 | - | 1 hour |
| ExtTmpHum /Shield Room Humidity | % | 0～80 | >80 | - | 1 hour |
| PSC/EVC LED Status (S0) | - | OFF | - | - | 24 hours |
| PSC/EVC LED Status (S1) | - | OFF | - | - | 24 hours |
| PSC/EVC LED Status (S2) | - | OFF | - | - | 24 hours |
| PSC/EVC LED Status (S3) | - | OFF | - | - | 24 hours |
| PSC/EVC LED Status (POWER ON) | - | ON | - | - | 24 hours |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| PSC/EVC LED Status (CONF DONE) | - | ON | - | - | 24 hours |
| PSC/EVC LED Status (SCAN START) | - | - | - | - | 24 hours |
| PSC/EVC LED Status (ERROR) | - | OFF | - | - | 24 hours |
| PSC/EVC DSW2 Status | - | - | - | - | 24 hours |
| PSC/EVC RST FPGA Revision | - | - | - | - | 24 hours |
| PSC/EVC Board Revision | - | - | - | - | 24 hours |
| PSC/EVC_Board_Work | - | - | - | - | 24 hours |
| PSC/EVC_Rack_ID | - | - | - | - | 24 hours |
| PSC/EVC_Board_ID | - | - | - | - | 24 hours |
| PSC/EVC RF FPGA Temperature | degC | 0～70 | <0 or >70 | - | 1 hour |
| PSC/EVC RF FPGA Revision | - | - | - | - | 24 hours |
| PSC/EVC GC FPGA Temperature | degC | 0～70 | <0 or >70 | - | 1 hour |
| PSC/EVC GC FPGA Revision | - | - | - | - | 24 hours |
| PSC/EVC_Boot_ROM_Version | - | - | - | - | 24 hours |
| PSC/PSC_Firmware_Version | - | - | - | - | 24 hours |
| PSC/EVC_DSW3_Status | - | - | - | - | 24 hours |
| DGC/DGC_Rack_ID | - | - | - | - | 24 hours |
| DGC/DGC_Board_Work | - | - | - | - | 24 hours |
| DGC/DGC Board Revision | - | - | - | - | 24 hours |
| DGC/DGC PLD Revision | - | - | - | - | 24 hours |
| DGC/DGC FPGA Revision | - | - | - | - | 24 hours |
| DGC/DGC B0 Output Enable | - | - | - | - | 24 hours |
| DGC/DGC GCZ Output Enable | - | - | - | - | 24 hours |
| DGC/DGC GCY Output Enable | - | - | - | - | 24 hours |
| DGC/DGC GCX Output Enable | - | - | - | - | 24 hours |
| DGC/DGC RMFC Enable | - | - | - | - | 24 hours |
| DGC/DGC VFC Output Enable | - | - | - | - | 24 hours |
| DGC/DGC ECC Output Enable | - | - | - | - | 24 hours |
| DGC/DGC DSW1-1 | - | - | - | - | 24 hours |
| DGC/DGC DSW1-2 | - | - | - | - | 24 hours |
| DGC/DGC DSW1-3 | - | - | - | - | 24 hours |
| DGC/DGC DSW1-4 | - | - | - | - | 24 hours |
| DGC/DGC DSW2-1 | - | - | - | - | 24 hours |
| DGC/DGC DSW2-2 | - | - | - | - | 24 hours |
| DGC/DGC DSW2-3 | - | - | - | - | 24 hours |
| DGC/DGC DSW2-4 | - | - | - | - | 24 hours |
| DGC/DGC CNT FPGA Temperature | degC | 0～70 | <0 or >70 | - | 1 hour |
| DGC/DGC LED (Software) | - | OFF | - | - | 24 hours |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| DGC/DGC LED (System Clock) | - | - | - | - | 24 hours |
| DGC/DGC LED (DGC Error) | - | OFF | - | - | 24 hours |
| DGC/DGC LED (Mode) | - | OFF | - | - | 24 hours |
| DGC/DGC LED (GCZ Enable) | - | ON | - | - | 24 hours |
| DGC/DGC LED (GCY Enable) | - | ON | - | - | 24 hours |
| DGC/DGC LED (GCX Enable) | - | ON | - | - | 24 hours |
| DGC/DGC LED (RFGC Active) | - | - | - | - | 24 hours |
| DGC/Power Supply (3.3VD) | - | 3.3 | - | - | 24 hours |
| DGC/Power Supply (1.1V) | - | 1.1 | - | - | 24 hours |
| DGC/Power Supply (2.5V) | - | 2.5 | - | - | 24 hours |
| DGC/Power Supply (3.3V) | - | 3.3 | - | - | 24 hours |
| DGC/Power Supply (12VD) | - | 12 | - | - | 24 hours |
| DGC/Command Overflow (GZ) | - | Normal | Warning | - | 24 hours |
| DGC/Command Overflow (GY) | - | Normal | Warning | - | 24 hours |
| DGC/Command Overflow (GX) | - | Normal | Warning | - | 24 hours |
| DGC/Improper Command Warning (GZ) | - | Normal | Warning | - | 24 hours |
| DGC/Improper Command Warning (GY) | - | Normal | Warning | - | 24 hours |
| DGC/Improper Command Warning (GX) | - | Normal | Warning | - | 24 hours |
| DGC/Operating Clock Warning | - | Normal | Warning | - | 24 hours |
| DGC/SHIMAMP Error | - | Normal | - | Fault | 24 hours |
| DGC/SHIMAMP I/F Error | - | Normal | - | Fault | 24 hours |
| DGC/Improper Command Error (GZ) | - | Normal | - | Fault | 24 hours |
| DGC/Improper Command Error (GY) | - | Normal | - | Fault | 24 hours |
| DGC/Improper Command Error (GX) | - | Normal | - | Fault | 24 hours |
| DGC/GC Serial Command Link Error | - | Normal | - | Fault | 24 hours |
| DGC/DGC_Board_ID | - | - | - | - | 24 hours |
| DGC/SHIMAMP BRD1CH1 Enable | - | - | - | - | 24 hours |
| DGC/SHIMAMP BRD1CH2 Enable | - | - | - | - | 24 hours |
| DGC/SHIMAMP BRD1CH1 ErrorStatus | - | - | - | - | 24 hours |
| DGC/SHIMAMP BRD1CH2 ErrorStatus | - | - | - | - | 24 hours |
| DGC/SHIMAMP Interface ErrorStatus | - | - | - | - | 24 hours |
| DGC/SHIMAMP B1CH1 Enable | - | - | - | - | 24 hours |
| DGC/SHIMAMP B1CH1 OverCurrent | - | - | - | Fault | 24 hours |
| DGC/SHIMAMP B1CH1 OverTemp | - | - | - | Fault | 24 hours |
| DGC/SHIMAMP B1CH1 OpenLoad | - | - | - | Fault | 24 hours |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| DGC/SHIMAMP B1CH1 EXT-CLKWarning | - | - | Warning | - | 24 hours |
| DGC/SHIMAMP B1CH1 Over DCBusVol | - | - | - | Fault | 24 hours |
| DGC/SHIMAMP B1CH1 Desat Fault | - | - | - | Fault | 24 hours |
| DGC/SHIMAMP B1CH1 Output Oscillation | - | - | - | Fault | 24 hours |
| DGC/SHIMAMP B1CH1 PLL Fault | - | - | - | Fault | 24 hours |
| DGC/SHIMAMP B1CH1 Com Timout | - | - | - | Fault | 24 hours |
| DGC/SHIMAMP B1CH1 Checksum Fault | - | - | - | Fault | 24 hours |
| DGC/SHIMAMP B1CH2 Enable | - | - | - | - | 24 hours |
| DGC/SHIMAMP B1CH2 OverCurrent | - | - | - | Fault | 24 hours |
| DGC/SHIMAMP B1CH2 OverTemp | - | - | - | Fault | 24 hours |
| DGC/SHIMAMP B1CH2 OpenLoad | - | - | - | Fault | 24 hours |
| DGC/SHIMAMP B1CH2 EXT-CLKWarning | - | - | Warning | - | 24 hours |
| DGC/SHIMAMP B1CH2 Over DCBusVol | - | - | - | Fault | 24 hours |
| DGC/SHIMAMP B1CH2 Desat Fault | - | - | - | Fault | 24 hours |
| DGC/SHIMAMP B1CH2 Output Oscillation | - | - | - | Fault | 24 hours |
| DGC/SHIMAMP B1CH2 PLL Fault | - | - | - | Fault | 24 hours |
| DGC/SHIMAMP B1CH2 Com Timout | - | - | - | Fault | 24 hours |
| DGC/SHIMAMP B1CH2 Checksum Fault | - | - | - | Fault | 24 hours |
| COILCONT/COILCONT_Board_ID | - | - | - | - | 24 hours |
| COILCONT/COILCONT_Board_Work | - | - | - | - | 24 hours |
| COILCONT/Board Revision | - | - | - | - | 24 hours |
| COILCONT/FPGA1 Revision | - | - | - | - | 24 hours |
| COILCONT/FPGA2 Revision | - | - | - | - | 24 hours |
| COILCONT/FPGA3 Revision | - | - | - | - | 24 hours |
| COILCONT/FPGA4 Revision | - | - | - | - | 24 hours |
| COILCONT/DIPSW Status | - | - | - | - | 24 hours |
| COILCONT/COILCONT Module Error Status | - | Normal | - | - | 1 hour |
| COILCONT/COILIF PCB Error Status | - | Normal | - | - | 1 hour |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| COILCONT/CN1 COILDRV PCB Part Error | - | Normal | - | - | 1 hour |
| COILCONT/CN2 COILDRV PCB Part Error | - | Normal | - | - | 1 hour |
| COILCONT/CN3 COILDRV PCB Part Error | - | Normal | - | - | 1 hour |
| COILCONT/CN4 COILDRV PCB Part Error | - | Normal | - | - | 1 hour |
| COILCONT/Tx COILDRV PCB Part Error | - | Normal | - | - | 1 hour |
| COILCONT/COILCONT - SYNTHE COM | - | Normal | - | - | 1 hour |
| COILCONT/COILCONT - LINESEL COM | - | Normal | - | - | 1 hour |
| COILCONT/FPGA COM (MASTER - SLAVE1) | - | Normal | - | - | 1 hour |
| COILCONT/FPGA COM (MASTER - SLAVE2) | - | Normal | - | - | 1 hour |
| COILCONT/FPGA COM (MASTER - SLAVE3) | - | Normal | - | - | 1 hour |
| COILCONT/CN1 COIL ID COM | - | Normal | - | - | 1 hour |
| COILCONT/CN2 COIL ID COM | - | Normal | - | - | 1 hour |
| COILCONT/CN3 COIL ID COM | - | Normal | - | - | 1 hour |
| COILCONT/CN4 COIL ID COM | - | Normal | - | - | 1 hour |
| COILCONT/Input Power Supply (+35V) | - | Normal | - | Error | 1 hour |
| COILCONT/Input Power Supply (-23V) | - | Normal | - | Error | 1 hour |
| COILCONT/Input Power Supply (+26V) | - | Normal | - | Error | 1 hour |
| COILCONT/Input Power Supply (-14.5V) | - | Normal | - | Error | 1 hour |
| SYNTHE/DSF FPGA Temperature | - | 0～70 | <0 or >70 | - | 1 hour |
| SYNTHE/DSF LED Status (Reserve1) | - | OFF | - | - | 24 hours |
| SYNTHE/DSF LED Status (DEC ERR) | - | OFF | - | - | 24 hours |
| SYNTHE/DSF LED Status (Reserve2) | - | OFF | - | - | 24 hours |
| SYNTHE/DSF LED Status (DBG MODE) | - | - | - | - | 24 hours |
| SYNTHE/DSF LED Status (PLL LOCK) | - | ON | - | - | 24 hours |
| SYNTHE/DSF LED Status (RFPA ON) | - | ON | - | - | 24 hours |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| SYNTHE/DSF LED Status (RFPA BIAS) | - | - | - | - | 24 hours |
| SYNTHE/DSF LED Status (RESET) | - | - | - | - | 24 hours |
| SYNTHE/DSF CLKRST FPGA | - | - | - | - | 24 hours |
| SYNTHE/DSF FPGA Revision | - | - | - | - | 24 hours |
| SYNTHE/DSF Frequency ROM Revision | - | - | - | - | 24 hours |
| SYNTHE/DSF Frequency ROM Offset | - | - | - | - | 24 hours |
| SYNTHE/DSF Frequency ROM Hardware | - | - | - | - | 24 hours |
| SYNTHE/DSF DDS1 Channel A Initial Phase Value | - | - | - | - | 24 hours |
| SYNTHE/DSF DDS1 Channel B Initial Phase Value | - | - | - | - | 24 hours |
| SYNTHE/DSF DDS2 Channel A Initial Phase Value | - | - | - | - | 24 hours |
| SYNTHE/DSF DDS2 Channel B Initial Phase Value | - | - | - | - | 24 hours |
| SYNTHE/DSF_Rack_ID | - | - | - | - | 24 hours |
| SYNTHE/DSF_Board_ID | - | - | - | - | 24 hours |
| SYNTHE/DSF Board Revision | - | - | - | - | 24 hours |
| SYNTHE/DSF_Board_Work | - | - | - | - | 24 hours |
| EXIF/EXIF_Rack_ID | - | - | - | - | 24 hours |
| EXIF/EXIF_Board_ID | - | - | - | - | 24 hours |
| EXIF/EXIF_Board_Work | - | - | - | - | 24 hours |
| EXIF/EXIF Board Revision | - | - | - | - | 24 hours |
| EXIF/EXIF_FPGA_Revision | - | - | - | - | 24 hours |
| EXIF/PMM Select ID | - | - | - | - | 24 hours |
| EXIF/EXIF LED (S0) | - | - | - | - | 24 hours |
| EXIF/EXIF LED (S1) | - | - | - | - | 24 hours |
| EXIF/EXIF LED (S2) | - | - | - | - | 24 hours |
| EXIF/EXIF LED (S3) | - | - | - | - | 24 hours |
| EXIF/EXIF LED (POWER) | - | - | - | - | 24 hours |
| EXIF/EXIF LED (DAT Error) | - | - | - | - | 24 hours |
| EXIF/EXIF LED (CPU IRQ) | - | - | - | - | 24 hours |
| EXIF/EXIF LED (PMM Trigger) | - | - | - | - | 24 hours |
| EXIF/EXIF DIPSW2-1 | - | - | - | - | 24 hours |
| EXIF/EXIF DIPSW2-2 | - | - | - | - | 24 hours |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| EXIF/EXIF DIPSW2-3 | - | - | - | - | 24 hours |
| EXIF/EXIF DIPSW2-4 | - | - | - | - | 24 hours |
| EXIF/EXIF DIPSW2-5 | - | - | - | - | 24 hours |
| EXIF/EXIF DIPSW2-6 | - | - | - | - | 24 hours |
| EXIF/EXIF DIPSW2-7 | - | - | - | - | 24 hours |
| EXIF/EXIF DIPSW2-8 | - | - | - | - | 24 hours |
| EXIF/EXIF FPGA Temperature | degC | 0～70 | <0 or >70 | - | 1 hour |
| EXIF/EXIF RST FPGA Revision | - | - | - | - | 24 hours |
| EXIF/EXIF_Boot_ROM_Version | - | - | - | - | 24 hours |
| EXIF/EXIF_Firmware_Version | - | - | - | - | 24 hours |
| ADIF/ADIF_Board_ID | - | - | - | - | 24 hours |
| ADIF/ADIF_Board_Work | - | - | - | - | 24 hours |
| ADIF/ADIF Board Revision | - | - | - | - | 24 hours |
| ADIF/ADIF RST FPGA Revision | - | - | - | - | 24 hours |
| ADIF/ADIF FPGA Revision | - | - | - | - | 24 hours |
| ADIF/ADIF LED (Reserved) | - | - | - | - | 24 hours |
| DIF/ADIF LED (Power ON(12V)) | - | - | - | - | 24 hours |
| ADIF/ADIF LED (Debug AD Mode) | - | - | - | - | 24 hours |
| ADIF/ADIF LED (Debug Clock Mode) | - | - | - | - | 24 hours |
| ADIF/ADIF LED (FPGA PLL Locked) | - | - | - | - | 24 hours |
| ADIF/ADIF LED (Error) | - | - | - | - | 24 hours |
| ADIF/ADIF LED (ADC Start) | - | - | - | - | 24 hours |
| ADIF/ADIF LED (Receiving Mode) | - | - | - | - | 24 hours |
| ADIF/ADIF LED (CONF DONE) | - | - | - | - | 24 hours |
| ADIF/ADIF LED (CONF ERR) | - | - | - | - | 24 hours |
| ADIF/ADIF LED (PWR OK) | - | - | - | - | 24 hours |
| ADIF/ADIF LED (MST RST) | - | - | - | - | 24 hours |
| ADIF/ADIF DIPSW2-1 | - | - | - | - | 24 hours |
| ADIF/ADIF DIPSW2-2 | - | - | - | - | 24 hours |
| ADIF/ADIF DIPSW2-3 | - | - | - | - | 24 hours |
| ADIF/ADIF DIPSW2-4 | - | - | - | - | 24 hours |
| ADIF/ADIF DIPSW2-5 | - | - | - | - | 24 hours |
| ADIF/ADIF DIPSW2-6 | - | - | - | - | 24 hours |
| ADIF/ADIF DIPSW2-7 | - | - | - | - | 24 hours |
| ADIF/ADIF DIPSW2-8 | - | - | - | - | 24 hours |
| ADIF/ADIF FPGA Temperature Reg | degC | 0～70 | <0 or >70 | - | 1 hour |
| ADIF/ADIF_Rack_ID | - | - | - | - | 24 hours |
| DSR1/DSR1_Board_ID | - | - | - | - | 24 hours |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| DSR1/DSR1 Board Work | - | - | - | - | 24 hours |
| DSR1/DSR1 Board Revision | - | - | - | - | 24 hours |
| DSR1/DSR1 RST FPGA Revision | - | - | - | - | 24 hours |
| DSR1/DSR1 FPGA Revision | - | - | - | - | 24 hours |
| DSR1/DSR1 LED (AD TRIG) | - | - | - | - | 24 hours |
| DSR1/DSR1 LED (ADC LINK) | - | - | - | - | 24 hours |
| DSR1/DSR1 LED (POWER ON) | - | - | - | - | 24 hours |
| DSR1/DSR1 LED (CONF DONE) | - | - | - | - | 24 hours |
| DSR1/DSR1 DIPSW2-1 | - | - | - | - | 24 hours |
| DSR1/DSR1 DIPSW2-2 | - | - | - | - | 24 hours |
| DSR1/DSR1 DIPSW2-3 | - | - | - | - | 24 hours |
| DSR1/DSR1 DIPSW2-4 | - | - | - | - | 24 hours |
| DSR1/DSR1 DIPSW2-5 | - | - | - | - | 24 hours |
| DSR1/DSR1 DIPSW2-6 | - | - | - | - | 24 hours |
| DSR1/DSR1 DIPSW2-7 | - | - | - | - | 24 hours |
| DSR1/DSR1 DIPSW2-8 | - | - | - | - | 24 hours |
| DSR1/RECEIVE1 FPGA Temperature Reg | degC | 0～70 | <0 or >70 | - | 1 hour |
| DSR1/DSR1 Rack ID | - | - | - | - | 24 hours |
| DSR1/DSR1 Voltage (3.3V) Mon1 Reg | - | - | - | - | 24 hours |
| DSR1/DSR1 Voltage (2.5V) Mon2 Reg | - | - | - | - | 24 hours |
| DSR1/DSR1 Voltage (FPGA1.1V) Mon3 Reg | - | - | - | - | 24 hours |
| DSR1/DSR1 Voltage (FPGA1.15V) Mon4 Reg | - | - | - | - | 24 hours |
| DSR1/DSR1 Voltage (FPGA1.8V) Mon5 Reg | - | - | - | - | 24 hours |
| DSR1/DSR1 Voltage (FPGA2.5V) Mon6 Reg | - | - | - | - | 24 hours |
| DSR1/DSR1 Voltage (FPGA3.3V) Mon7 Reg | - | - | - | - | 24 hours |
| DSR1/DSR1 Voltage (FPGA1.5V) Mon8 Reg | - | - | - | - | 24 hours |
| DSR1/DSR1 Voltage (None) Mon9 Reg | - | - | - | - | 24 hours |
| DSR1/DSR1 Voltage (5V) Mon10 Reg | - | - | - | - | 24 hours |
| DSR2/DSR2_Board_ID | - | - | - | - | 24 hours |
| DSR2/DSR2_Board_Work | - | - | - | - | 24 hours |
| DSR2/DSR2 Board Revision | - | - | - | - | 24 hours |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| DSR2/DSR2 RST FPGA Revision | - | - | - | - | 24 hours |
| DSR2/DSR2 FPGA Revision | - | - | - | - | 24 hours |
| DSR2/DSR2 LED (AD TRIG) | - | - | - | - | 24 hours |
| DSR2/DSR2 LED (ADC LINK) | - | - | - | - | 24 hours |
| DSR2/DSR2 LED (POWER ON) | - | - | - | - | 24 hours |
| DSR2/DSR2 LED (CONF DONE) | - | - | - | - | 24 hours |
| DSR2/DSR2 DIPSW2-1 | - | - | - | - | 24 hours |
| DSR2/DSR2 DIPSW2-2 | - | - | - | - | 24 hours |
| DSR2/DSR2 DIPSW2-3 | - | - | - | - | 24 hours |
| DSR2/DSR2 DIPSW2-4 | - | - | - | - | 24 hours |
| DSR2/DSR2 DIPSW2-5 | - | - | - | - | 24 hours |
| DSR2/DSR2 DIPSW2-6 | - | - | - | - | 24 hours |
| DSR2/DSR2 DIPSW2-7 | - | - | - | - | 24 hours |
| DSR2/DSR2 DIPSW2-8 | - | - | - | - | 24 hours |
| DSR2/RECEIVE2 FPGA Temperature Reg | degC | 0～70 | <0 or >70 | - | 1 hour |
| DSR2/DSR2_Rack_ID | - | - | - | - | 24 hours |
| DSR2/DSR2 Voltage (3.3V) Mon1 Reg | - | - | - | - | 24 hours |
| DSR2/DSR2 Voltage (2.5V) Mon2 Reg | - | - | - | - | 24 hours |
| DSR2/DSR2 Voltage (FPGA1.1V) Mon3 Reg | - | - | - | - | 24 hours |
| DSR2/DSR2 Voltage (FPGA1.15V) Mon4 Reg | - | - | - | - | 24 hours |
| DSR2/DSR2 Voltage (FPGA1.8V) Mon5 Reg | - | - | - | - | 24 hours |
| DSR2/DSR2 Voltage (FPGA2.5V) Mon6 Reg | - | - | - | - | 24 hours |
| DSR2/DSR2 Voltage (FPGA3.3V) Mon7 Reg | - | - | - | - | 24 hours |
| DSR2/DSR2 Voltage (FPGA1.5V) Mon8 Reg | - | - | - | - | 24 hours |
| DSR2/DSR2 Voltage (None) Mon9 Reg | - | - | - | - | 24 hours |
| DSR2/DSR2 Voltage (5V) Mon10 Reg | - | - | - | - | 24 hours |
| Common | | | | | |
| Monitor Mode | - | OFF | - | - | 1 hour |
| BE PC/CPU Model | - | - | - | - | 24 hours |
| BE PC/Actual Physical Memory | byte | - | < 17179869184 (MR-IRCP-M1) | - | 24 hours |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| BE PC/Total Physical Memory | byte | - | ≠8446652416(MR-RFIP-1N)<br>≠16996012032(MR-IRCP-M1) | - | 24 hours |
| BE PC/Available Physical Memory | KB | 131072～ | - | <131072 | 1 hour |
| BE PC/Mother Board | - | - | - | - | 24 hours |
| BE PC/Monitor Manufacturer | - | - | - | - | 24 hours |
| BE PC/DVD-Multi Drive | - | - | - | - | 24 hours |
| BE PC/Disk Drive | - | - | - | - | 24 hours |
| BE PC/HDD Size C: | byte | - | - | - | 24 hours |
| BE PC/HDD Size Q: | byte | - | - | - | 24 hours |
| MR-IRCP-M1 | | | | | |
| BE PC/HDD Size P: | byte | - | - | - | 24 hours |
| BE PC/HDD Size R: | byte | - | - | - | 24 hours |
| Common | | | | | |
| BE PC/HDD Free Space C: | byte | 1073741824～ | - | <1073741824 | 1 hour |
| BE PC/HDD Free Space Q: | byte | - | - | - | 1 hour |
| MR-IRCP-M1 | | | | | |
| BE PC/HDD Free Space P: | byte | - | - | - | 1 hour |
| BE PC/HDD Free Space R: | byte | - | - | - | 1 hour |
| Common | | | | | |
| BE PC/HDD Life Time | hour | - | - | - | 1 hour |
| BE PC/HDD Temperature | degC | 10～55 | <10 or (55< & <=60) | >60 | 1 hour |
| BE PC/BIOS Version | - | - | - | - | 24 hours |
| BE PC/App Mem Usage | byte | - | - | - | 1 hour |
| BE PC/IP Mem Usage | byte | - | - | - | 1 hour |
| BE PC/Database Size | byte | ～3650722200 | 3650722200< & <=4037269258 | >4037269258 | 1 hour |
| BE PC/DB Transaction Size | byte | - | - | - | 1 hour |
| BE PC/Start Stop Count | - | 0～50000 | >50000 | - | 1 hour |
| BE PC/Current Pending Sector Count | - | - | - | - | 1 hour |
| BE PC/Offline Uncorrectable | - | 0 | >0 | - | 1 hour |
| BE PC/Reallocated Sector Ct | - | - | - | - | 1 hour |
| BE PC/UltraDMA CRC Error Count | - | - | - | - | 1 hour |
| BE PC/Mother Voltage | V | 2.6～3.2 | <2.5 | - | 1 hour |
| FE PC/CPU Model | - | - | - | - | 24 hours |
| FE PC/Actual Physical Memory | byte | - | < 34359738368<br>(MR-IRCP-M1) | - | 24 hours |
| FE PC/Total Physical Memory | byte | - | ≠6123008000(MR-RFIP-1N)<br>≠26380460032(MR-IRCP-M1) | - | 24 hours |
| FE PC/Available Physical Memory | KB | 131072～ | <131072 | - | 1hour |
| FE PC/Mother Board | - | - | - | - | 24 hours |

| Items | Unit | Normal range | Alert conditions | Error conditions | Interval |
|---|---|---|---|---|---|
| FE PC/DVD-ROM Drive | - | - | - | - | 24 hours |
| FE PC/Disk Drive | - | - | - | - | 24 hours |
| FE PC/HDD Size C: | byte | - | - | - | 24 hours |
| FE PC/HDD Size D: | byte | - | - | - | 24 hours |
| FE PC/HDD Free Space C: | byte | 536870912～ | <536870912 | - | 1 hour |
| FE PC/HDD Free Space D: | byte | 536870912～ | <536870912 | - | 1 hour |
| FE PC/HDD Life Time | hour | - | - | - | 1 hour |
| FE PC/HDD Temperature | degC | 10～55 | <10 or (55< & <=60) | >60 | 1 hour |
| FE PC/BIOS Version | - | - | - | - | 24 hours |
| FE PC/Start/Stop Count | - | 0～50000 | >50000 | - | 1 hour |
| FE PC/Reallocated Sector Ct | - | - | - | - | 1 hour |
| FE PC/Current Pending Sector Count | - | - | - | - | 1 hour |
| FE PC/Offline Uncorrectable | - | 0 | >0 | - | 1 hour |
| FE PC/UltraDMA CRC Error Count | - | - | - | - | 1 hour |
| FE PC/Mother Voltage | V | 2.6～3.2 | <2.5 | - | 1 hour |
| Work History/Change Cold Head Date | - | - | - | - | - |
| Work History/Change HDD Date BE | - | - | - | - | - |
| Work History/Change HDD Date FE | - | - | - | - | - |
| Work History/Change Mother Battery Date BE | - | - | - | - | - |
| Work History/Change Mother Battery Date FE | - | - | - | - | - |

**NOTE** Total Physical Memory is assigned value.

# In normal state, the value should be zero. Other value indicates abnormal state.

### 7.2.11 Monitoring event log (system) errors

ECHELON Smart monitors event log of Windows. If it detects errors, it notifies of that by e-mail.

If it detects errors, execute “Collect Log” from [SERVICE] - [ACTIONS] - [Run command], and refer to event log. (Refer to Chapter7.4.2.2.)

Table7-8 Sources of Error Event

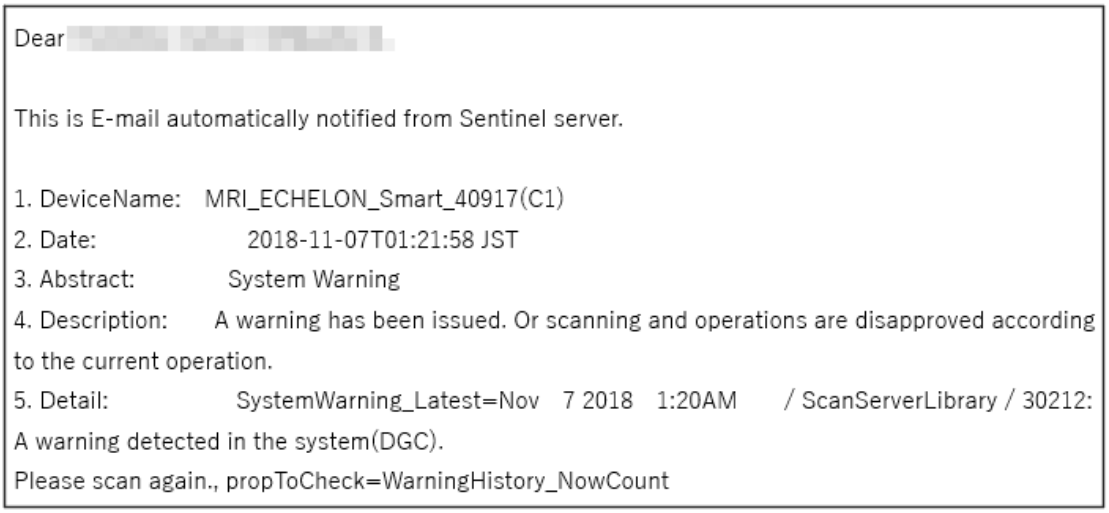
| # | Sources of Error Event | The main cause of errors |
|---|---|---|
| 1 | adpu160m | The host adapter has shown abnormalities. |
| 2 | Alerter | |
| 3 | AsyncMac | |
| 4 | atapi | The drive has shown abnormalities. |
| 5 | Atmarpc | |
| 6 | AtmElan | |
| 7 | ATMEPVCP | |
| 8 | AtmLane | |
| 9 | Atmuni | |
| 10 | Browser | The browser has shown abnormalities. |
| 11 | Cdm | |
| 12 | Dhcp | In the case of share violations, DHCP server stops leasing addresses. |
| 13 | dmboot | Disks can not be read. |
| 14 | dmio | Disks can not be read or written. |
| 15 | Dnsapi | DNS can not be registered. |
| 16 | Dnscache | |
| 17 | E1000 | LAN cards or hubs have shown abnormalities. |
| 18 | ETG2P51 | |
| 19 | ftdisk | Bad sectors are detected in the disk. |
| 20 | Http | Permission of the directory has been changed. |
| 21 | i8042prt | The mouse has shown abnormalities. |
| 22 | IAS | Authentication of the Internet fails. |
| 23 | IGMPv2 | |
| 24 | IISCTLS | |
| 25 | IISLOG | Access to the folder is restricted. |
| 26 | IISMAP | |
| 27 | intelppm | |
| 28 | IPBOOTP | |
| 29 | IPMGM | |

| # | Sources of Error Event | The main cause of errors |
|---|---|---|
| 30 | IPNATHLP | The host exists in the network where IP addresses are duplicated in address NAT DHCP pool. |
| 31 | IPRIP2 | Internet Control Message Protocol（ICMP）can not be reached. |
| 32 | IPRouterManager | No network adapter is detected. |
| 33 | IPSec | The policy store has damaged files. |
| 34 | IPXCP | |
| 35 | IPXRIP | |
| 36 | IPXRouterManager | 00000000 is set as the number of the internal network of NWLink IPX/SPX protocol installed in the computer. |
| 37 | IPXSAP | |
| 38 | isapnp | |
| 39 | kbdclass | Drag of mouse operation failed. |
| 40 | LDM | Disks can not be read or written. |
| 41 | LDMS | Disks can not be read or written. |
| 42 | LmHosts | |
| 43 | mouclass | No mouse is recognized. |
| 44 | mouhid | |
| 45 | MRxDAV | |
| 46 | MrxSmb | Computer names are duplicated in the network. |
| 47 | MSFTPSVC | IPSec is not removed from MetaBase correctly after IP restriction was changed. |
| 48 | NdisWan | |
| 49 | NetBIOS | |
| 50 | NetBT | Initializing NetBT fails. |
| 51 | Netlogon | Domain authentication failed. |
| 52 | Nla | |
| 53 | NWCWorkstation | |
| 54 | NWRDR | The network has shown abnormalities. |
| 55 | OSPF | |
| 56 | OSPFMib | |
| 57 | Parport | |
| 58 | PolicyAgent | IPSec connection has shown abnormalities. |
| 59 | PptpMiniport | |
| 60 | PSched | The network adapter has shown abnormalities. |
| 61 | RasAuto | |
| 62 | RasMan | |
| 63 | Rawwan | |
| 64 | Rdbss | |

| # | Sources of Error Event | The main cause of errors |
|---|---|---|
| 65 | redbook | The driver has shown abnormalities. |
| 66 | RemoteAccess | IP address setting has shown abnormalities. |
| 67 | Removable Storage Service | RSM can not automatically configure robotic libraries. |
| 68 | Schannel | |
| 69 | Serial | No registry key exists. |
| 70 | Server | There is the share folder that does not exist. |
| 71 | Srv | Files in the network can not be read. |
| 72 | StillImage | |
| 73 | Tcpip | Network connection has shown abnormalities. |
| 74 | Tcpip6 | |
| 75 | TCPMon | |
| 76 | tunmp | |
| 77 | Update | |
| 78 | UPS | |
| 79 | vncdrv | |
| 80 | VolSnap | The volume of difference area can not be used after boot. |
| 81 | W32Time | Time synchronization fails. |
| 82 | W3SVC | Files can not be accessed. |
| 83 | WAM | Mismatched dynamic link libraries exist. |
| 84 | Windows Script Host | Abnormalities occur in the application of Windows. |
| 85 | Workstation | WINS database has static entry. |
| 86 | WZCSVC | |

## 7.2.12 Monitor Service

If a customer chooses “Monitor Service”, the system is monitored although [GANTRY] button is being turned off. If an abnormality is detected, it is reported by e-mail.


Dear

This is E-mail automatically notified from Sentinel server.

1. DeviceName: MRI_ECHELON_Smart_40917(C1)
2. Date: 2018-11-07T01:21:58 JST
3. Abstract: System Warning
4. Description: A warning has been issued. Or scanning and operations are disapproved according to the current operation.
5. Detail: SystemWarning_Latest=Nov 7 2018 1:20AM / ScanServerLibrary / 30212: A warning detected in the system(DGC).
Please scan again., propToCheck=WarningHistory_NowCount

Figure7-31 Mail notification

Table7-9 Monitoring items at the time of Monitor Service

| # | Items | Error condition |
|---|---|---|
| 1 | Magnet System(Alarm) | When the "Magnet System(Alarm)" is Fault. |
| 2 | Magnet System(Warning) | When the "Magnet System(Warning)" is Warning. |
| 3 | Magnet System (Quench Alarm) | When the "Magnet System (Quench Alarm)" is Fault. |
| 4 | Compressor System(Alarm) | When the "Compressor System(Alarm)" is Warning. |
| 5 | Magnet Critical Error | When the "Magnet Critical Error" is Fault. |
| 6 | Compressor Flow Alarm | When the "Compressor Flow Alarm" is Fault. |
| 7 | Primary Supply Temp Alarm | When the "Primary Supply Temp Alarm" is Fault. |

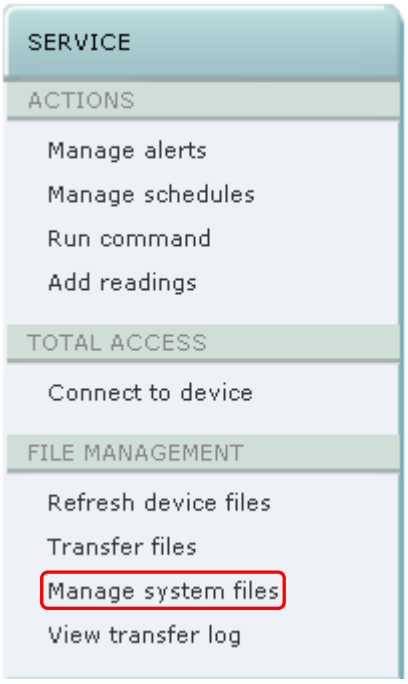
## 7.2.13 Tool & Manual

By Tool & Manual, Sentinel Customer Support manual and related tools can be acquired.

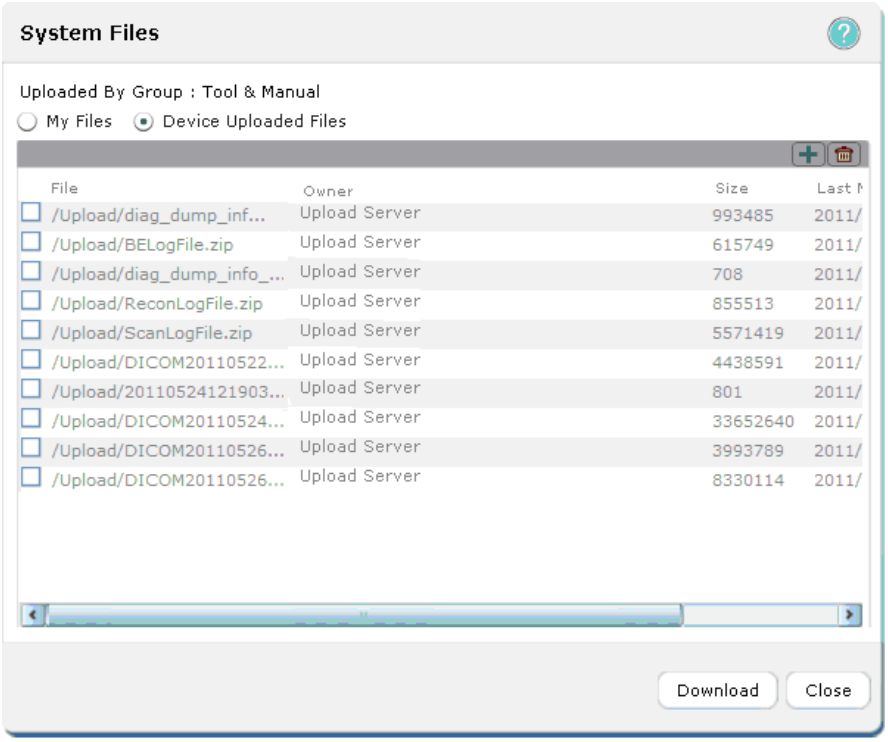
The following is the procedure.

1 Select [GROUPS] - [Tool & manual].

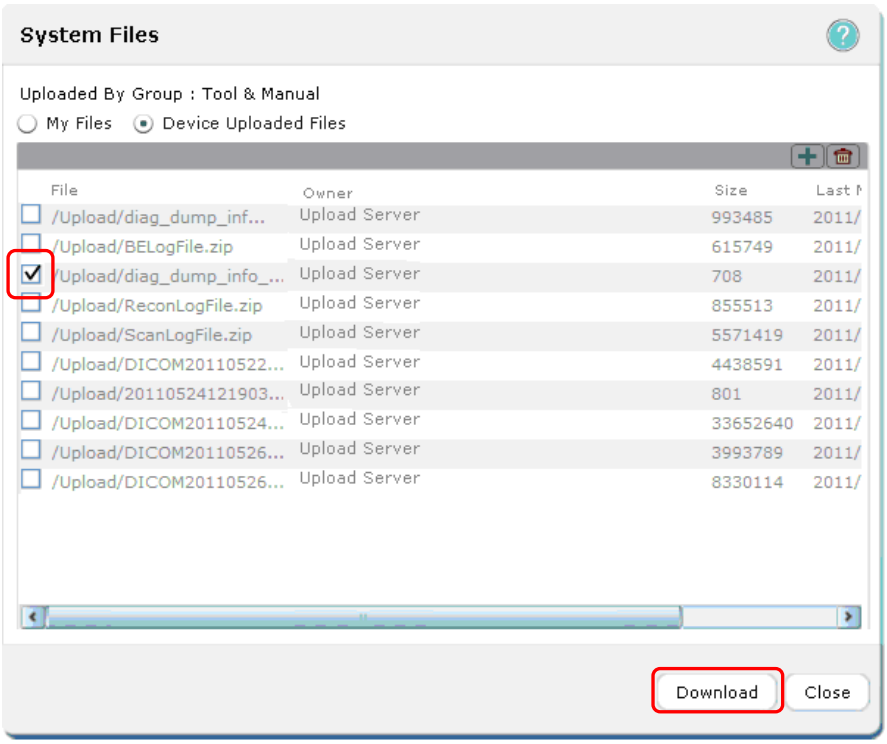
2 Click [SERVICE] - [FILE MANAGEMENT]-[Manage system files].



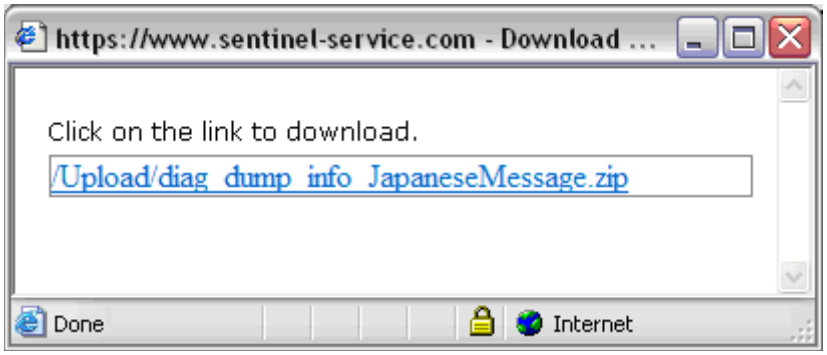
3 System Files screen is displayed.



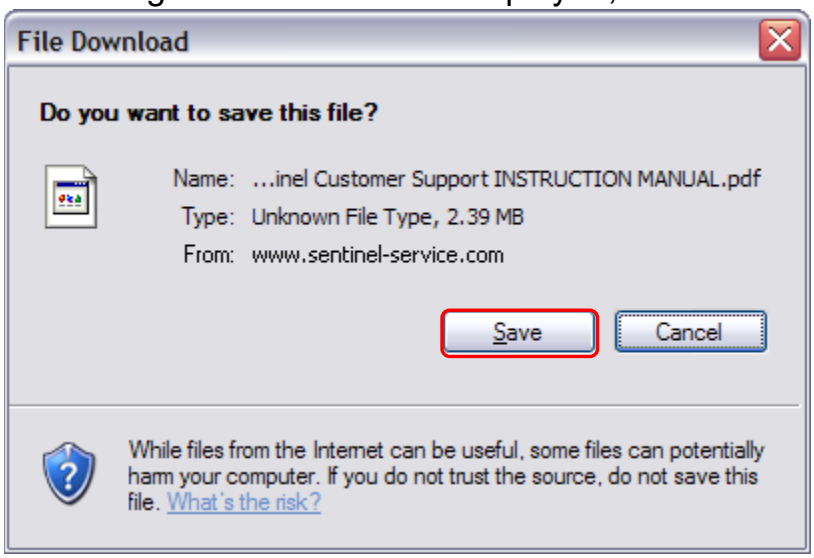

4 Select the desirable file to download and click “Download”. (Multiple selection is accepted.)



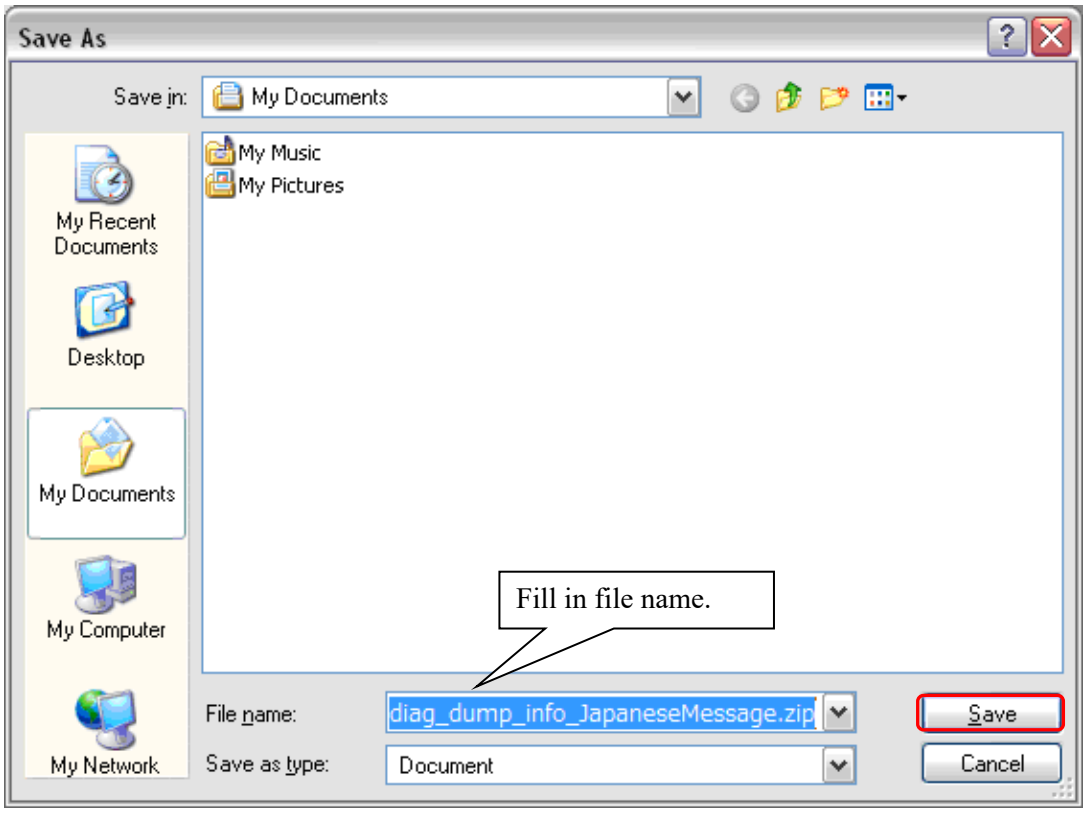
5 The following window is displayed, so click a link.



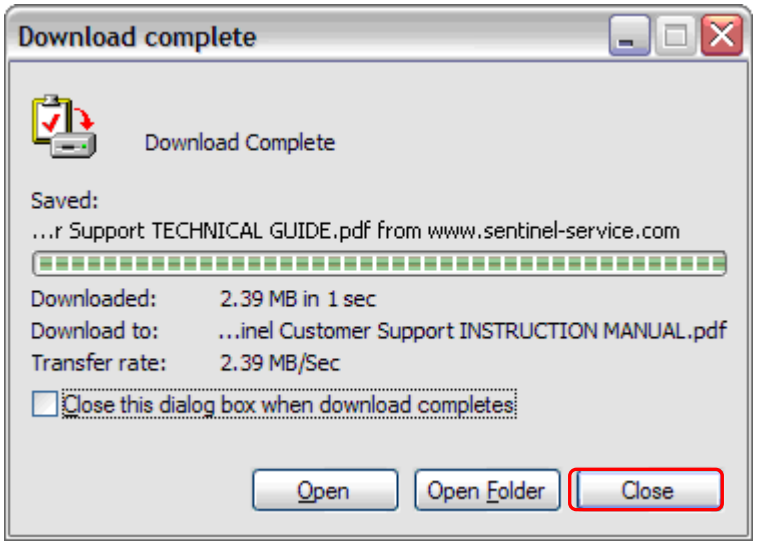

6 The dialog of file download is displayed, so click “Save”.



7 Specify saving place, the file name and click [Save].




8 [Download complete] dialog is displayed, so click [Close] button.



# 7.3 Manage alerts

[Manage alerts] indicates Alerts occurring in device and enables [Acknowledge Alerts] and [Close Alerts]. Confirm Alert detail through Web and perform [Acknowledge Alerts] and [Closed Alerts] if receiving Alert mail.

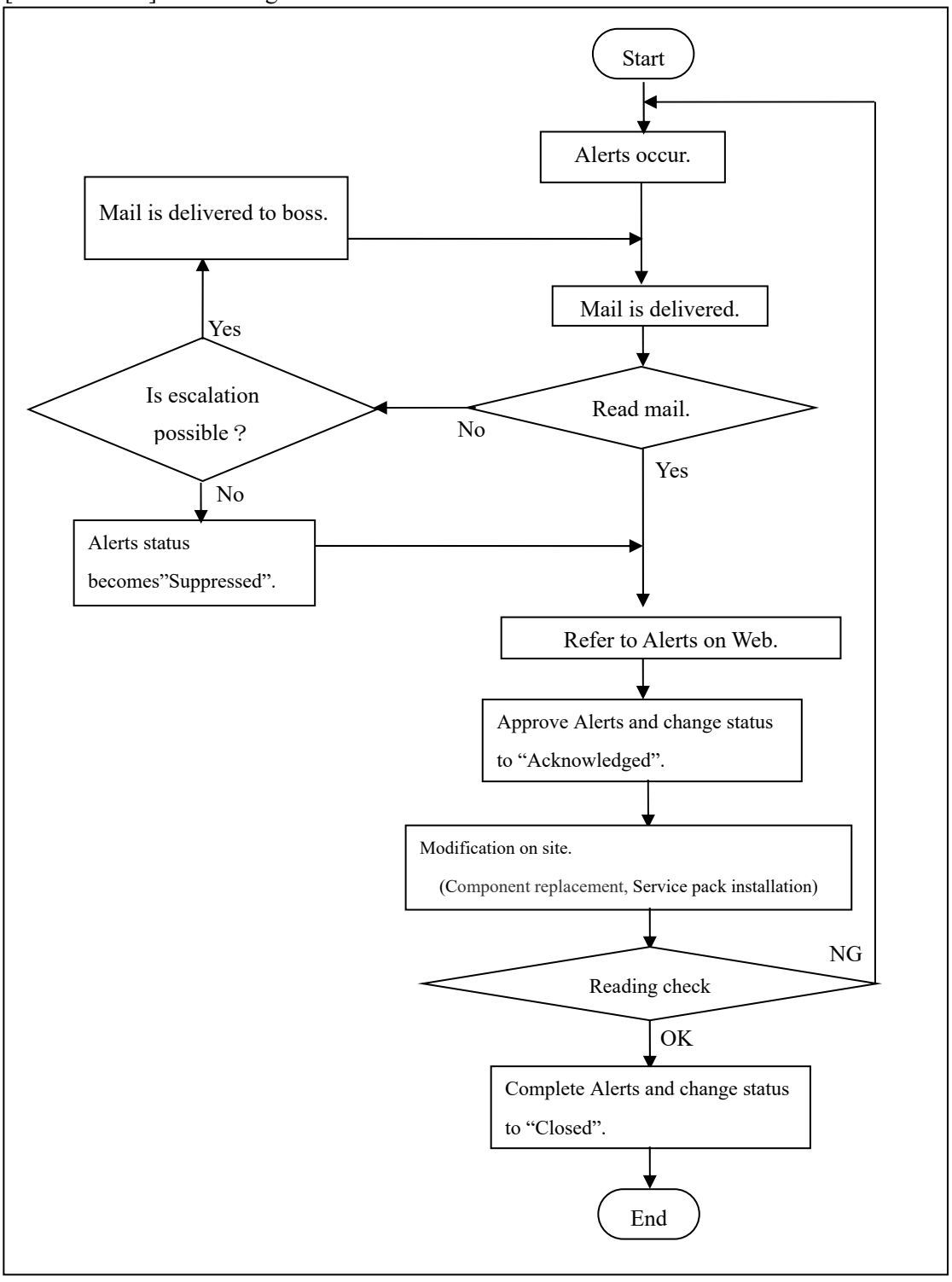



Figure7-32 Flowchart from Alert [Acknowledge Alerts] to [Closed Alerts].

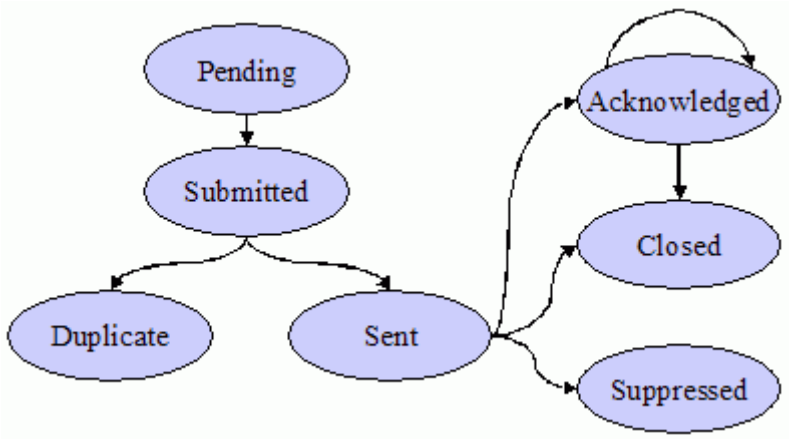



Figure7-33 Alerts state transition diagram

Table7-10 Alert status

| Definitions of alert states | | |
|---|---|---|
| Active | Pending | This is the alert request's initial state when it is created. The alert request is "pending" processing. |
| | Submitted | The processing of the alert request has begun; it has been submitted to the alert processor. |
| | Sent | The processing of the alert request is completed; it has been successfully sent to the alert processor. |
| | Acknowledged | A user has reviewed the alert request and acknowledged that it exists. |
| Completed | Closed | The alarm condition has been cleared or otherwise handled, and no more user action is required. The alert request is closed. |
| | Duplicate | The alert request pertains to the same alarm and alert as another alert request for the same device that is currently being processed. This alert request, therefore, is a duplicate and can be ignored. |
| | Suppressed | The alert escalator has exhausted all escalation levels for the alert request, and processing has reached the end. Therefore, all automatic processing is now suppressed. |

If you select any group or device and choose [SERVICE] - [ACTIONS] - [Manage alerts], alert managing screen is displayed.

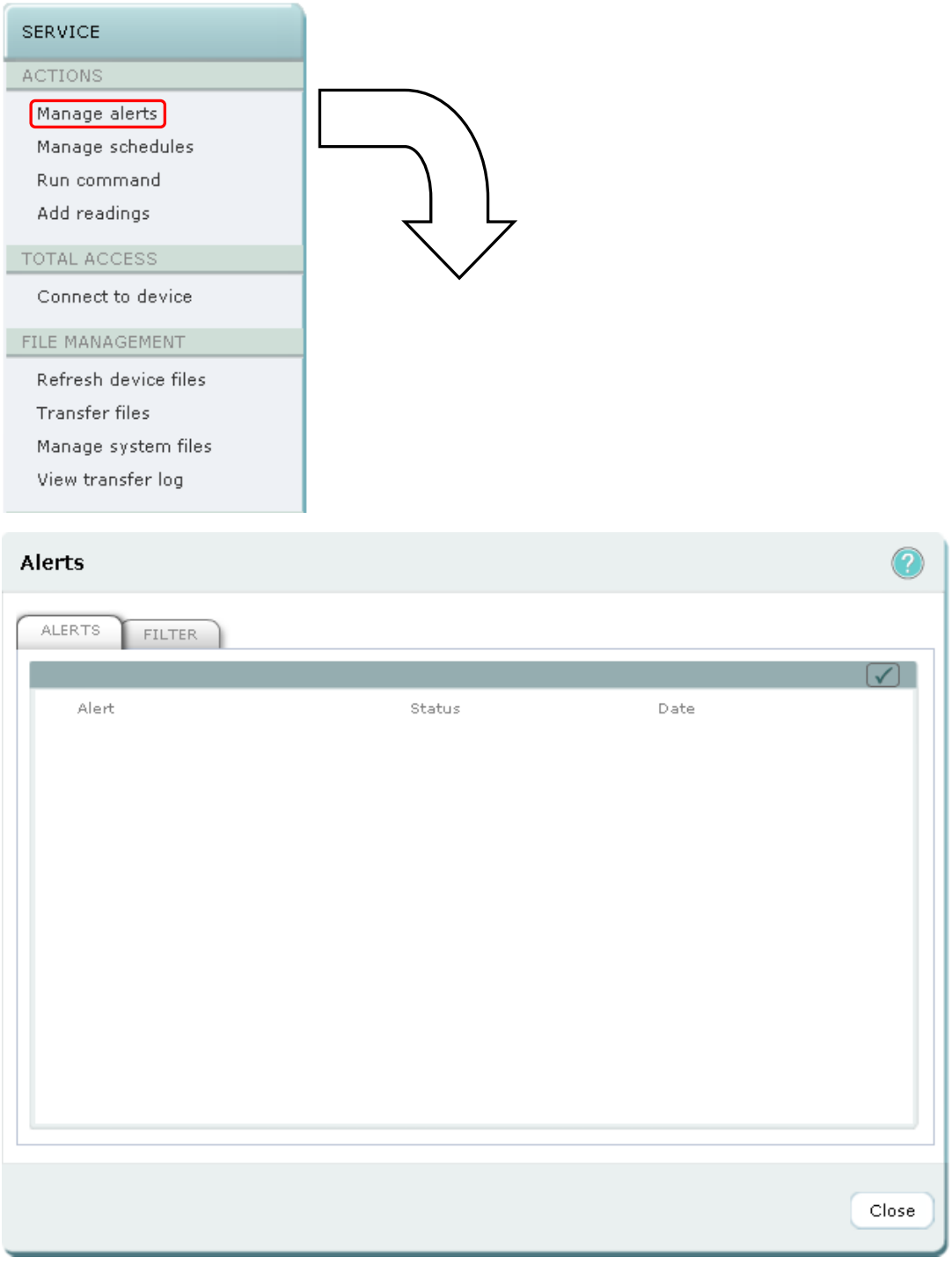



Figure7-34 Manage alerts

Alert description is displayed as follows. Alert is acknowledged and closed here.

Figure7-35 Alerts description screen

(1) Alert

Alert name is indicated.

(2) Status

Alert status name is indicated.

(3) Device

Alert occurrence device name is indicated.

**NOTE** Nothing is indicated if device is selected.

(4) Date

Alert occurrence date is indicated.

(5) Switching screen to display.

By clicking this tab, screen is switched to filter screen.

(6) Alert acknowledgement.

By clicking this button, selected alert is acknowledged.

(7) Help

By clicking , online help is displayed.

(8) Close

By clicking [Close] button, screen closes.

If you click FILTER tab, screen is switched to filter screen and it becomes possible to filter alert description with status, date to search.

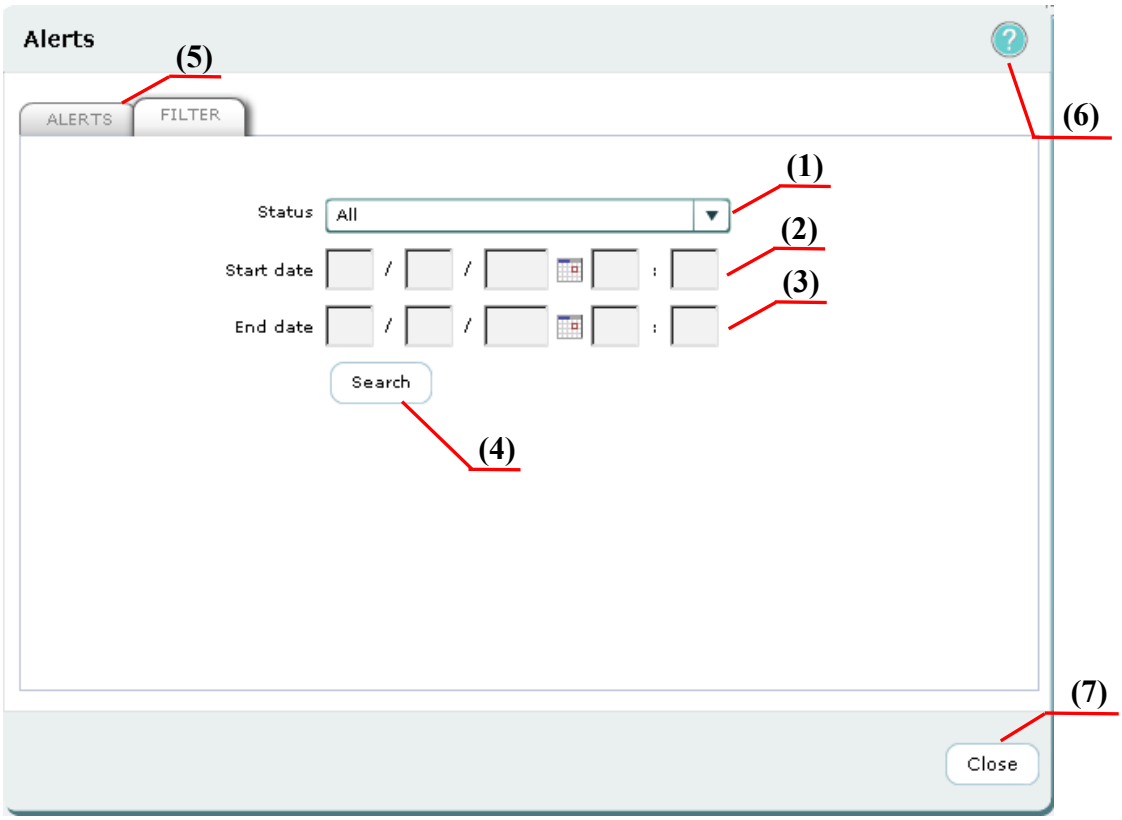



Figure7-36 Alert filter screen

(1) Status

Alert status is selected here.

(2) Start date

Date range specification start date is filled in.

(3) End date

Date range specification end date is filled in.

(4) Search

If clicking Search , search is performed according to specified filter.

(5) Display screen switch

If clicking this tab, screen is switched to Alert screen.

(6) Help

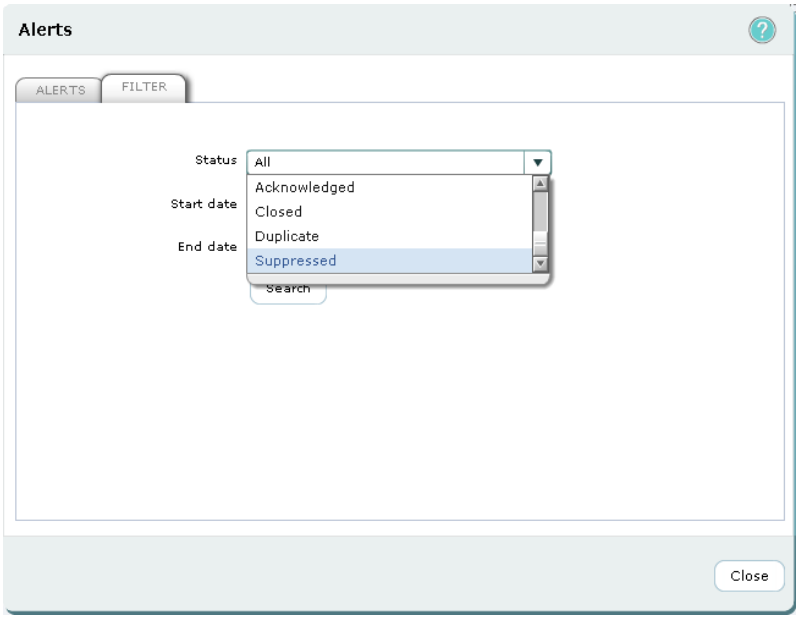
By clicking , online help is displayed.

(7) Close

by clicking [Close] button, this screen closes.

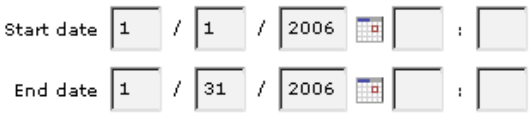
The following is search procedure.

1 Select Alert status to display. “All” is selected by default.

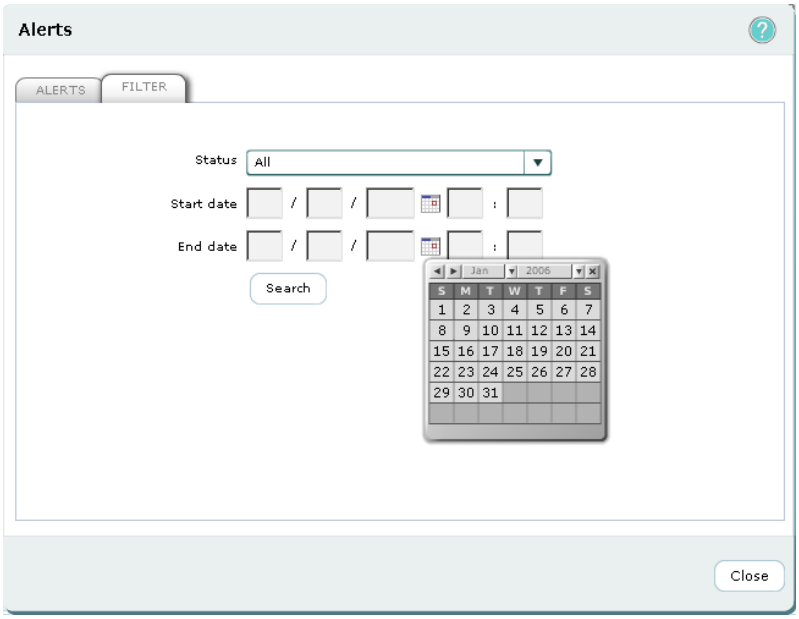



2 If specifying date, fill in start date and end date. Entry order is “Month/Day/Year Time:Minutes”

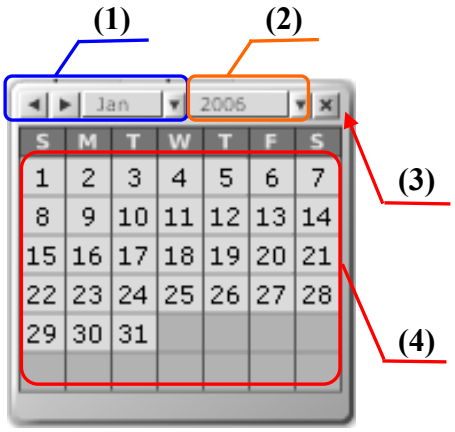
**NOTE** It is not possible to filter date unless month/day/year is filled in.




Click and calendar is displayed.




Date can be specified from calendar.




(1) Month selection

Displayed calendar month is selected.

(2) Year selection

Displayed calendar year is selected.

(3) Cancel

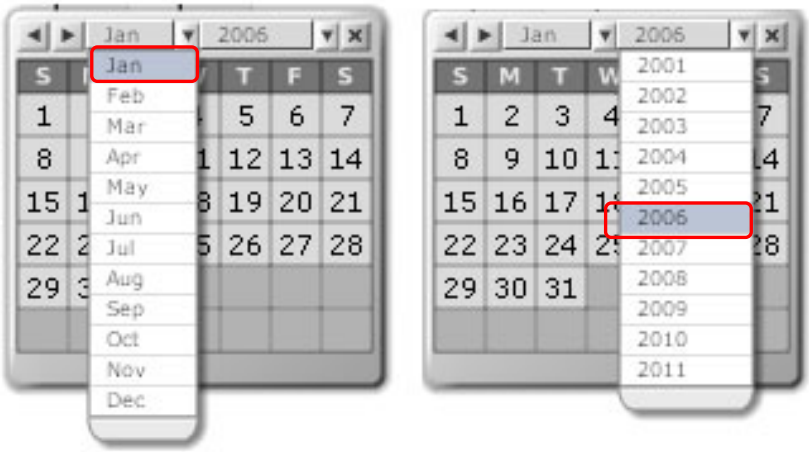
Specifying date from calendar is canceled.

(4) Date selection

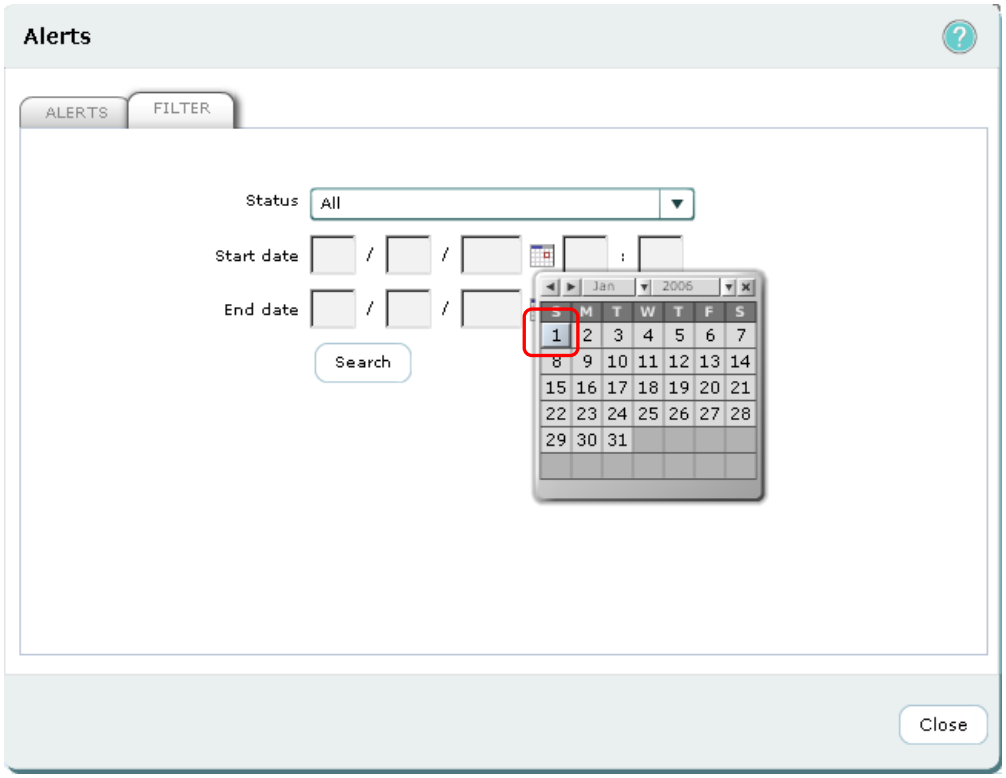
Specification date is clicked.

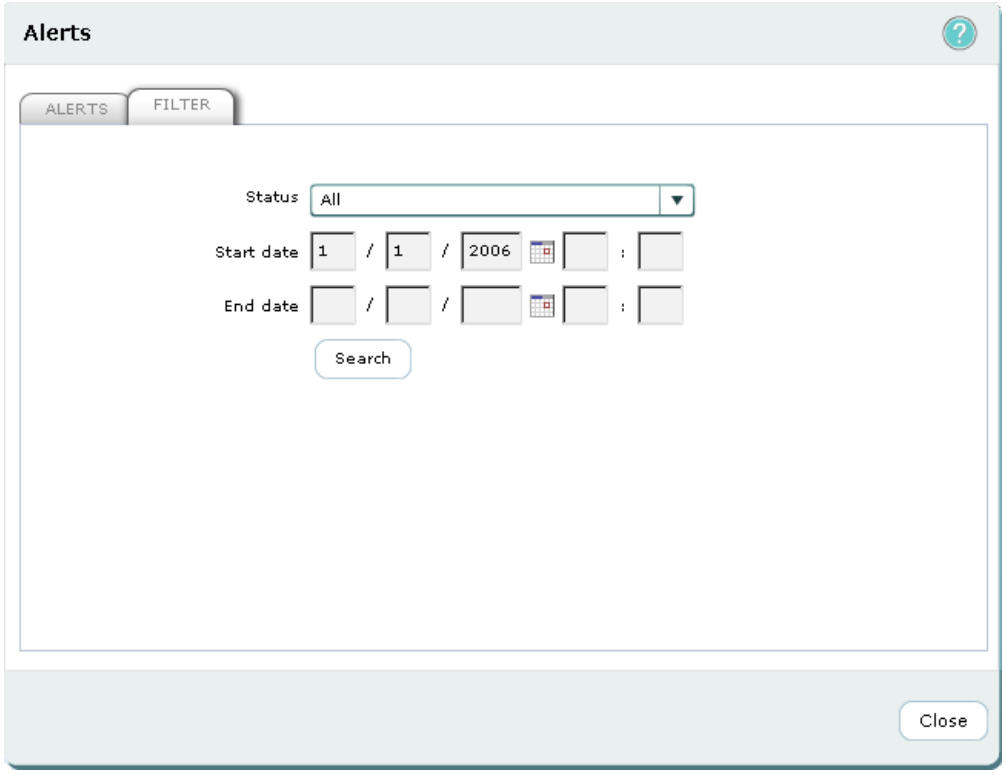
Calendar indicates execution date month. If you click ◂, the previous calendar is displayed instead. If you click ▸, coming month calendar is displayed instead.

Calendar can be specified from year and month.

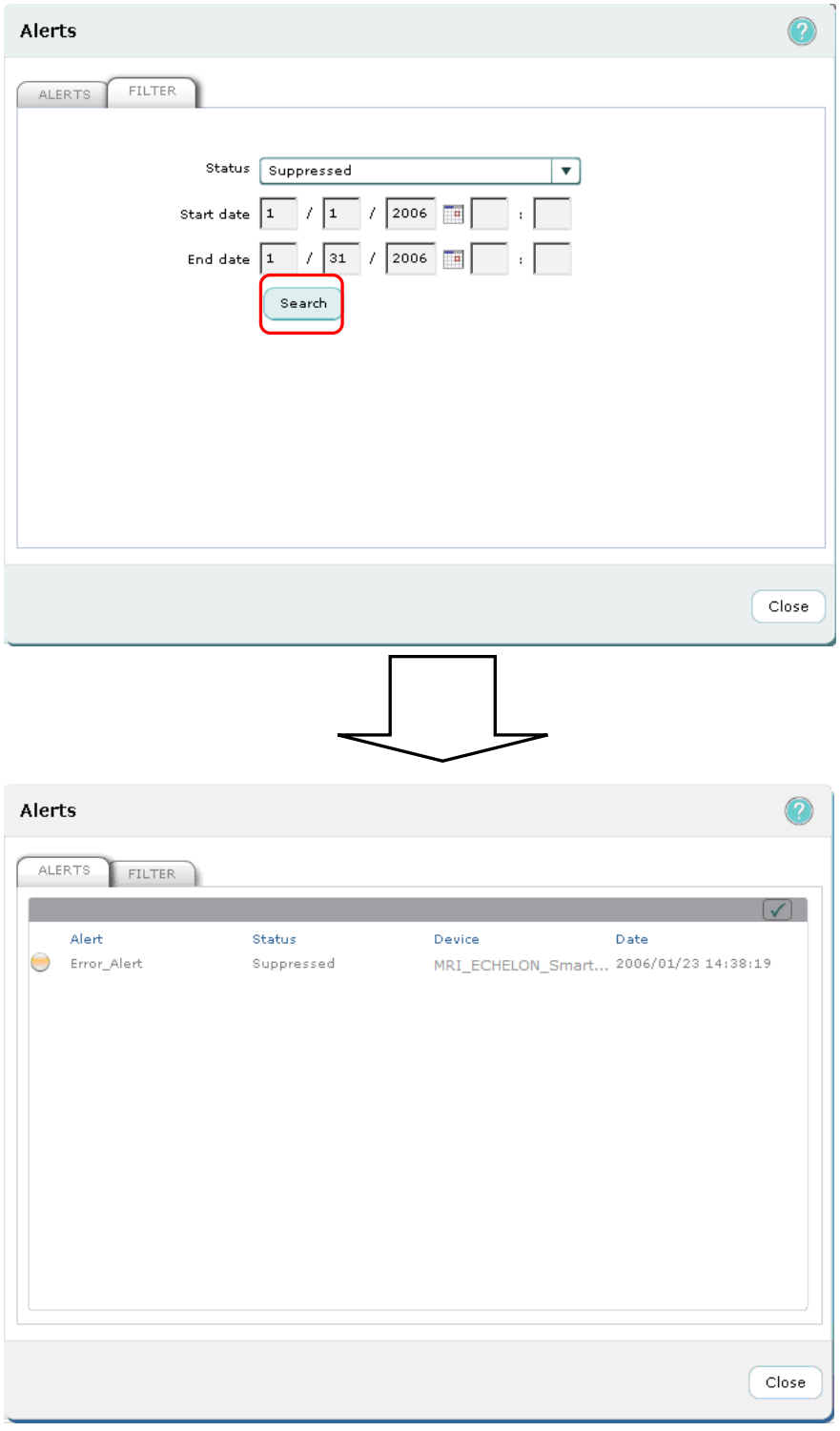


If clicking date to specify from calendar, date can be filled in.



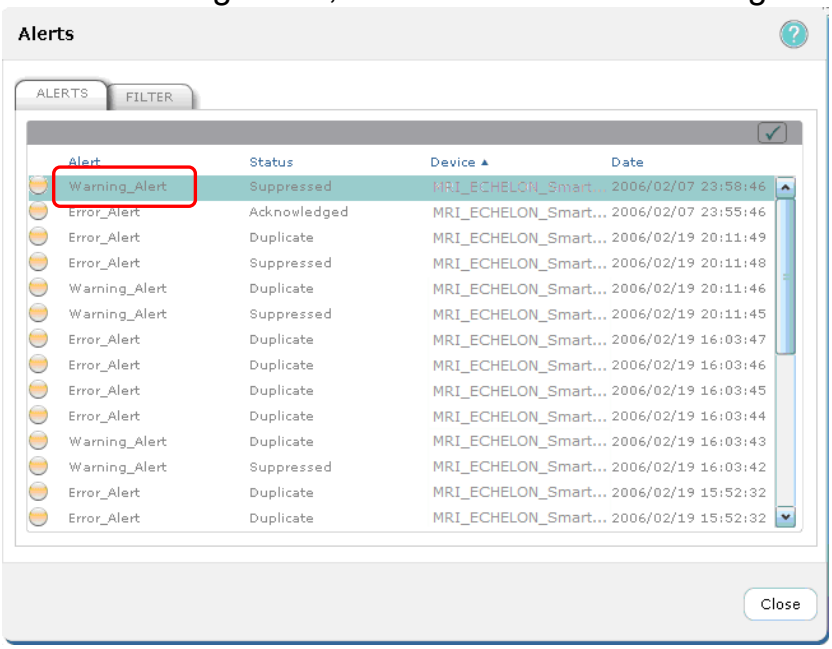



3 After filtering, click Search and specified Alert description is indicated.



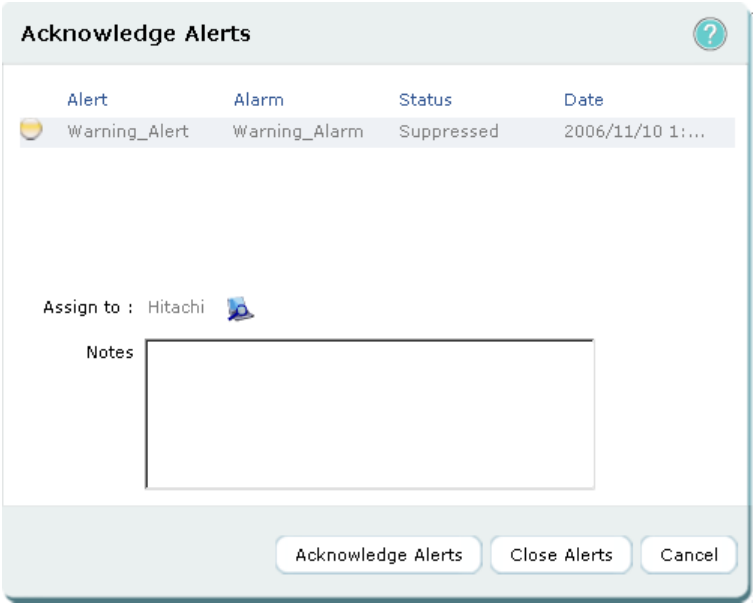
The following is Alert acknowledging procedure.

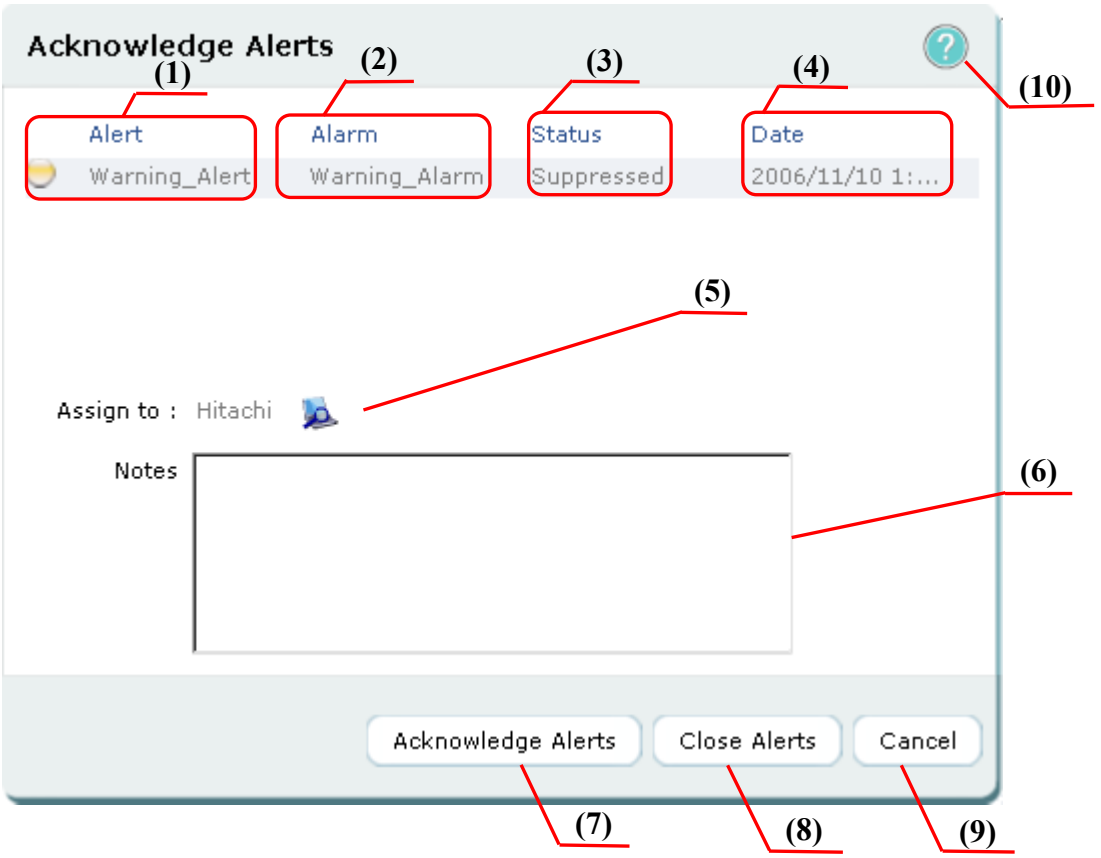
1 To acknowledge alert, choose alert to acknowledge.




To select Alerts, by using [Ctrl] key and [Shift] key, multiple selections are possible, too.

2 Click ☑ after selecting alert to acknowledge. If clicking ☑, alert acknowledging screen is displayed.






(1) Alert
Selected alert name is indicated.

(2) Alarm
Selected alert alarm name is indicated.

(3) Status
Selected alert status type is indicated.

(4) Date
Alert occurrence date is indicated.

(5) Assign to
Approver is selected.
**NOTE** Only administrator user can use this function.

(6) Notes
Alert status change reason is entered.

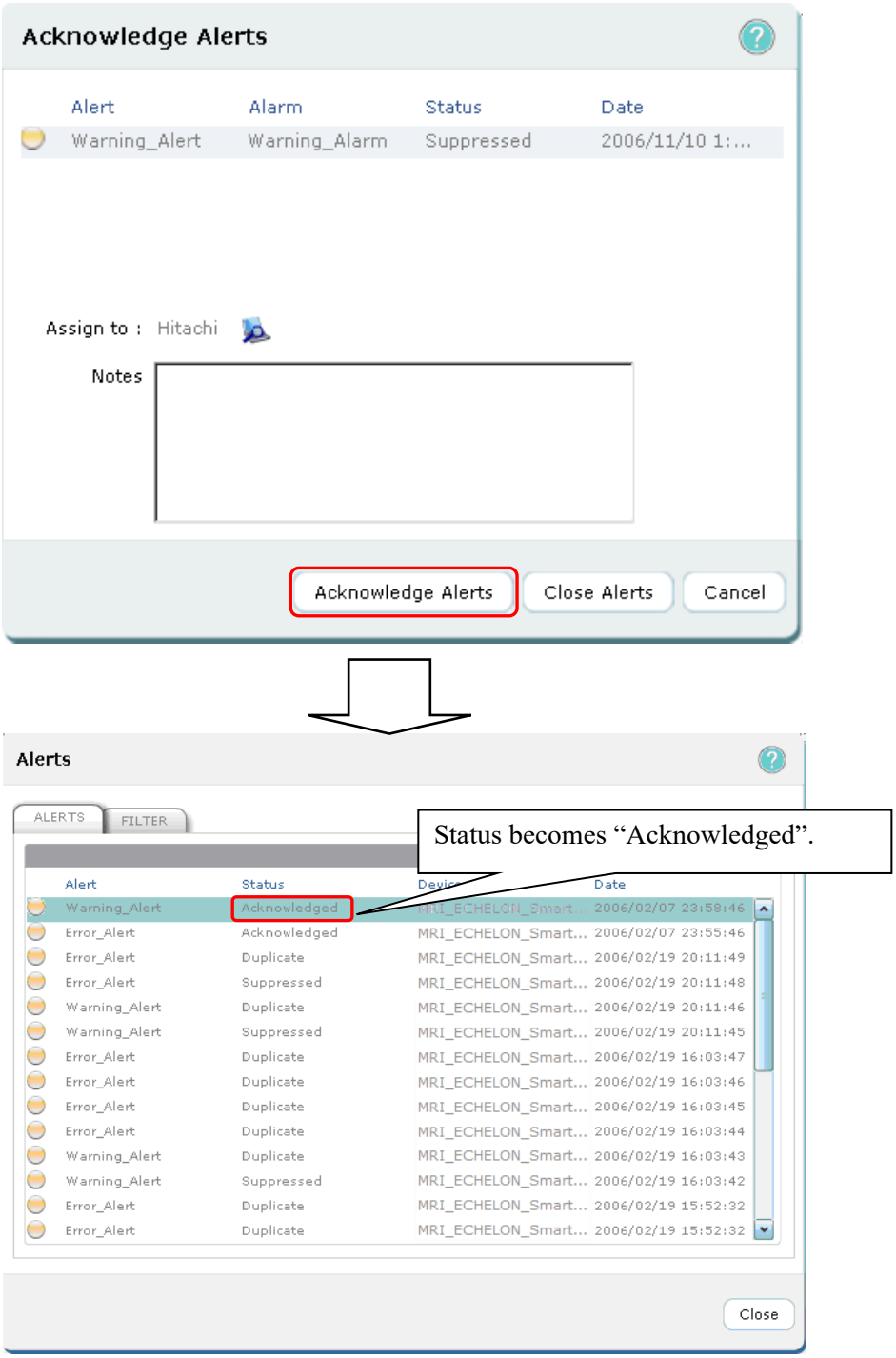
(7) Acknowledge Alerts
If you click Acknowledge Alerts, alert is acknowledged.

(8) Close Alerts
If you click Close Alerts, alert is closed.

(9) Cancel
If you click Cancel, alert acknowledgement is canceled and this screen is closed.

(10) Help
If you click , online help is displayed.

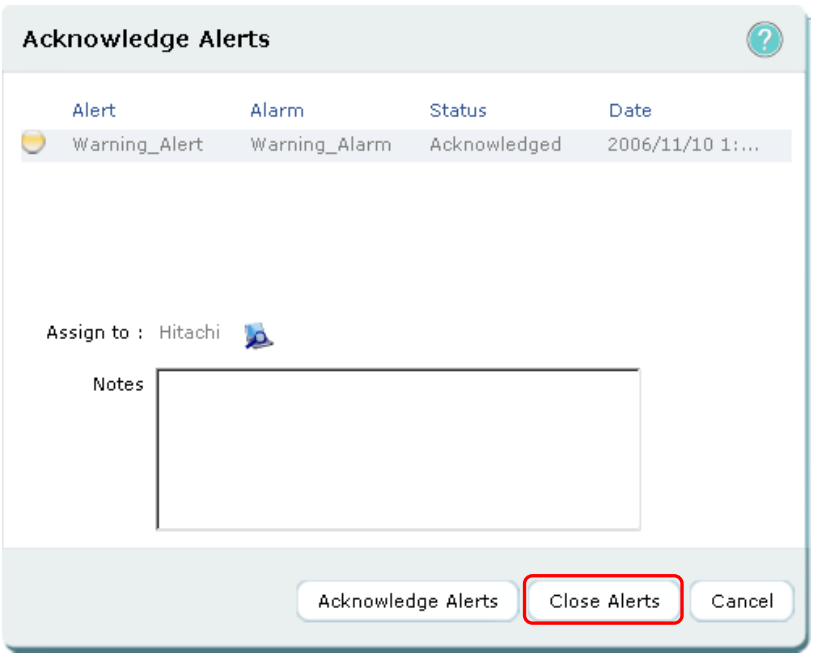
3 Click Acknowledge Alerts to acknowledge alert.

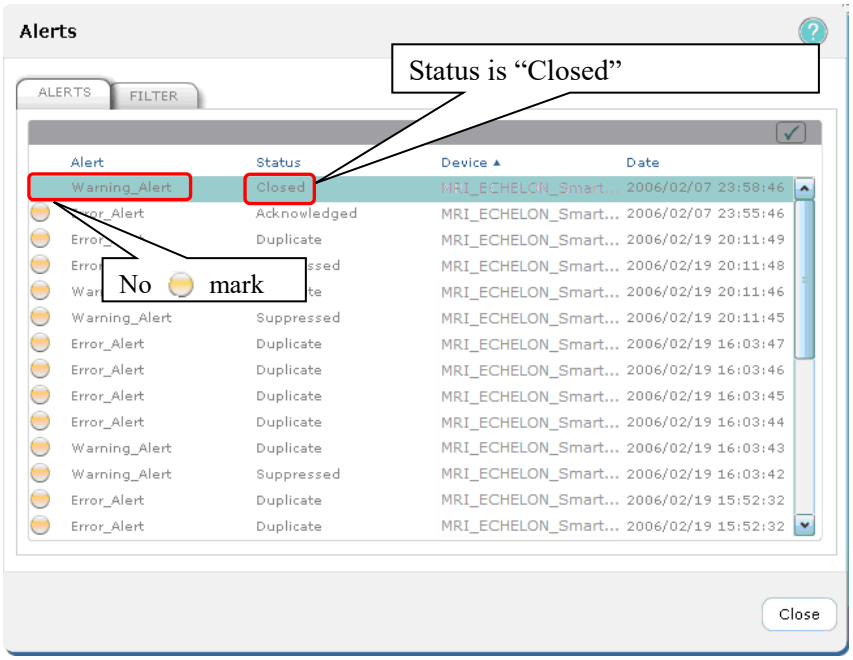



4 Alert status is “Acknowledged” if it is acknowledged.

The following is alert closing procedure.

1 Click Close Alerts to close alert.



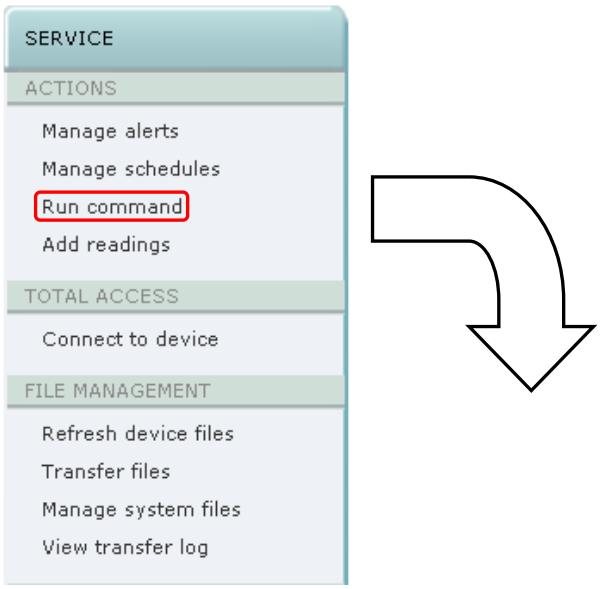




2 If alert is closed, is not marked any more and its status becomes “Closed”.

# 7.4 Run command

## 7.4.1 Basic operation

Device command can be run. Select device and then click [SERVICE] - [ACTIONS] - [Run command].



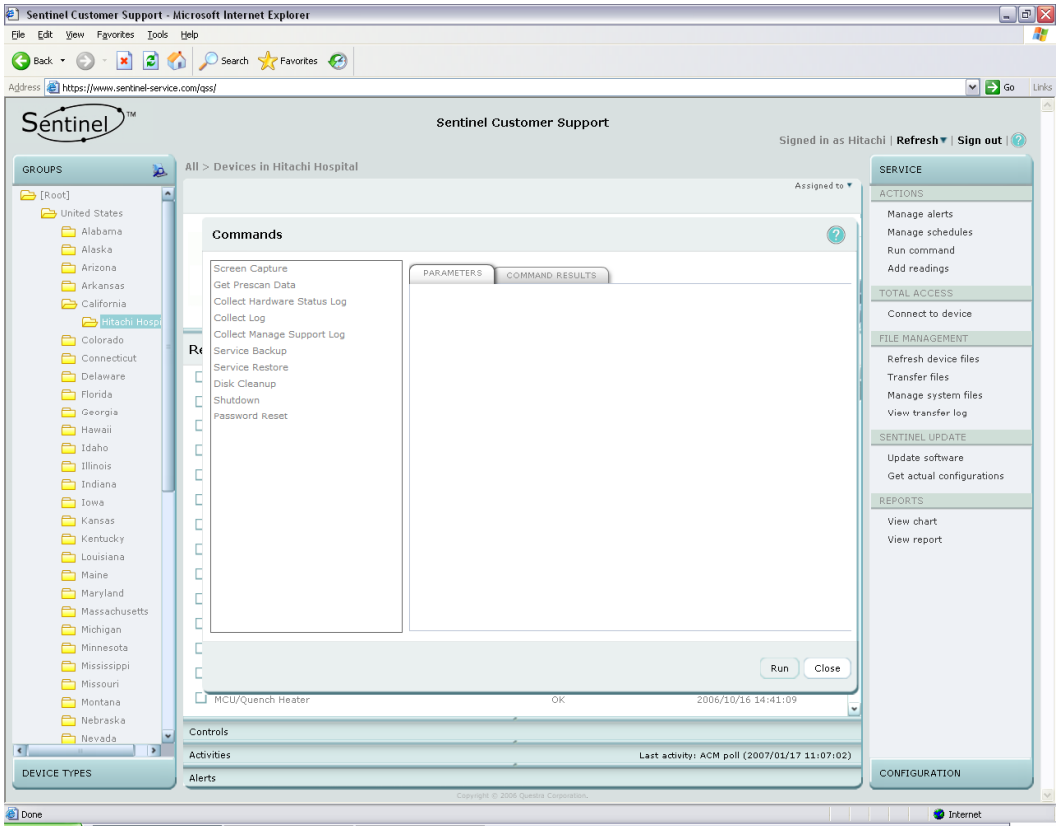




Figure7-37 Run command

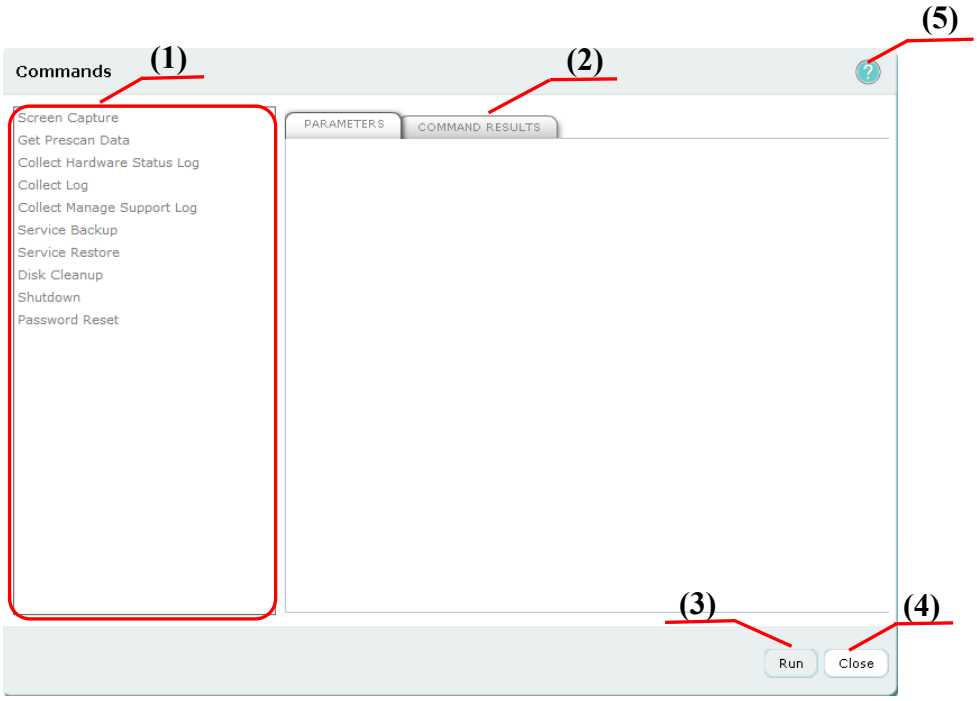



Figure7-38 COMMANDS

(1) Command name

Running command is selected.

(2) Screen switch

[PARAMETERS] screen and [COMMAND RESULTS] screen are switched.

(3) Run

If you click Run, selected command is run.

(4) Close

If you click Close, this screen closes.

(5) Help

If you click , online-help is displayed.

If you open [COMMAND RESULTS] tab, next screen is displayed.

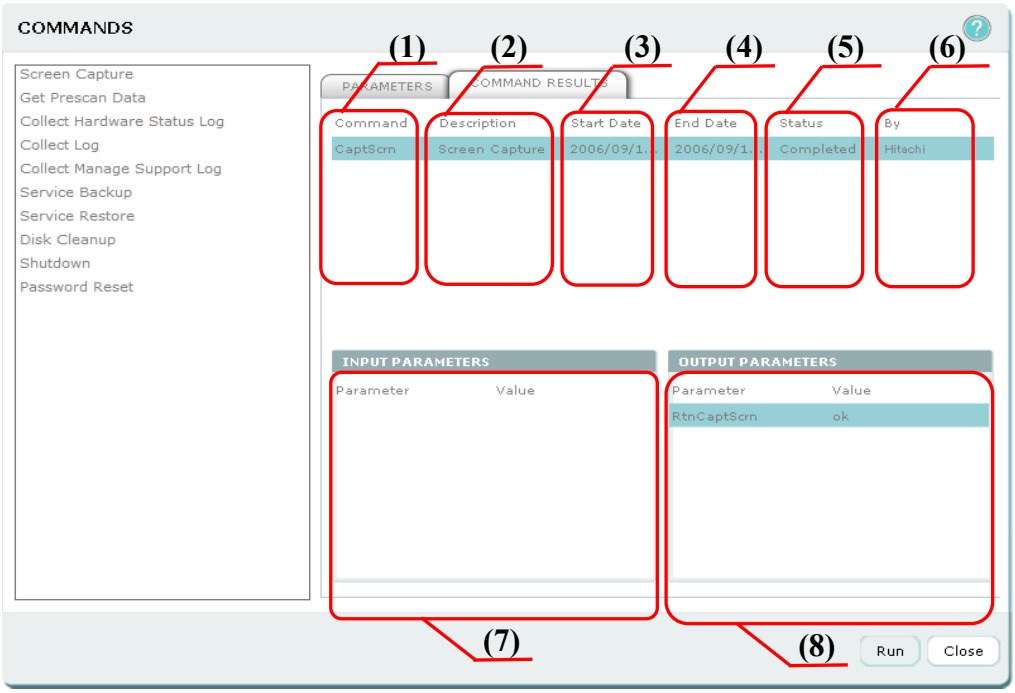



Figure7-39 COMMAND RESULTS

(1) Command

Command name is indicated.

(2) Description

Command description is indicated.

(3) Start Date

Command running date is indicated.

(4) End Date

Command ending date is indicated.

(5) Status

Executed command status is indicated.

(6) By

Name of the user who ran command is indicated.

(7) INPUT PARAMETERS

If command running result is selected, input parameters are indicated.

**NOTE** Nothing is indicated at the time of no parameter.

(8) OUTPUT PARAMETERS

If command running result is selected, output parameter is indicated.

## 7.4.2 ECHELON Smart command

ECHELON Smart command has the following functions.

- Screen Capture See 7.4.2.1.
- Collect Log See 7.4.2.2.
- Service Backup See 7.4.2.3.
- Service Restore See 7.4.2.4.
- Disk Cleanup See 7.4.2.5.
- Shutdown See 7.4.2.6.
- Collect Manage Support Log See 7.4.2.7.
- Get Prescan Data See 7.4.2.8.
- Password Reset See 7.4.2.9.
- Collect Hardware Status Log See 7.4.2.10.

### 7.4.2.1 Screen Capture

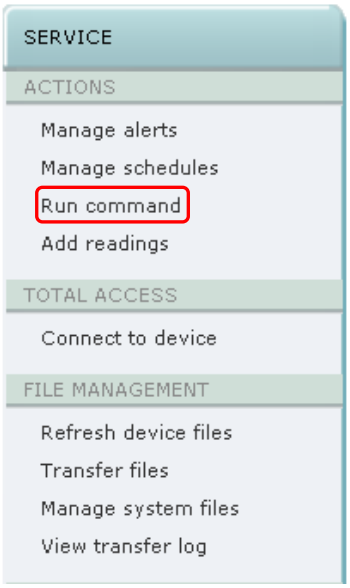
Screen Capture is possible in order to confirm screen status at the time of failure occurrence.

**NOTE** Device screen automatically switches to personal information protection mode at the time of Screen Capture, so no individual information indicated on screen is captured. See chapter 7.7.4.

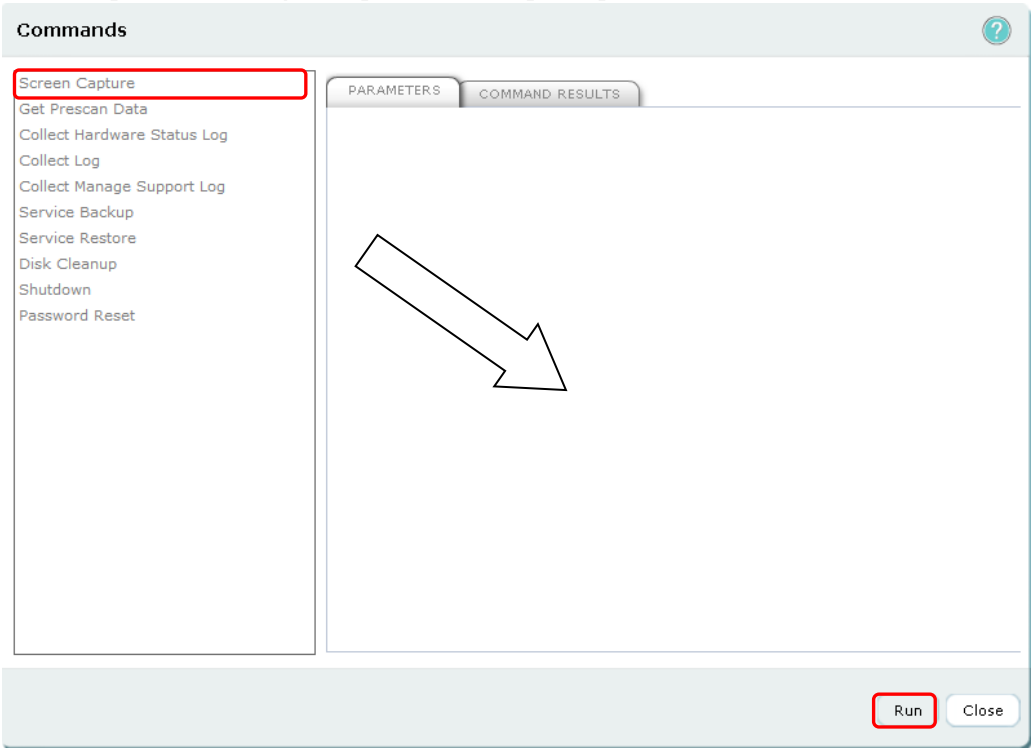
Acquire Screen Capture according to the following procedure.

#### (1) Screen Capture execution

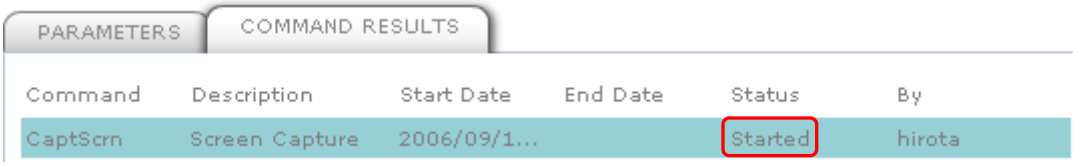
1 Select Screen Capture target device and click [Run command].



2 Select [Screen Capture] and click [Run] button.

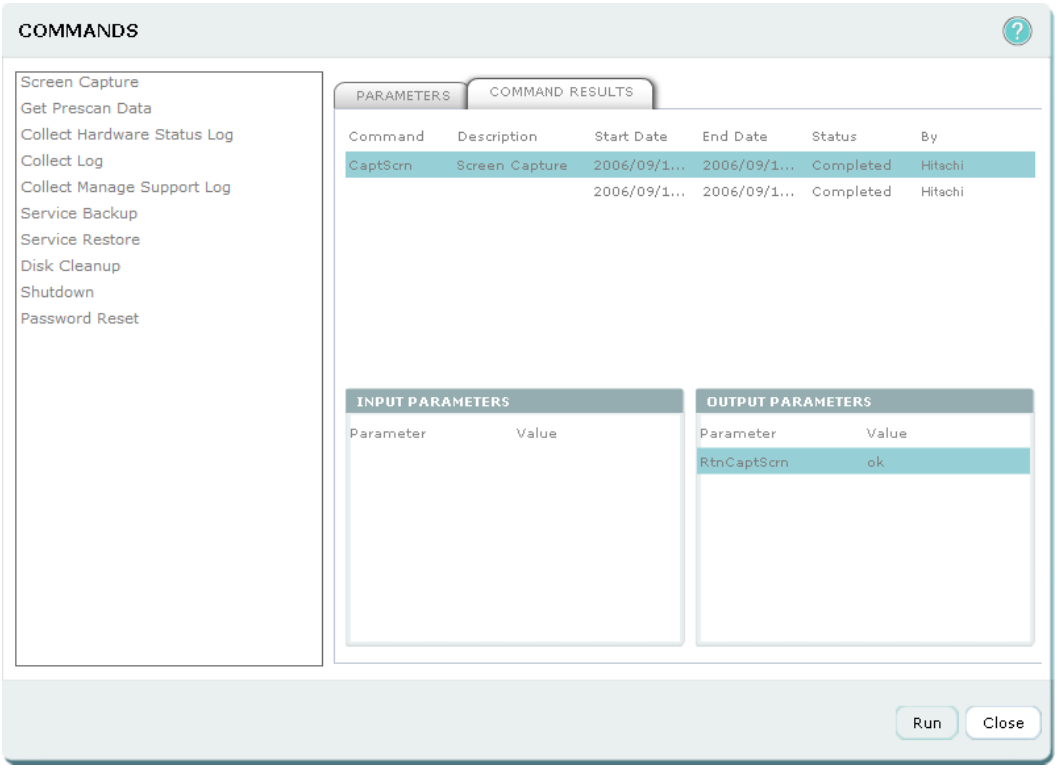



3 Open [COMMAND RESULTS] tab and executed command “Status” is “Started”.

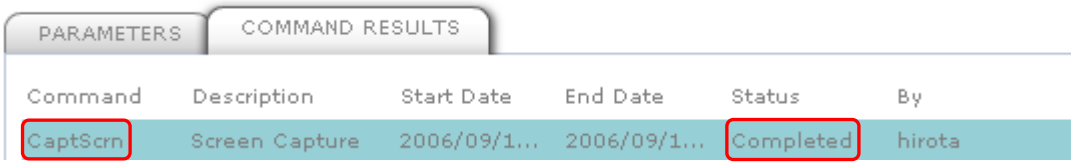



4 Close the command screen once, take 1 or 2 minutes and then click [Refresh] button at the upper right of the screen.

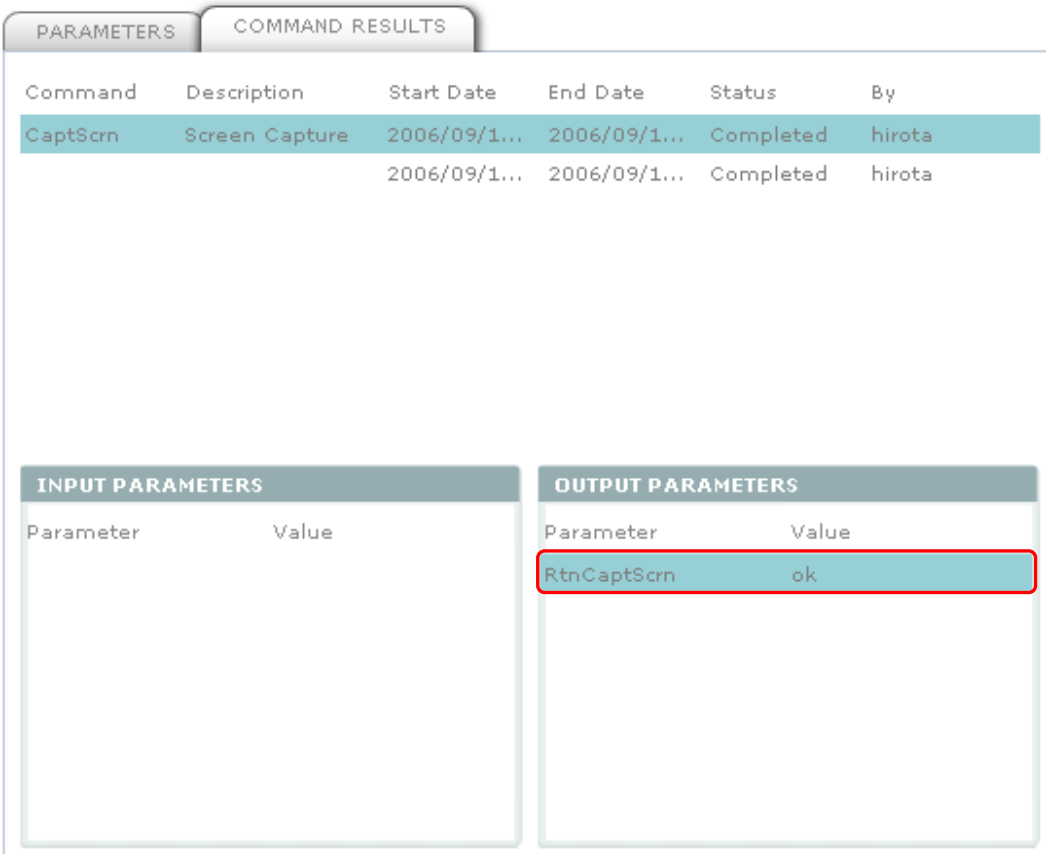
5 Click [Run command] again and open [COMMAND RESULTS] tab.




6 Status indicates “Completed” if process finishes. Select the command to have run.



7 [OUTPUT PARAMETERS] value indicates “ok” if process is normally completed.

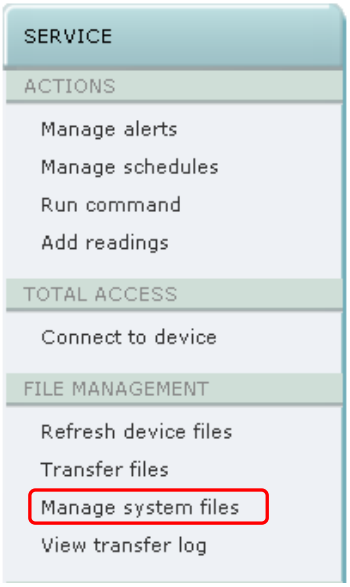



8 Screen Capture file is automatically uploaded to server in a few minutes.

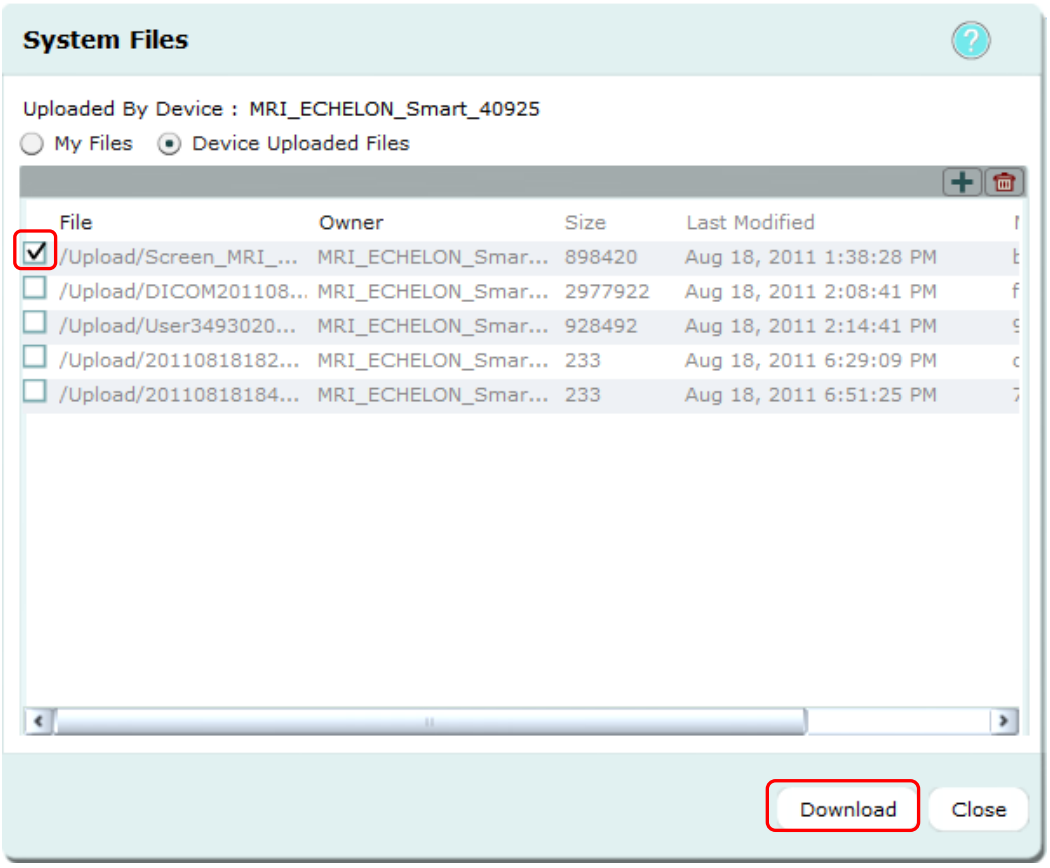
### (2) How to download and display from server

If downloading Screen Capture from server to user's PC, operate as follows.

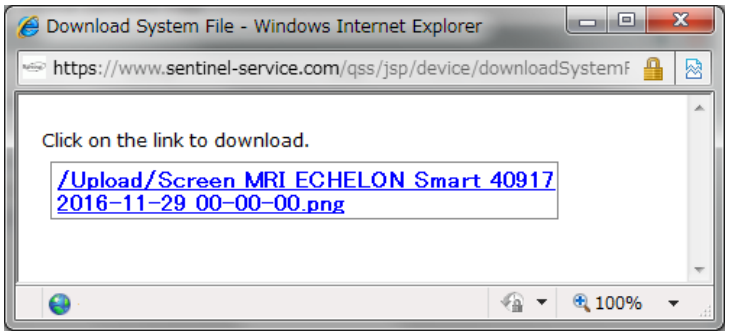
1 Select the device where Screen Capture was carried out and click [SERVICE] - [FILE MANAGEMENT]-[Manage system files].



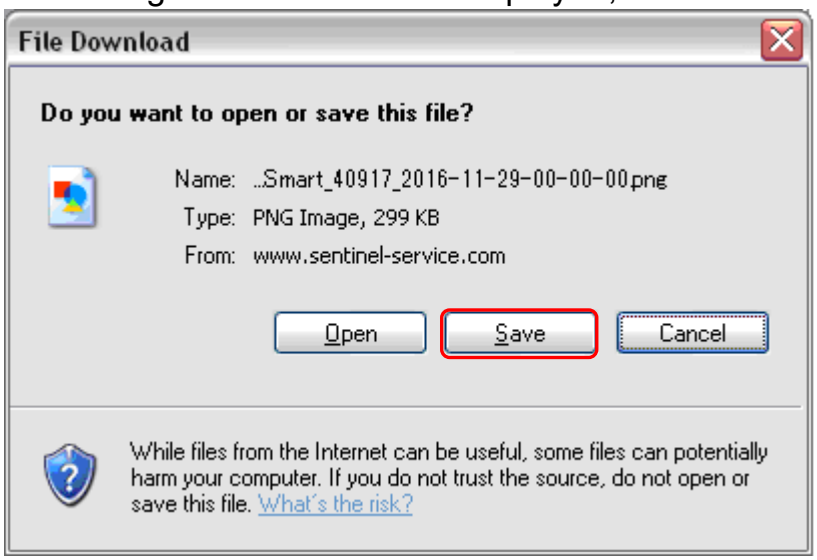
2 The screen of System Files is displayed, so select “Screen_{the name of the system}_{“Year_month_day_hour_minute_second”}.png” and click “Download”.



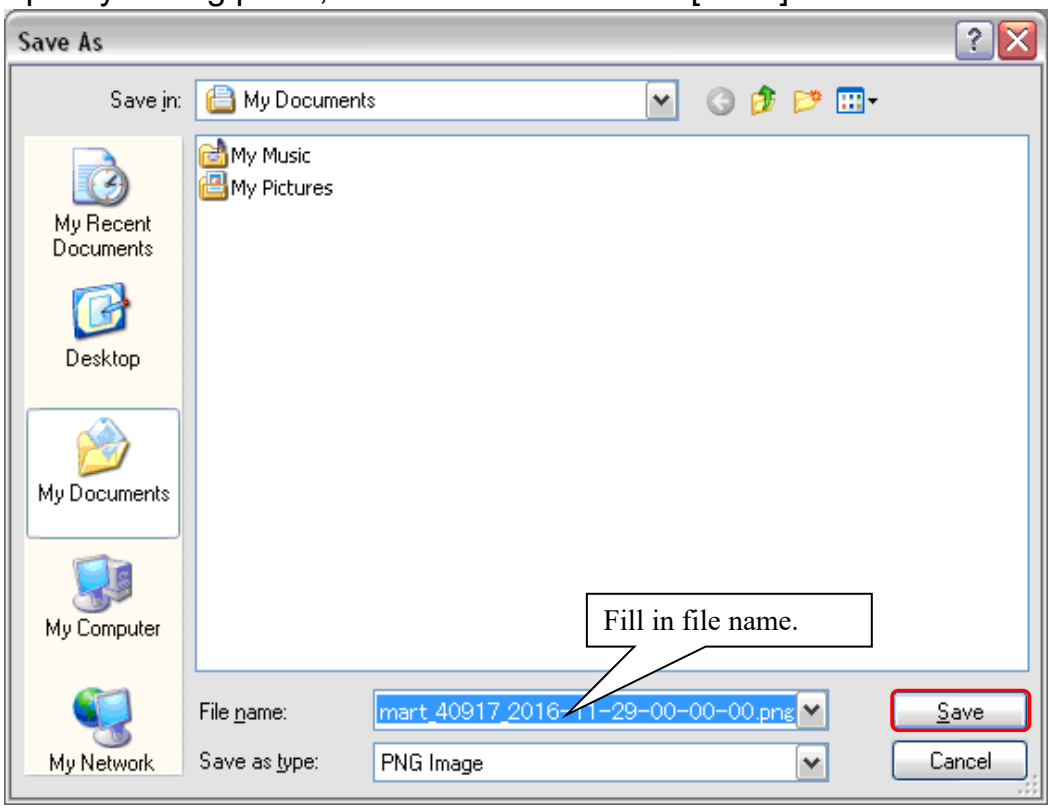

3 The following window is displayed, so click a link.



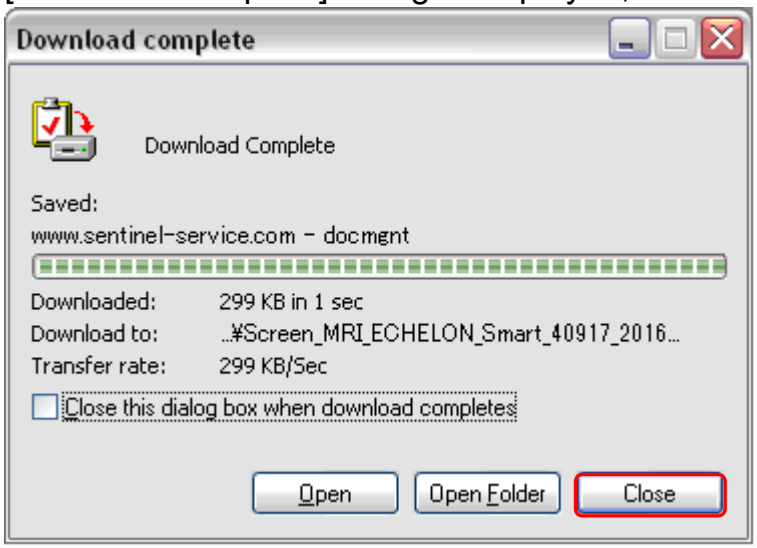
4 The dialog of file download is displayed, so click “Save”.




5 Specify saving place, the file name and click [Save].



6 [Download complete] dialog is displayed, so click [Close] button.



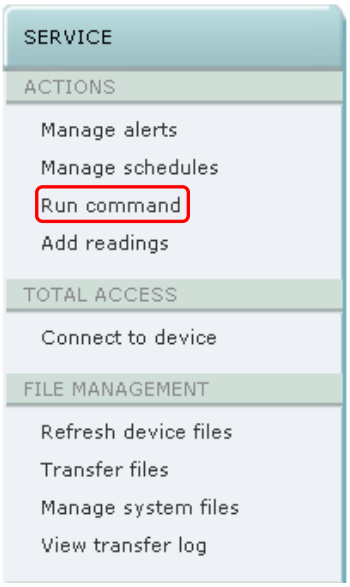
### 7.4.2.2 Collect Log

To investigate device at the time of system down and failure, system log can be acquired.

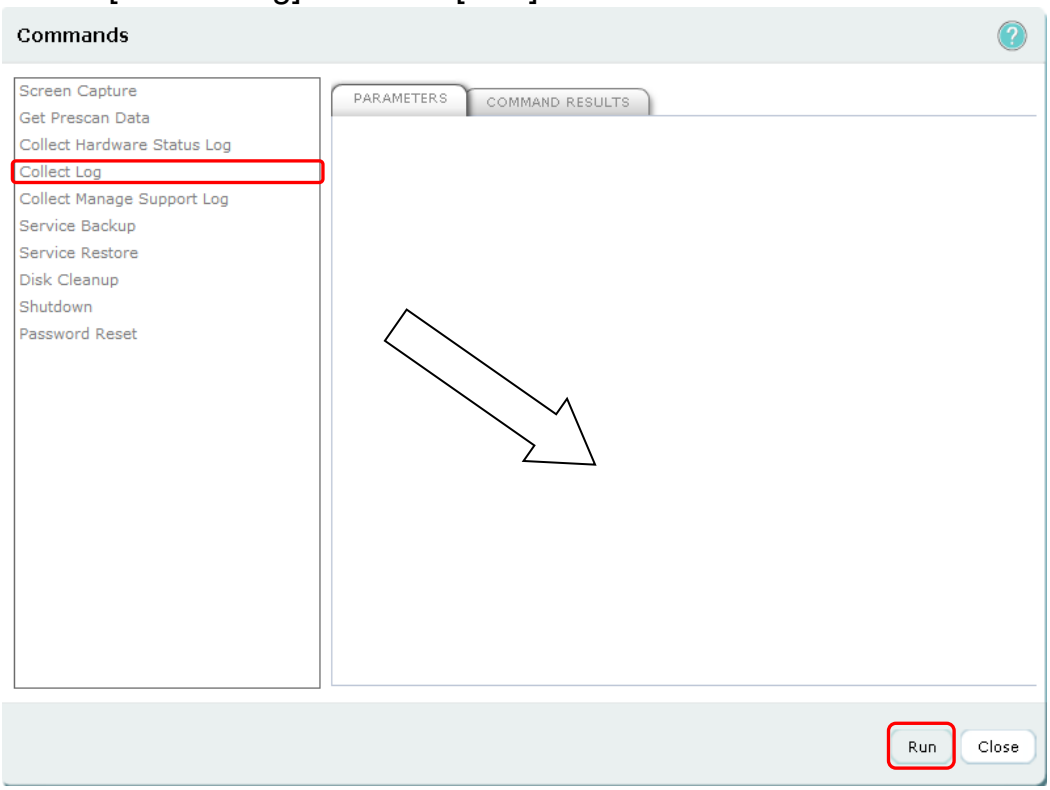
Acquire system log according to the following procedure.

#### (1) Collect Log execution

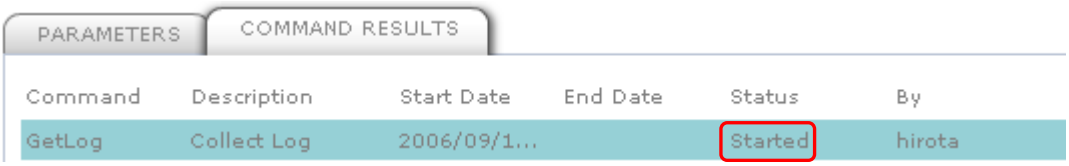
1 Select the device for Collect Log and click [Run command].



2 Select [Collect Log] and click [Run].



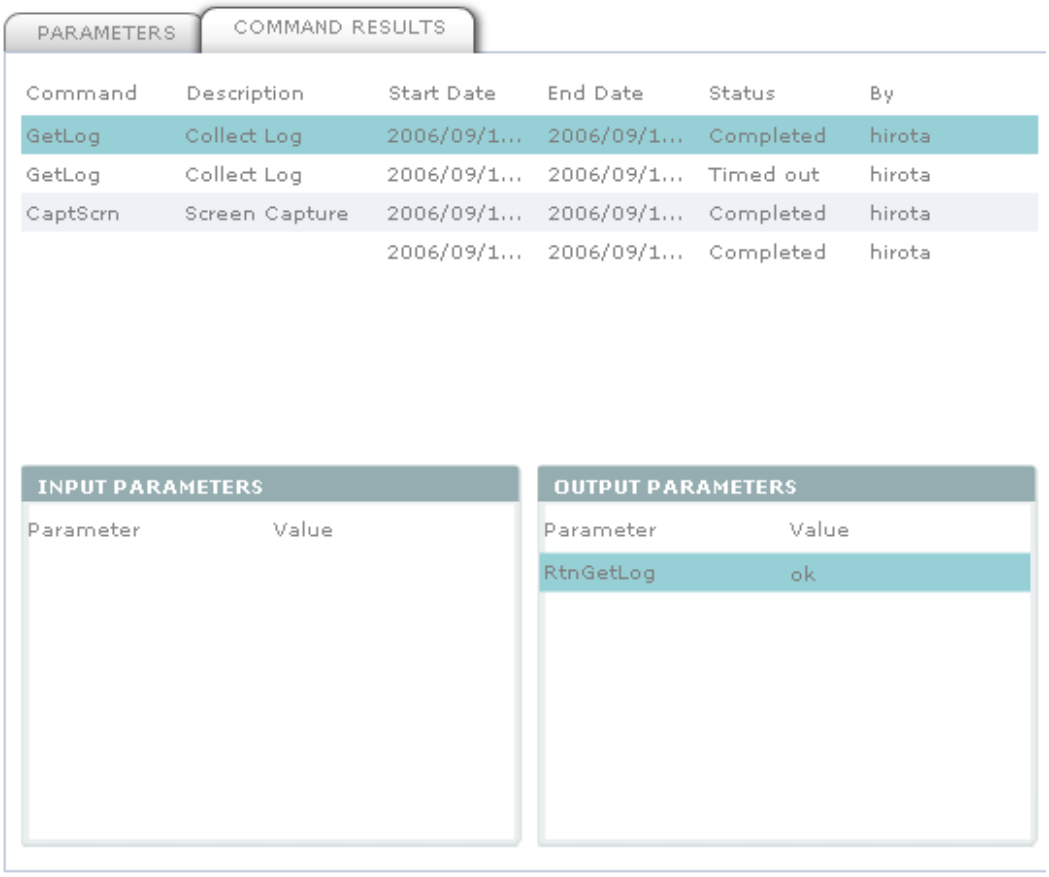

3 Open [COMMAND RESULTS] tab and executed command “Status” is “Started”.



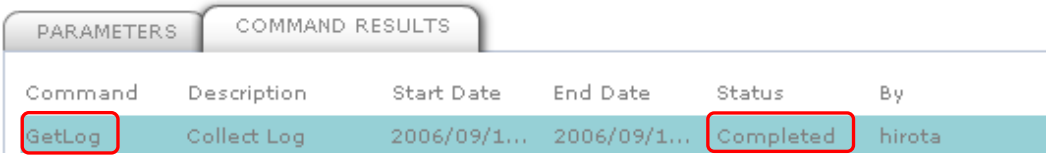

4 Close COMMANDS screen and click [Refresh] upper-right corner of the screen.

**NOTE** Take five minutes before updating.

5 Click [Run command] again and open [COMMAND RESULTS] tab.




6 “Completed” character is displayed in “Status” when process is completed. Select run commands.



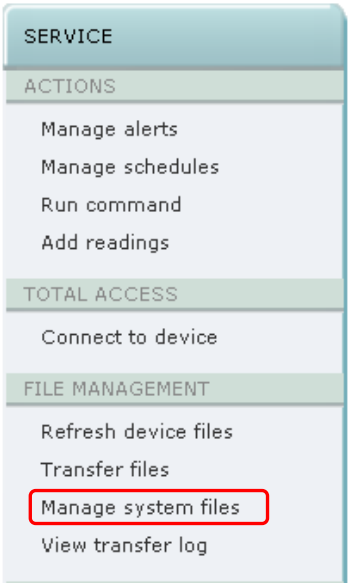

7 “ok” is displayed in the value of [OUTPUT PARAMETER] when process is normally completed.

8 The log file of "diag_dump_info_{System name}_{Serial number}_{"MonthDay"}_{"HourMinuteSecond"}.zip" is automatically uploaded into the server in a few minutes. "BELogFile.zip", "ScanLogFile.zip" and "ReconLogFile.zip" are uploaded at the time of system reboot.

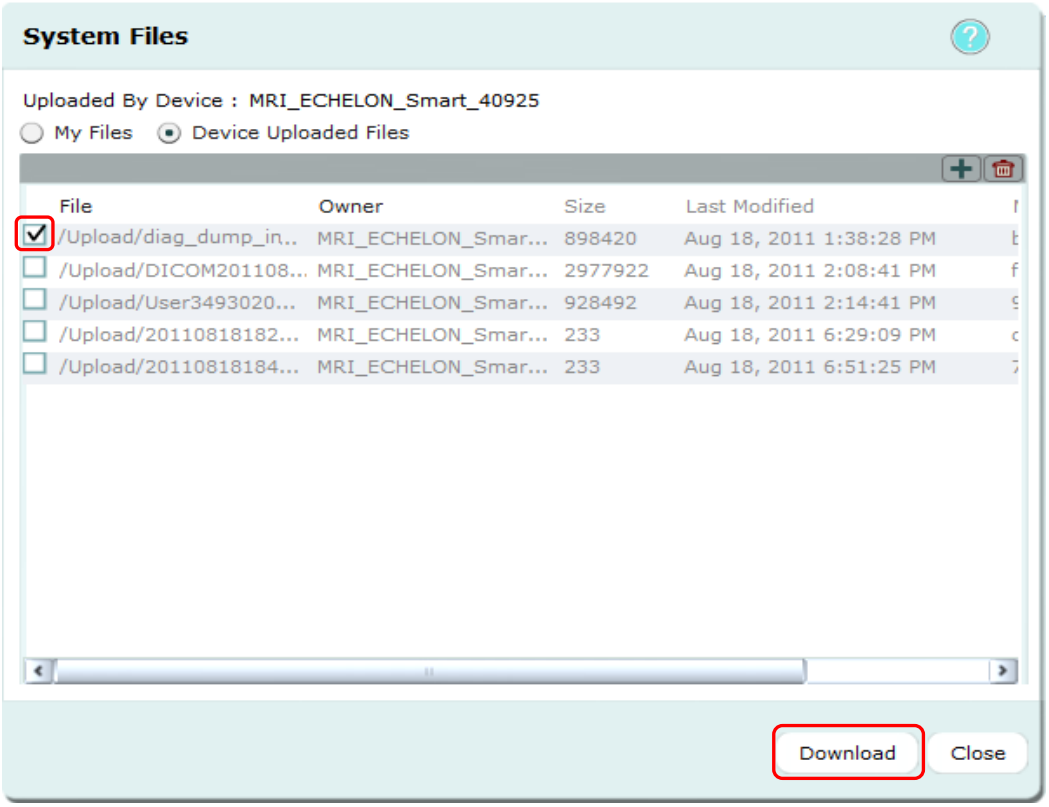
### (2) Way of downloading from server and displaying

Download Log to pc you use from server at the time of log file reference. Operate according to the following procedure.

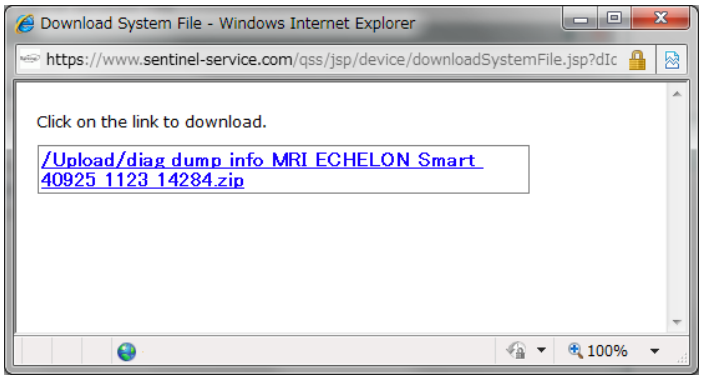
1 Select the device for Collect Log and click [SERVICE] - [FILE MANAGEMENT] - [Manage system files].



2 The screen of System Files is displayed, so select “diag_dump_info_{System name}_{Serial number}_{"MonthDay"}_{"HourMinuteSecond"}.zip” and click “Download”.

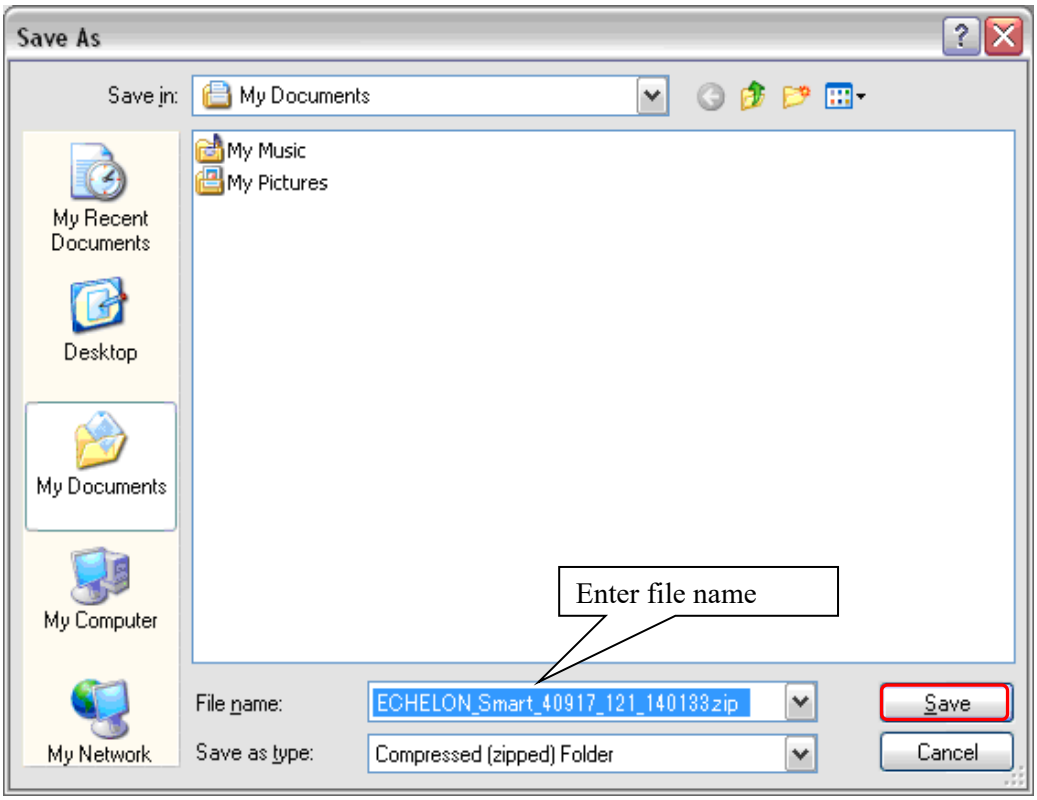



3 The following window is displayed, so click a link.

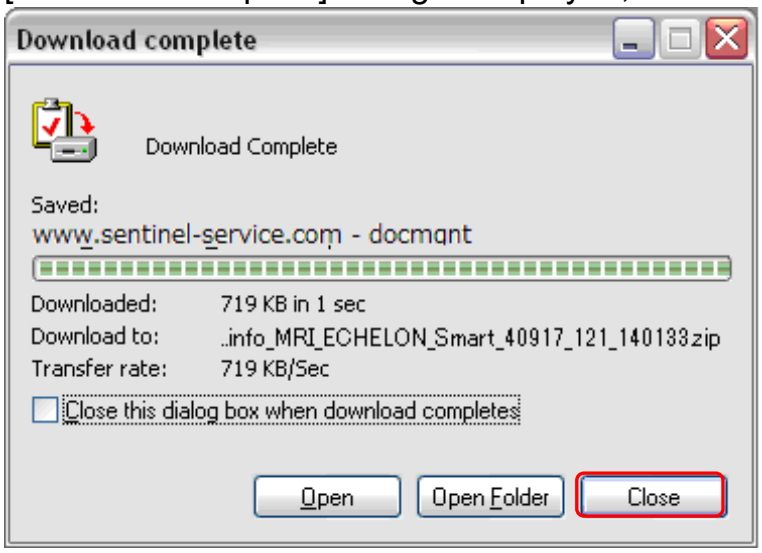


4 The dialog of file download is displayed, so click “Save”.

5 Specify saving place, the file name and click [Save].



6 [Download complete] dialog is displayed, so click [Close] button.



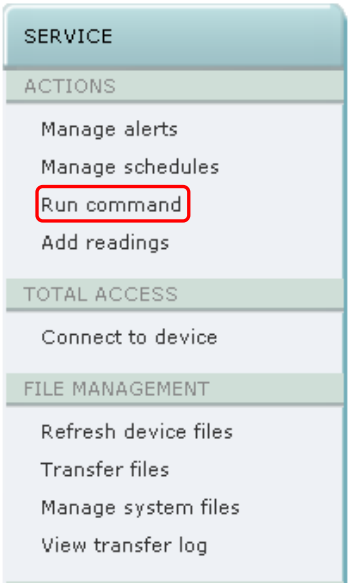

7 Execute the same operation to "BELogFile.zip", "ScanLogFile.zip" and "ReconLogFile.zip", too.

### 7.4.2.3 Service Backup

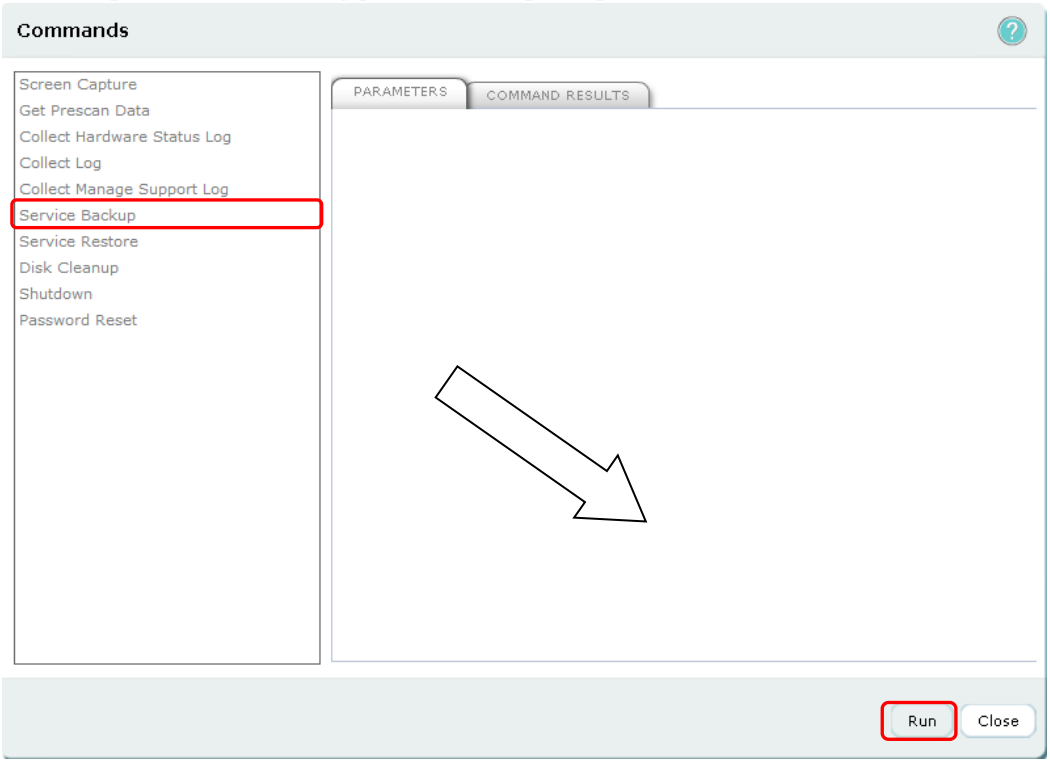
Device service back up can be acquired by remote in case of system down.

Get service backup file according to the following procedure.

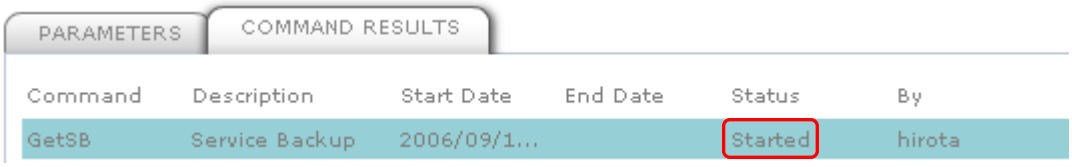
1 Select service backup acquisition target device and click [Run command].




2 Select [Service Backup] and click [Run].



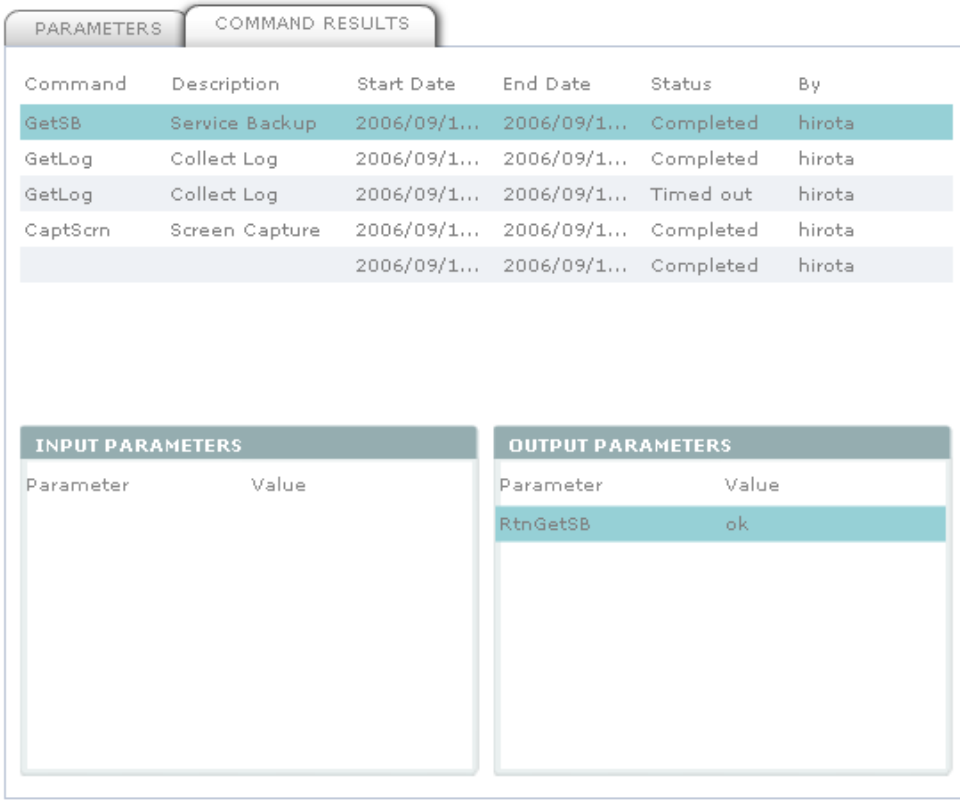
3 Open [COMMAND RESULTS] tab and executed command “Status” is “Started”.



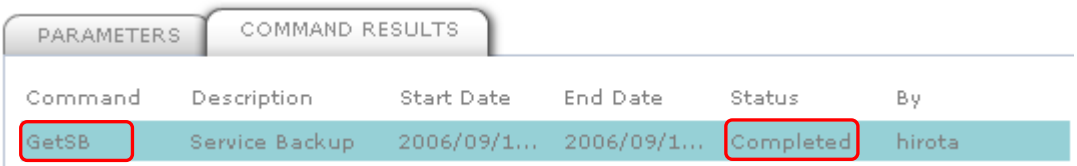

4 Close COMMANDS screen once and click [Refresh] upper-right corner of the screen.

**NOTE** Take five minutes before updating.

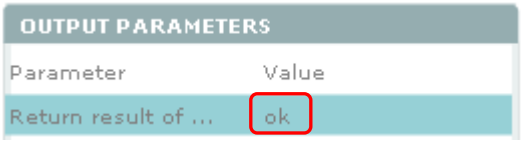
5 Click [Run command] again and open [COMMAND RESULTS] tab.




6 “Completed” character is displayed in “Status” when process is completed. Select run commands.



7 “ok” is displayed in the value of [OUTPUT PARAMETERS] when process is normally completed.




8 The service backup file is automatically uploaded on the server after a few minutes.

### 7.4.2.4 Service Restore

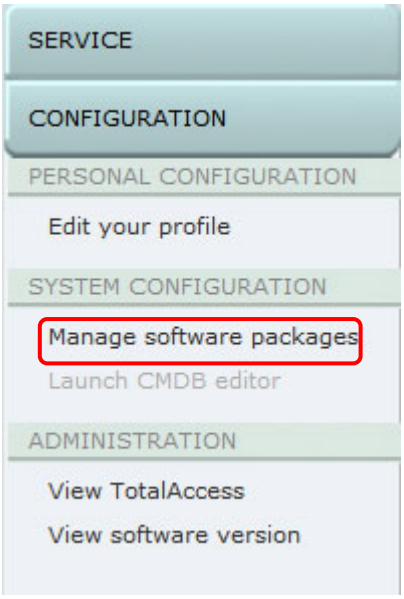
The restoration to the device needs to get the service backup. At this time, server saving service backup file needs to be transferred to the device in advance. Since this function uses the [File transfer] function, execute the procedure of 7.6.1 Device file information update in advance. Perform transfer action (download) to the device according to the following procedure.

#### (1) Transfer a backup file from the server to the device

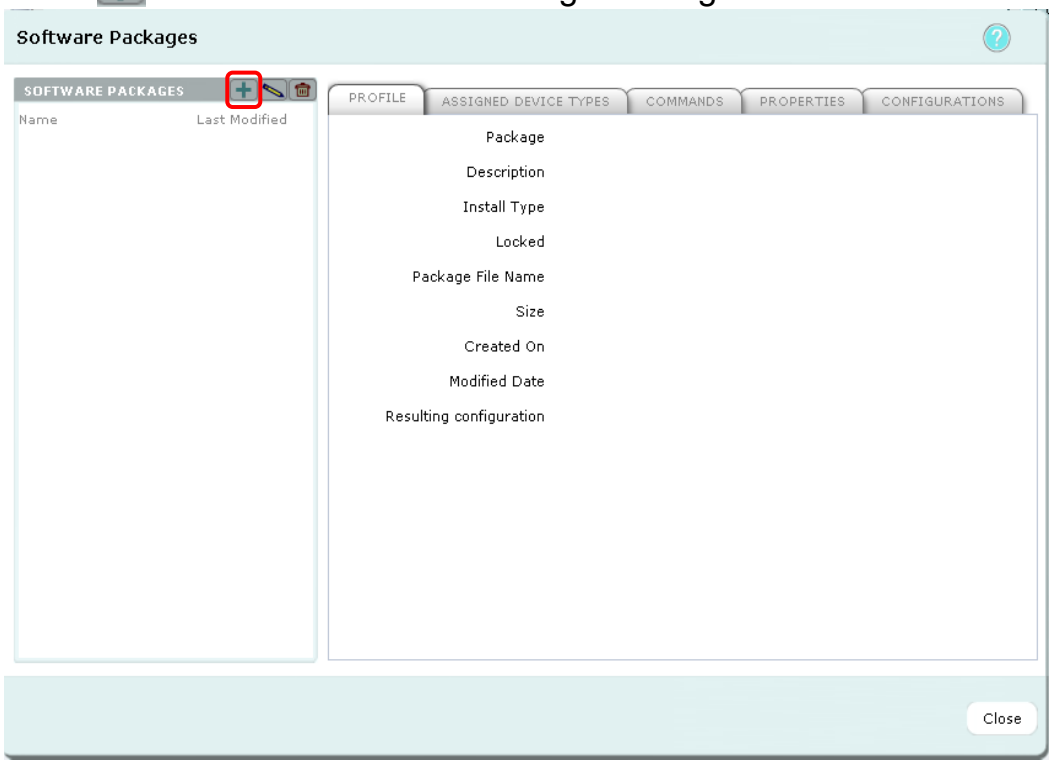
1 Before executing Service Restore command, ServiceBackup data to send MRI system have to be prepared.

※The ServiceBackup data to send MRI system is in user's PC.

Click [Manage software packages] of [CONFIGURATION]－[SYSTEM CONFIGURATION].



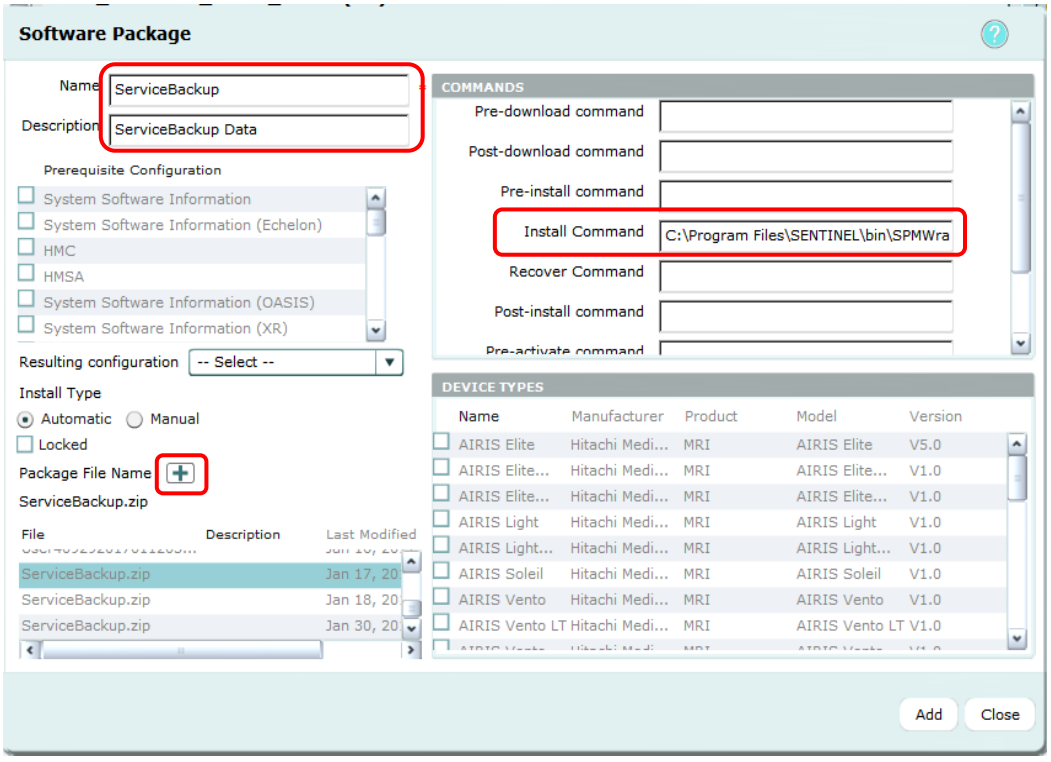
2 Click button on Software Packages dialog.



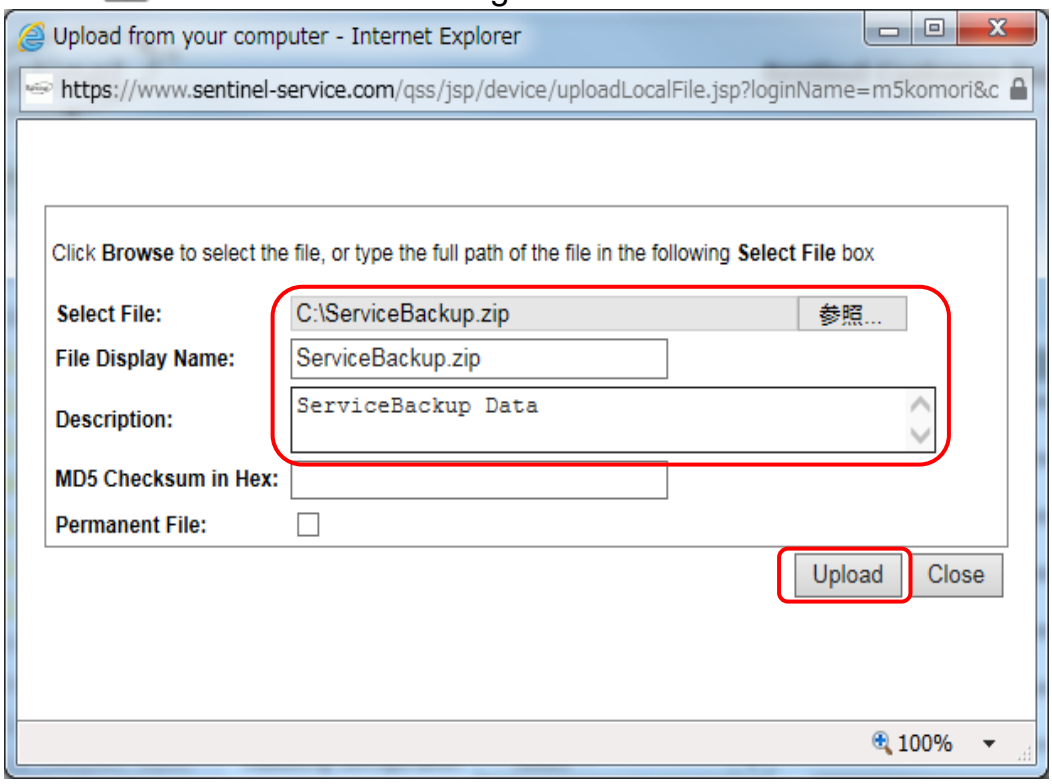
3 Input Name and Description on Software Package dialog. The Name and Description will be displayed on Software Packages dialog.

Input Install Command as follows.

C:\Program Files\SENTINEL\bin\SPMWrapper.vbs

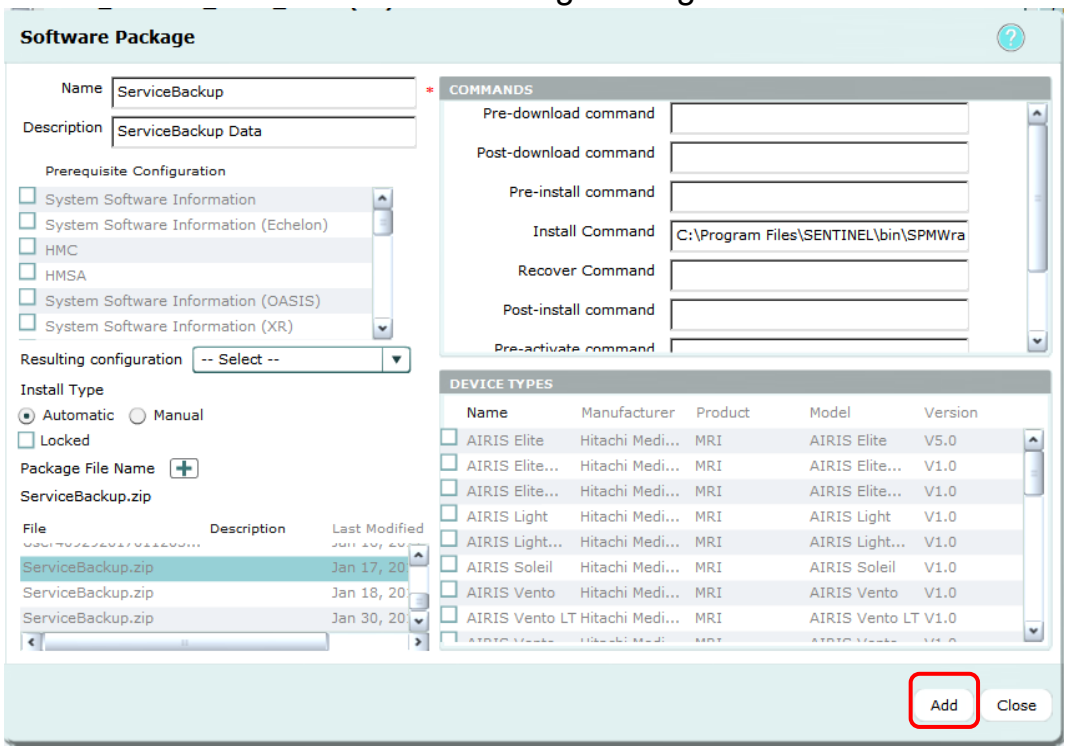


4 Click ➕ button next to Package File Name.

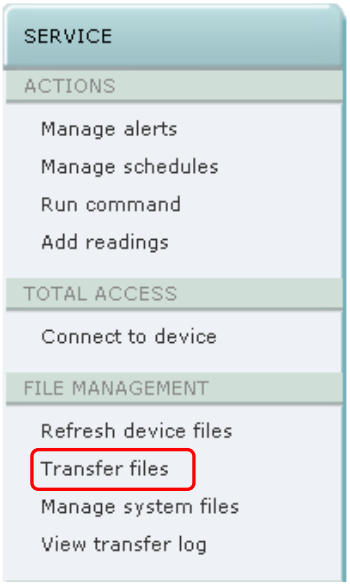



Select file to upload at Select File. Input File Display Name and Description.
And then, click Upload button. Don't touch Permanent File check box.

5 Click Add button on Software Package dialog.

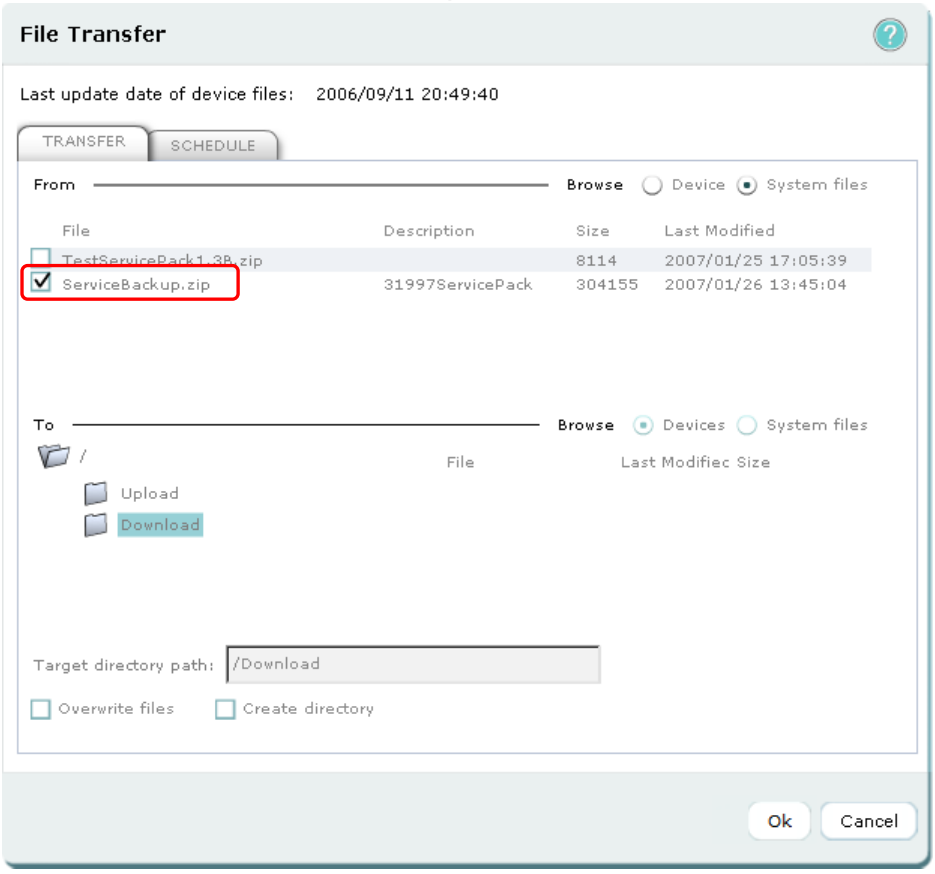


6 Select the device that restores and click [SERVICE] - [FILE MANAGEMENT] - [Transfer files].



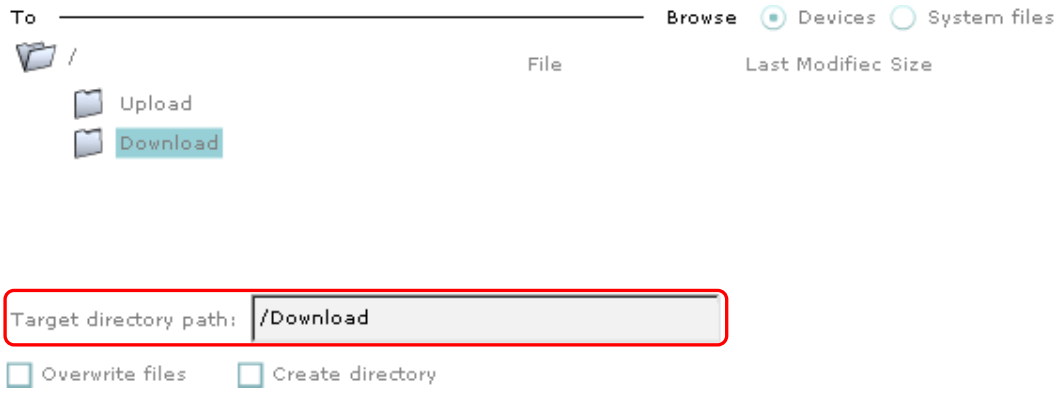

7 Select “System files” as [From] [Browse].

8 Tick desirable service back up file to transfer to the device.



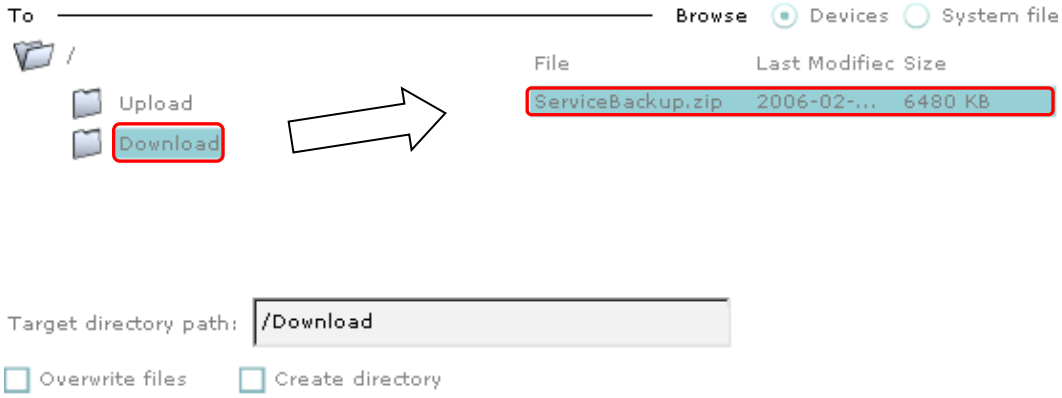

9 Specify file saving directory.

Enter “/Download “in [Target directory path:].




10 Click [OK].

11 Click [Refresh device files] after a while and select “Download” folder on File Transfer screen, so that transferred Service Backup .zip file can be confirmed.





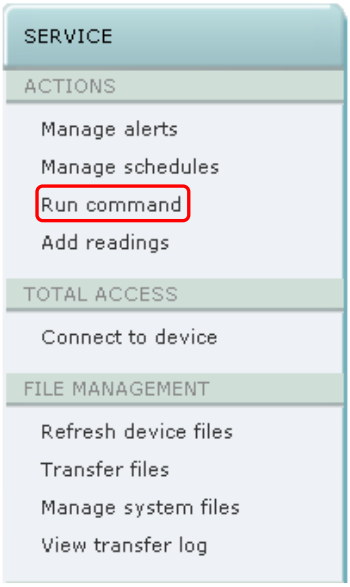


**NOTE** Take five minutes before Refresh device files.

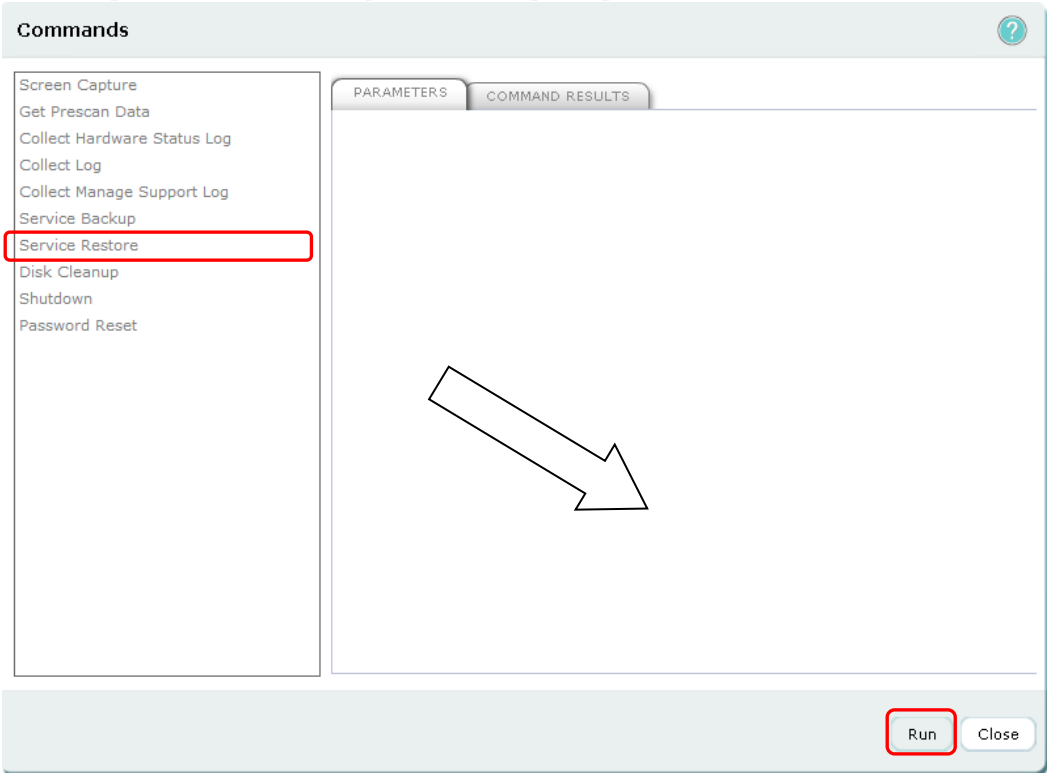
### (2) Restore a backup file

Service backup that has been transferred (downloaded) to the device is restored. Operate according to the following procedure.

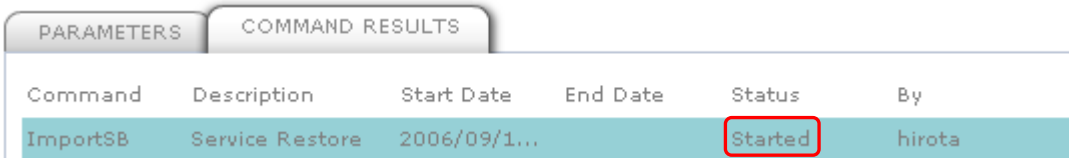
1 Select the device for Service restore and click [Run command].




2 Select [Service Restore] and click [Run].



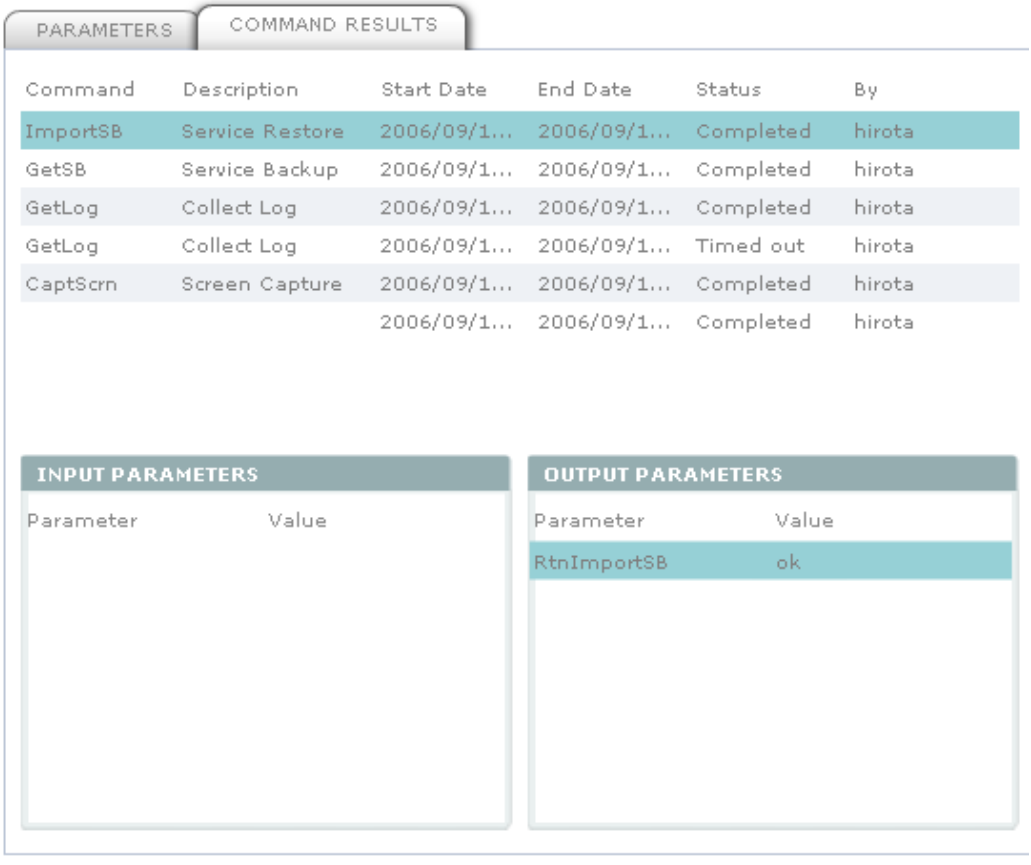
3 Open [COMMAND RESULTS] tab and executed command “Status” is “Started”.



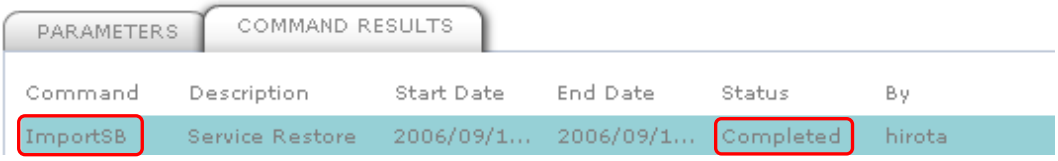

4 Close [COMMANDS] screen and click [Refresh] upper-right corner of the screen.

**NOTE** Take five minutes before updating.

5 Click [Run command] again and open [COMMAND RESULTS] tab.



6 “Completed” character is displayed in “Status” when process is completed. Select run commands.




7 “ok” is displayed in the value of [OUTPUT PARAMETER] when process is normally completed.

8 In order to make the contents of the service backup available, please turn off the MRI system and turn it on again.

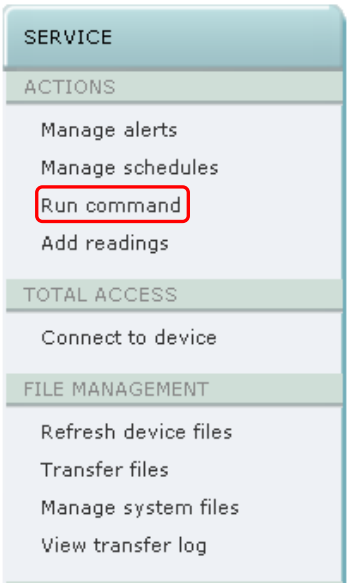
### 7.4.2.5 Disk Cleanup

Alerts occur if device BE PC/ Free Space C: or FE PC/ Free Space C: is under threshold. Free Space needs to be increased.

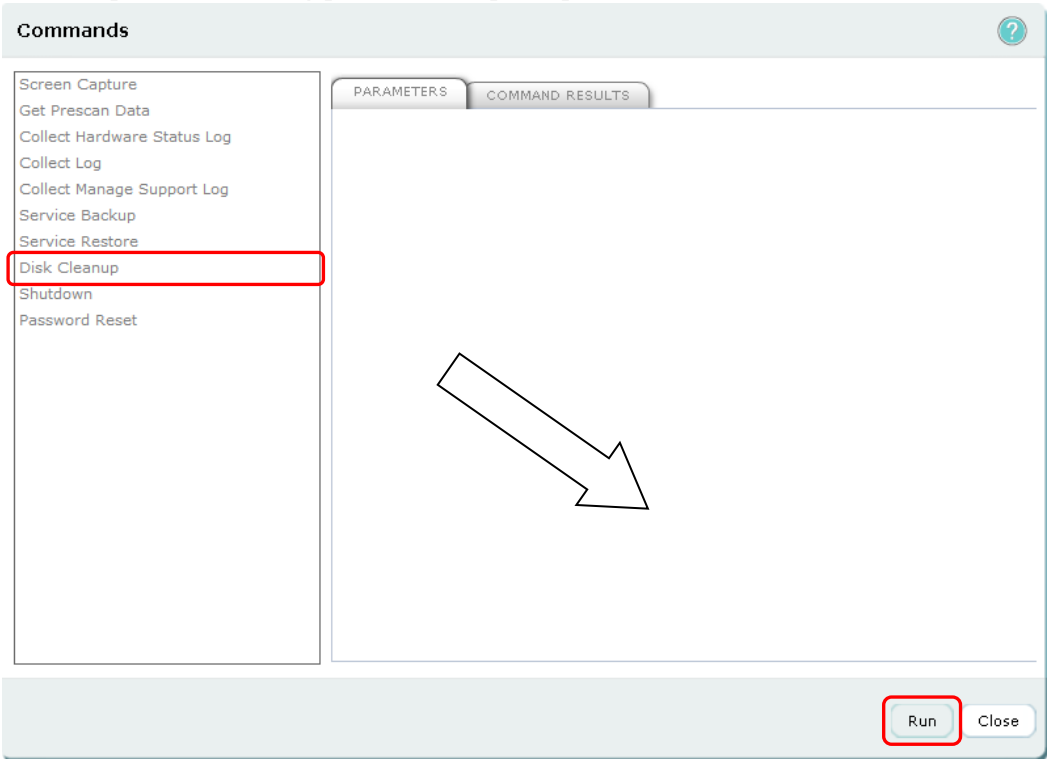
**NOTE** Not only BE PC/ Free Space C: but also FE PC/ Free Space C:, FE PC/ Free Space D: are performed all at once.

Operate according to the following procedure.

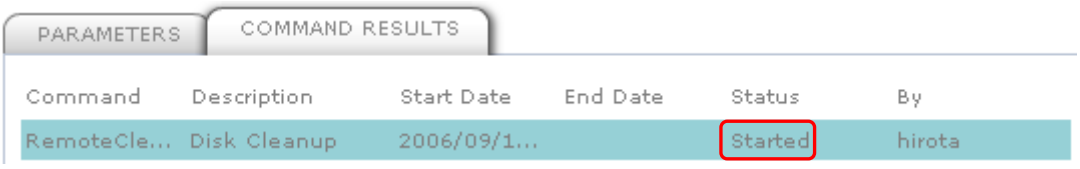
1 Select the device to perform Disk Cleanup. Click [Run command].



2 Select [Disk Cleanup] and click [Run].

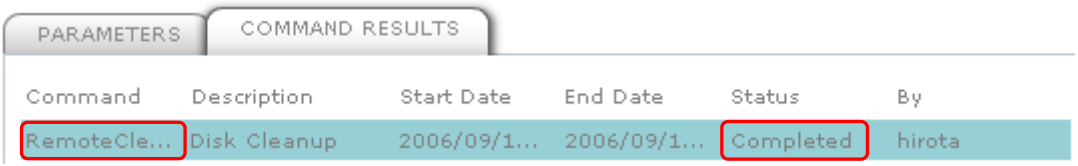



3 Open [COMMAND RESULTS] tab and executed command “Status” is “Started”.




4 Close the command screen once, take 5 minutes and then click [Refresh] button at the upper right of the screen.

5 Click [Run command] again and open [COMMAND RESULTS] tab.
“Completed” character is displayed in “Status” when process is completed. Select this item because abnormal or normal can not be assessed at this point.



6 “ok” is displayed in the value of [OUTPUT PARAMETER].

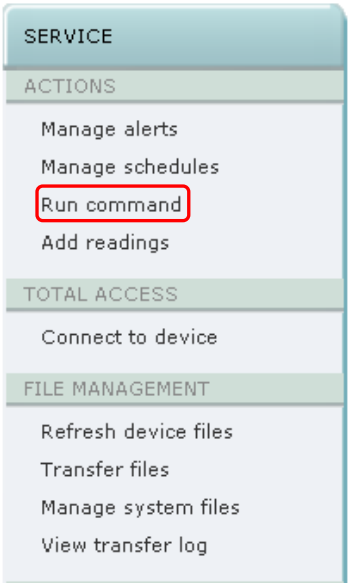
7 Free space is increased when process is normally completed.

**NOTE** Not only BE PC/ Free Space C: but also FE PC/ Free Space C:, FE PC/ Free Space D: are performed all at once.

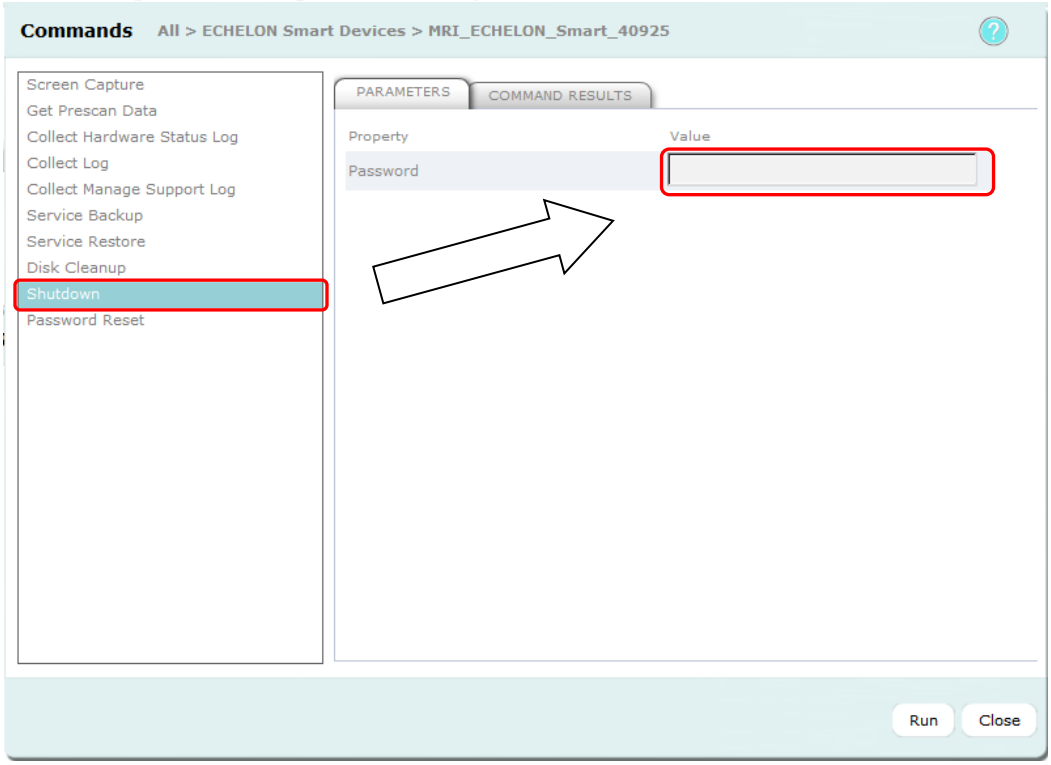
### 7.4.2.6 Shutdown

If some sorts of system problems occur and system should be shot down, system shot down is possible.

1 Select the device to perform Shutdown and click [Run command].

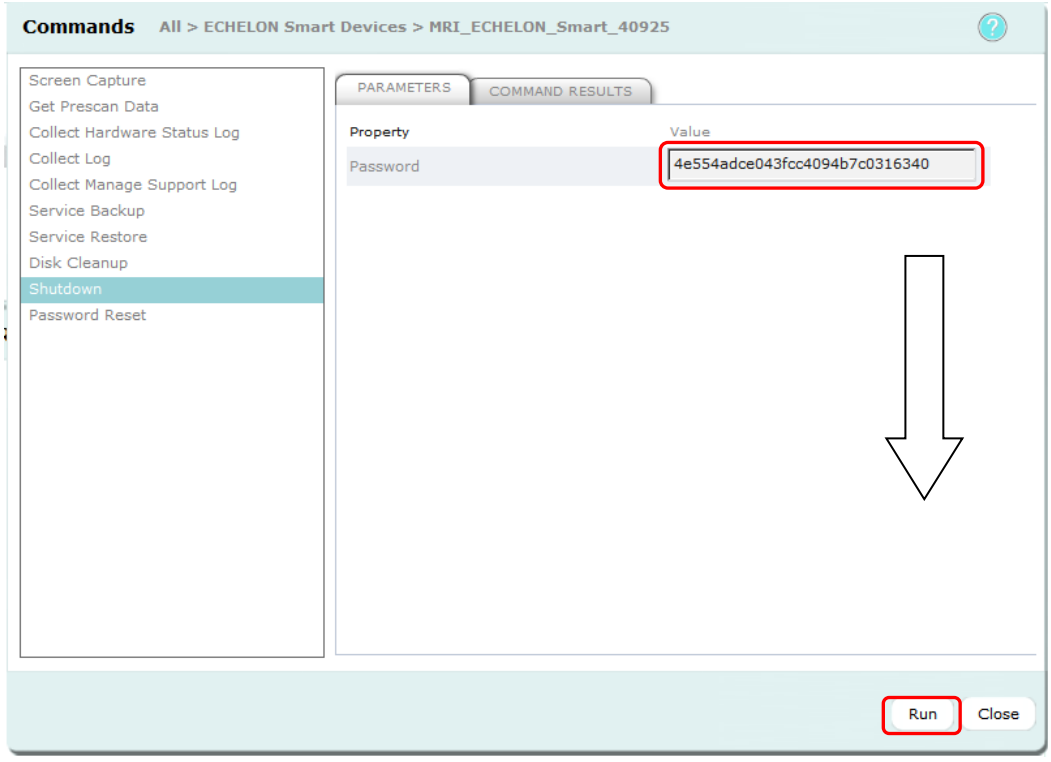



2 Choose [Shutdown] and enter password.

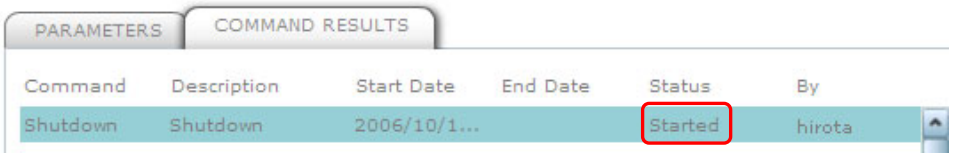


**NOTE** Inform Remote Service Administrators of "Unique Device Name" (MRI_ECHELON_Smart_Serial number) in advance and inquire passwords. Issued passwords are valid within 24 hours.

3 After entering password, click [Run] button.




4 By opening [COMMAND RESULTS] tab, "Status" of the executed command becomes "Started".

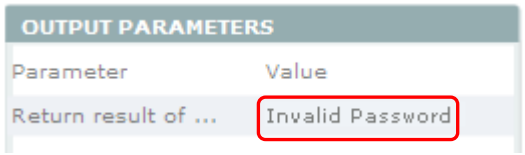



5 Close the command screen once, take 1 or 2 minutes and then click [Refresh] button at the upper right of the screen.

6 The device is powered off after [Shutdown] was normally completed.

7 By choosing the executed command from [COMMAND RESULTS] tab, [OUTPUT PARAMETERS] value is “ok”.

**NOTE** [OUTPUT PARAMETERS] value is “Invalid Password” if wrong password was entered when a command was executed.



### 7.4.2.7 Collect Manage Support Log

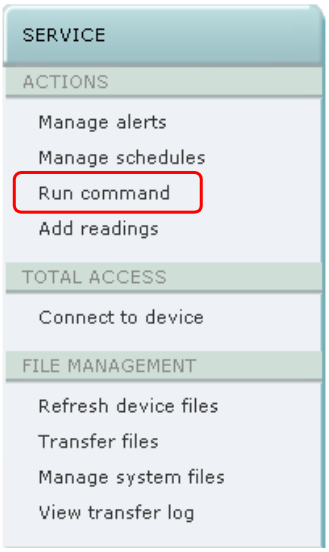
Manage Support Log can be acquired.

**NOTE** If has not been measured since started the device can not be acquired.

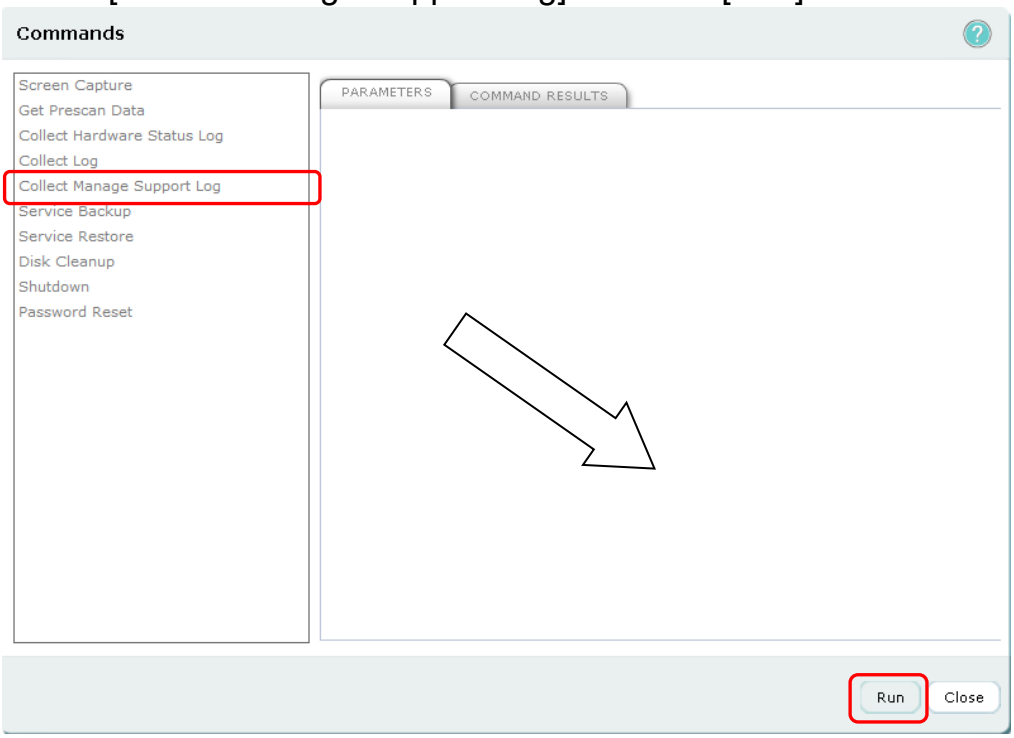
Acquire Manage Support Log according to the following procedure.

#### (1) Collect Manage Support Log execution

1 Select the device for Manage Support Log and click [Run command].




2 Select [Collect Manage Support Log] and click [Run] button.

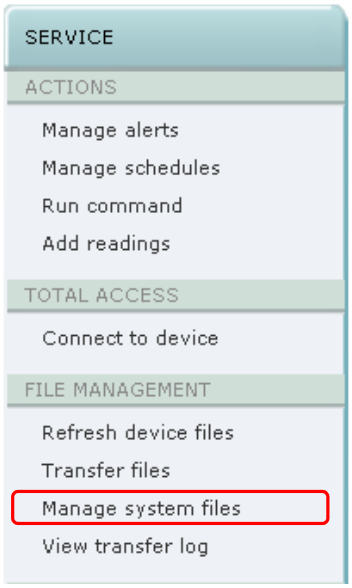


3 The Manage Support Log file “ManageSupportTotal.xml”, “ManageSupportDaily_{“Year-Month-Day-Hour-Minute-Second”}.xml ” is automatically uploaded on the server after a few minutes.

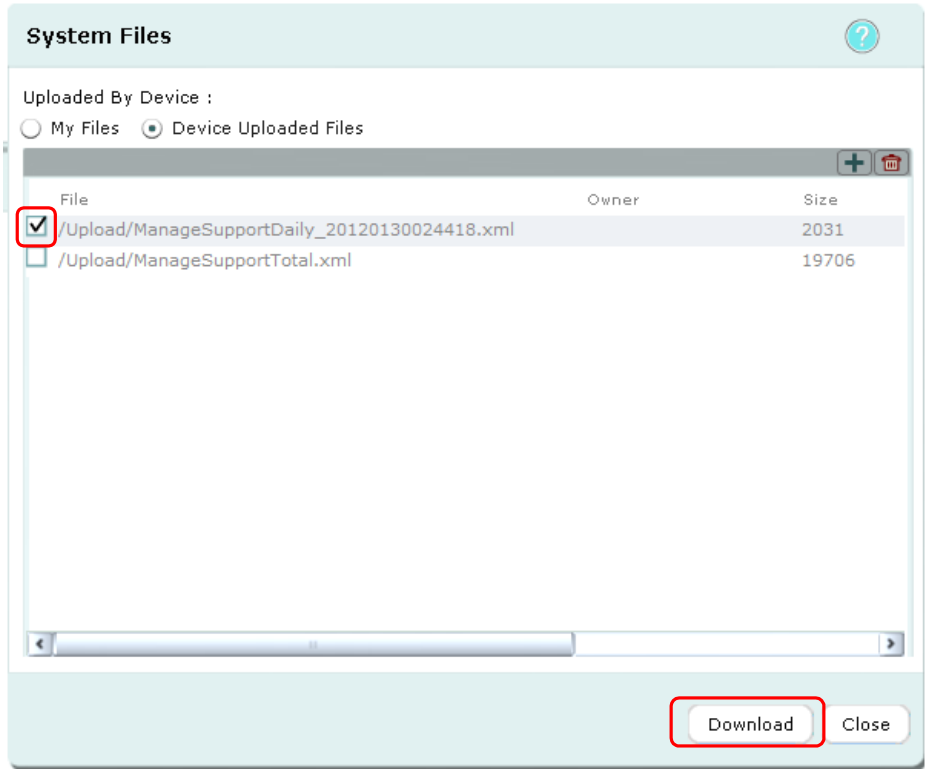
### (2) How to download and display from server

If downloading Manage Support Log from server to user's PC, operate as follows.

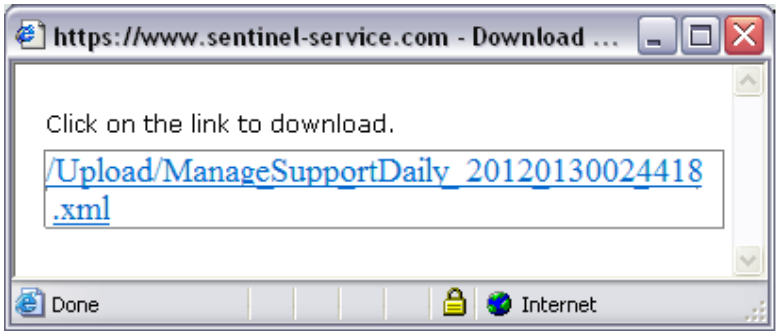
1 Select the device where Manage Support Log was carried out and click [SERVICE] - [FILE MANAGEMENT] - [Manage system files].



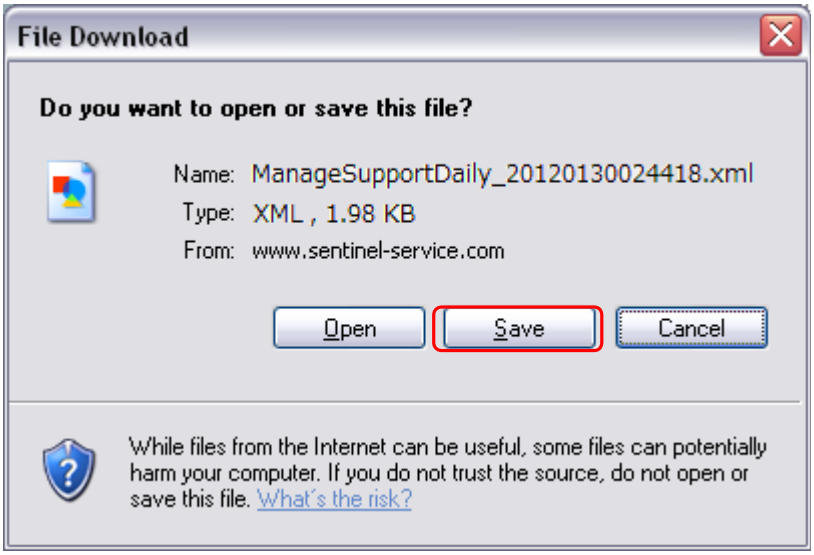
2 The screen of System Files is displayed, so select “ManageSupportTotal.xml” or “ManageSupportDaily_{”Year-Month-Day-Hour-Minute-Second”}.xml ” and click [Download] button.



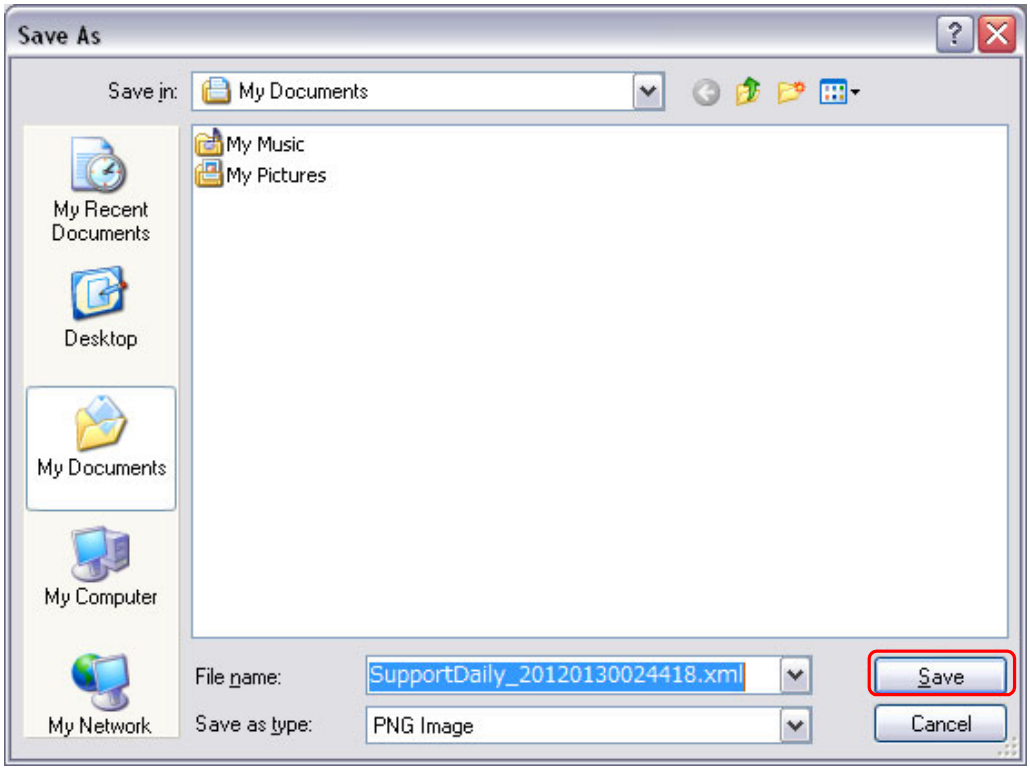

3 The following window is displayed, so click a link.



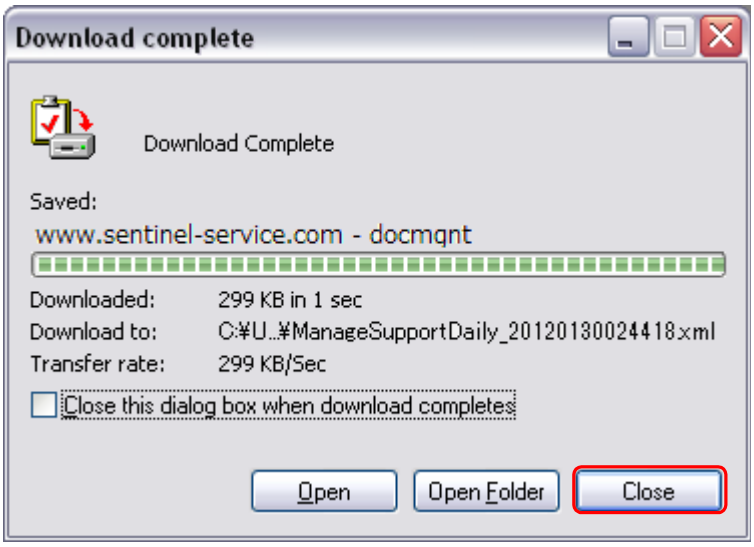
4 The dialog of download displayed, so click [Save] button.




5 Specify saving place, the file name and click [Save] button.



6 [Download Complete] dialog is displayed, so click [Close] button.



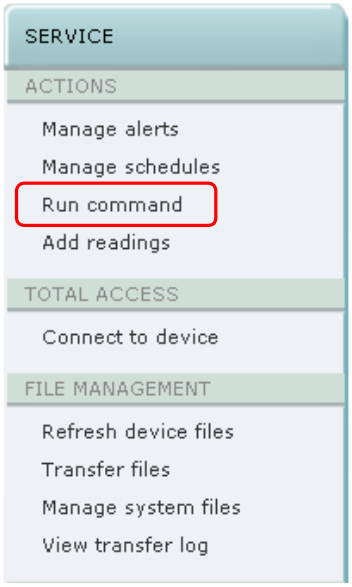
### 7.4.2.8 Get Prescan Data

Prescan Data can be acquired.

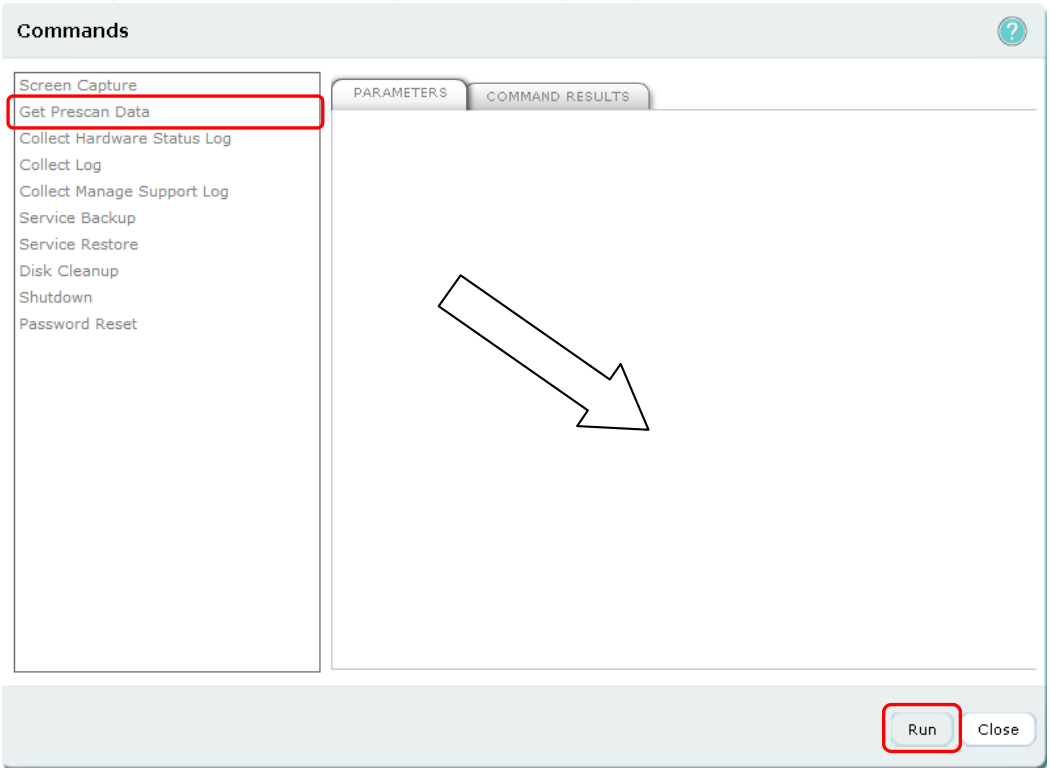
Acquire Prescan Data according to the following procedure.

#### (1) Prescan Data execution

1 Select the device for Prescan Data and click [Run command].




2 Select [Get Prescan Data] and click [Run] button.

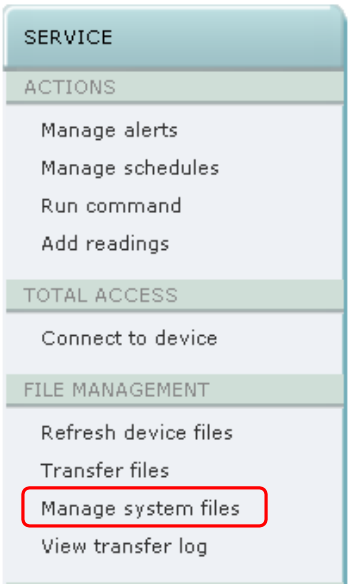


3 The Prescan Data file “PrescanData_{“Year-Month-Day-Hour-Minute-Second”}.zip” is automatically uploaded on the server after a few minutes.

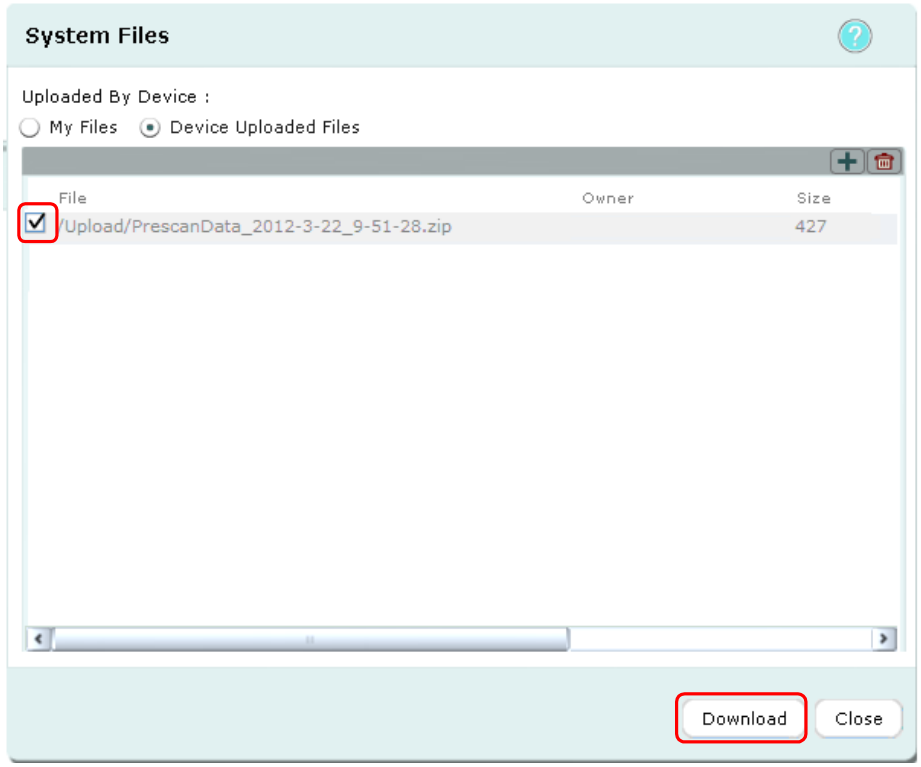
### (2) How to download and display from server

If downloading Prescan Data from server to user's PC, operate as follows.

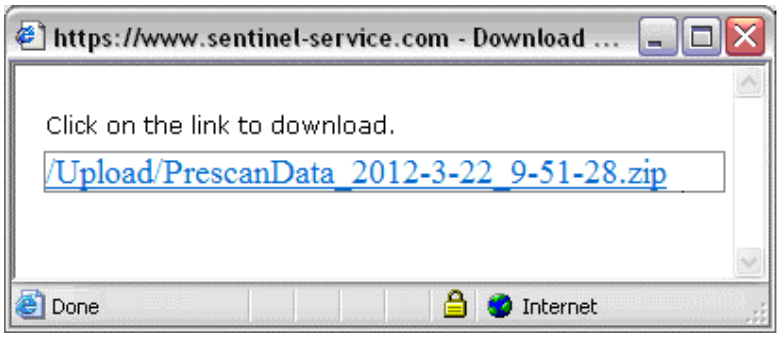
1 Select the device where Prescan Data was carried out and click [SERVICE] - [FILE MANAGEMENT] - [Manage system files].



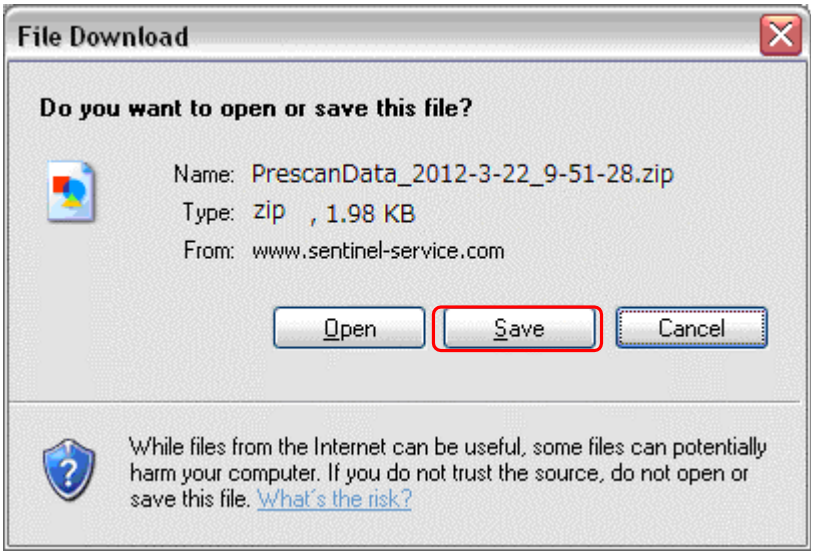
2 The screen of System Files is displayed, so select ”PrescanData_{”Year-Month-Day-Hour-Minute-Second”}.zip” and click [Download] button.



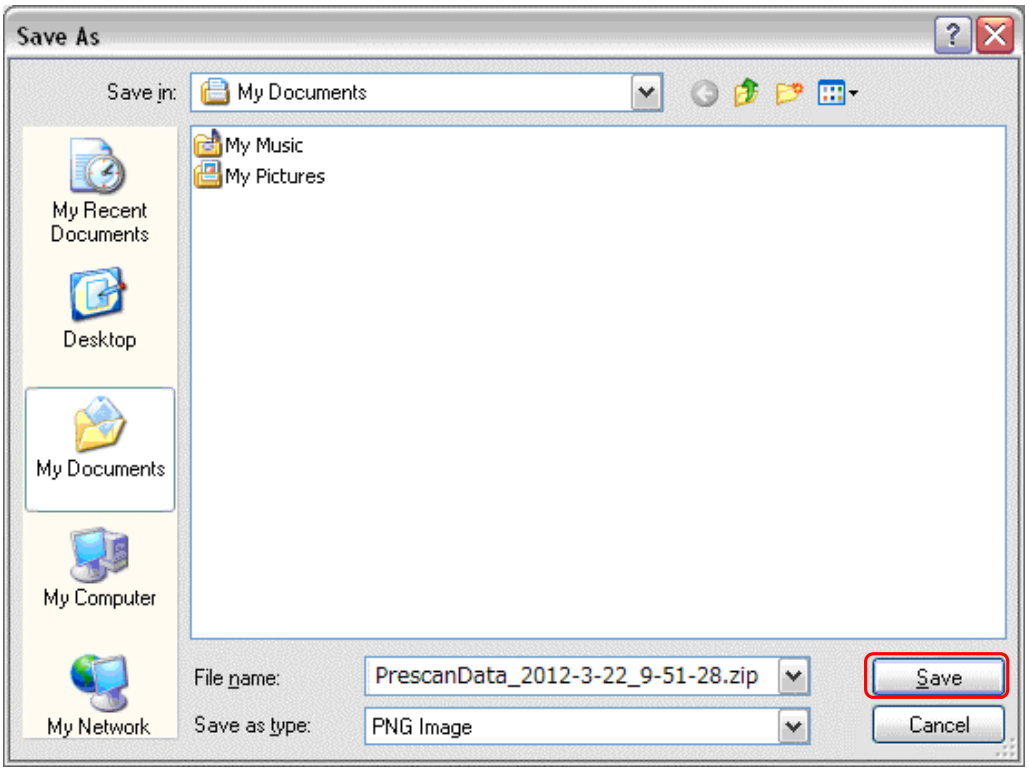

3 The following window is displayed, so click a link.



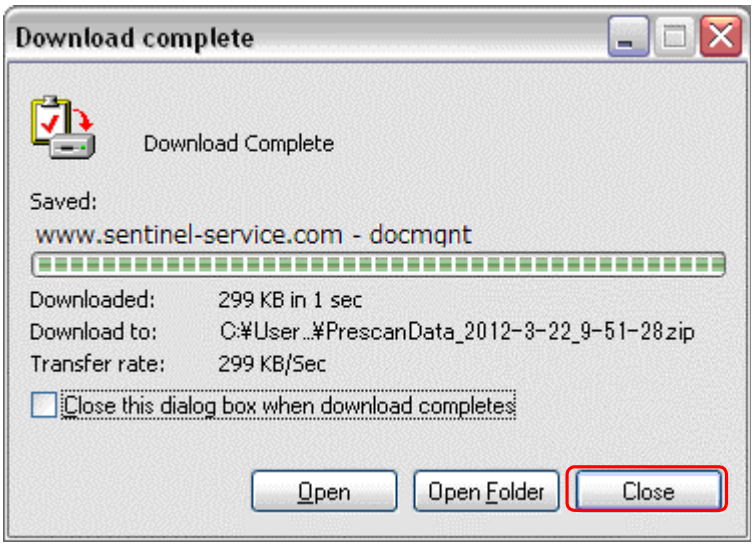
4 The dialog of download displayed, so click [Save] button.




5 Specify saving place, the file name and click [Save] button.



6 [Download Complete] dialog is displayed, so click [Close] button.

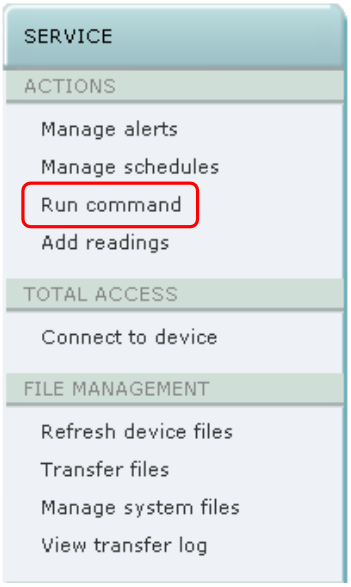


### 7.4.2.9 Password Reset

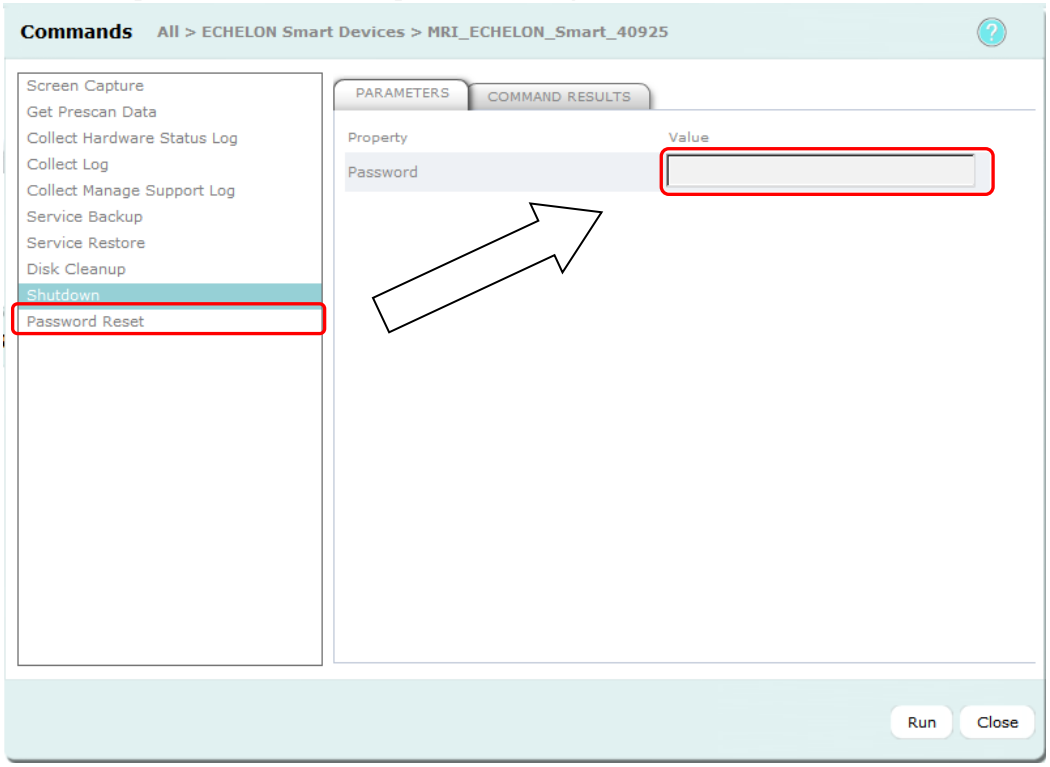
Change the password to the password of that year is possible if accidentally changed the date the following year.

Password reset according to the following procedure.

1 Select the device for change Password and click [Run command].

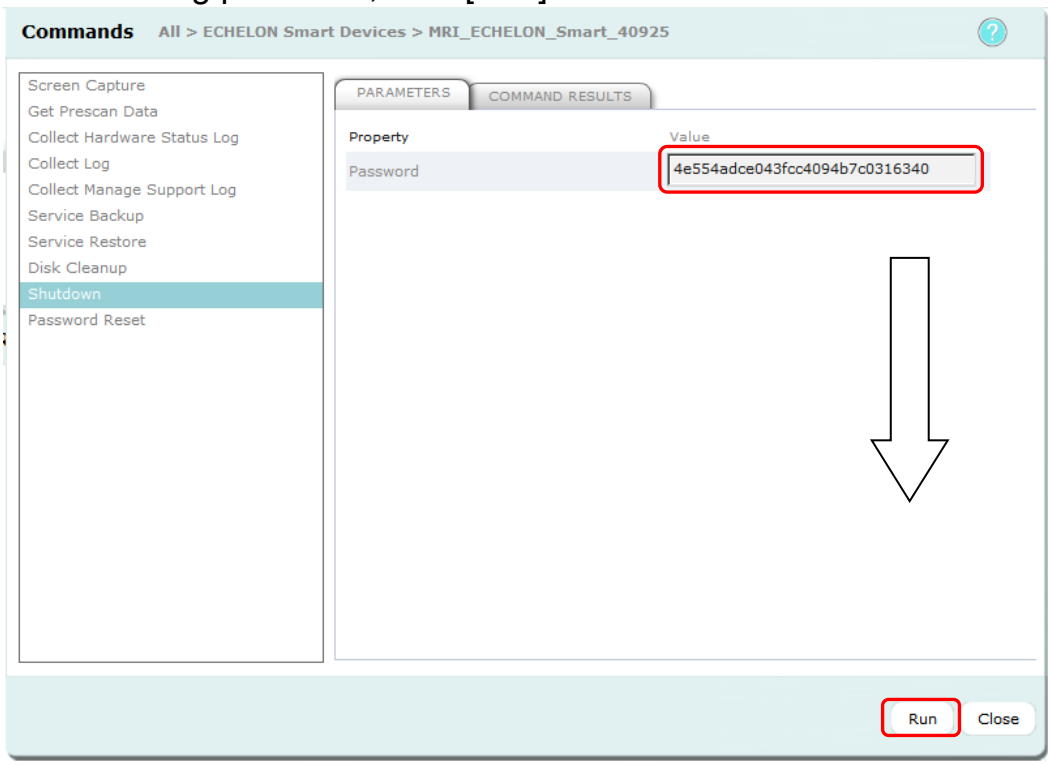



2 Choose [Password Reset] and enter password.




**NOTE** Inform Remote Service Administrators of "Unique Device Name"

3 After entering password, click [Run] button.




4 System restart after a few minutes.

5 Enter the password for that year at the login screen and log on.

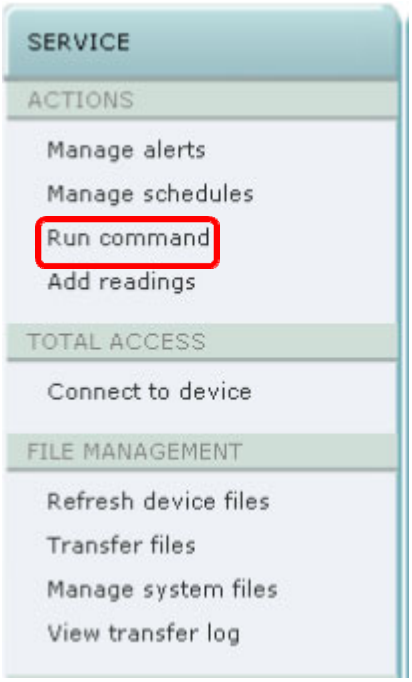
### 7.4.2.10 Collect Hardware Status Log

To investigate device at the time of system down and failure, hardware status log can be acquired.

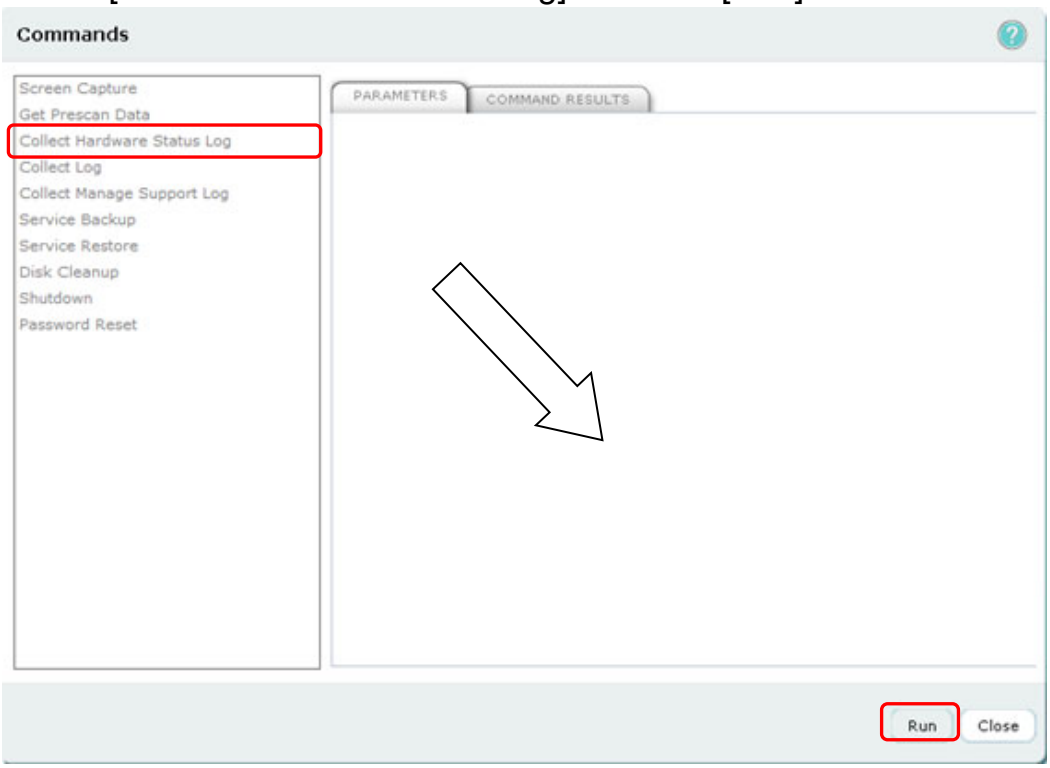
Acquire system log according to the following procedure.

#### (1) Collect Hardware Status Log execution

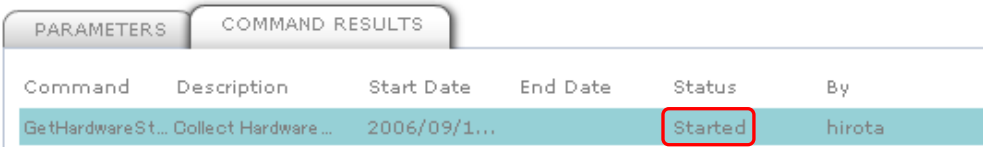
1 Select the device for Collect Hardware Status Log and click [Run command].



2 Select [Collect Hardware Status Log] and click [Run].



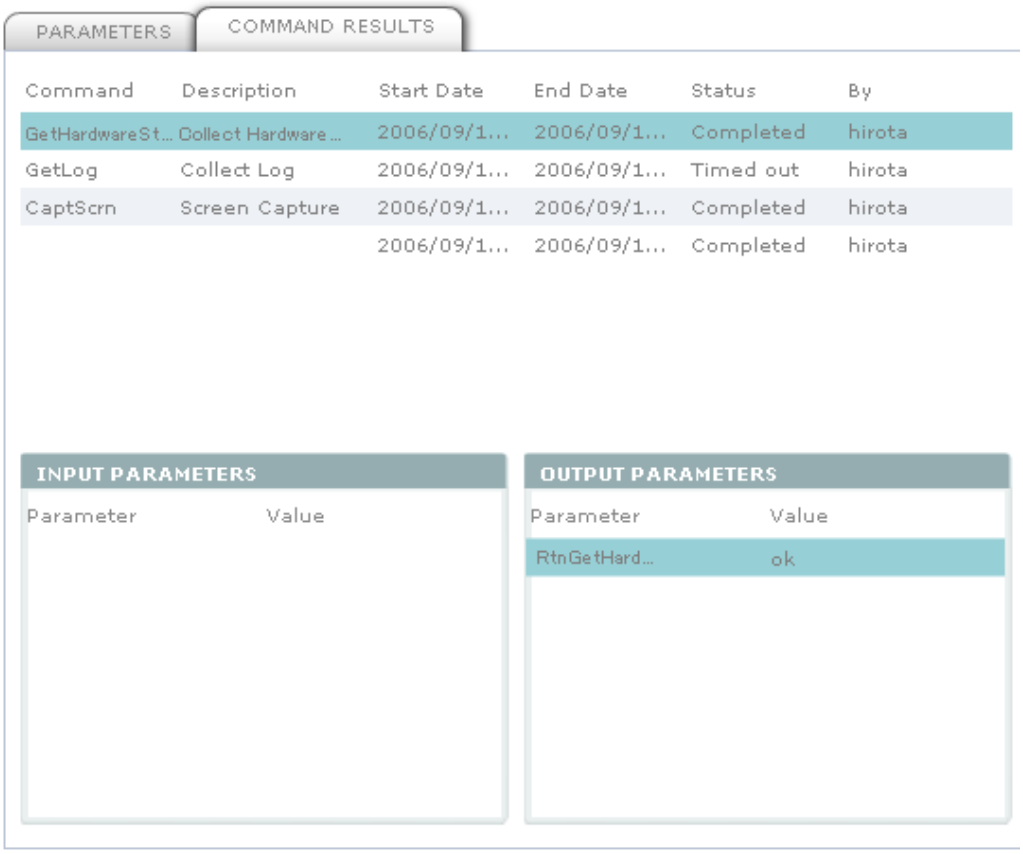

3 Open [COMMAND RESULTS] tab and executed command “Status” is “Started”.



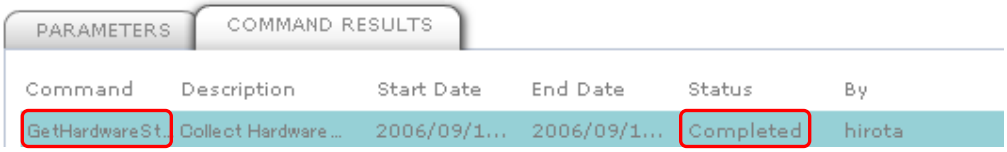

4 Close COMMANDS screen and click [Refresh] upper-right corner of the screen.

**NOTE** Take five minutes before updating.

5 Click [Run command] again and open [COMMAND RESULTS] tab.




6 “Completed” character is displayed in “Status” when process is completed. Select run commands.




7 “ok” is displayed in the value of [OUTPUT PARAMETERS] when process is normally completed.

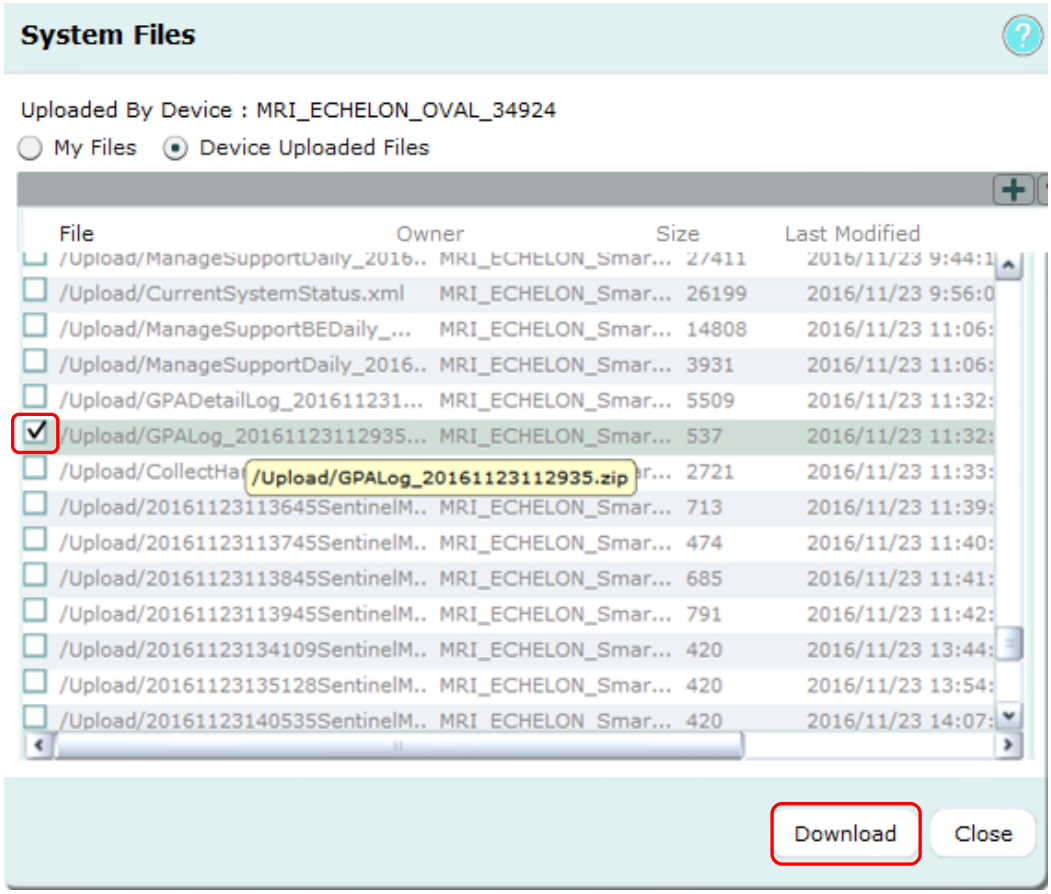
8 The log file named {Unit name}Log_{“Year-Month-Day_Hour-Minute-Second”}.zip is automatically uploaded into the server in a few minutes.

### (2) Way of downloading from server and displaying

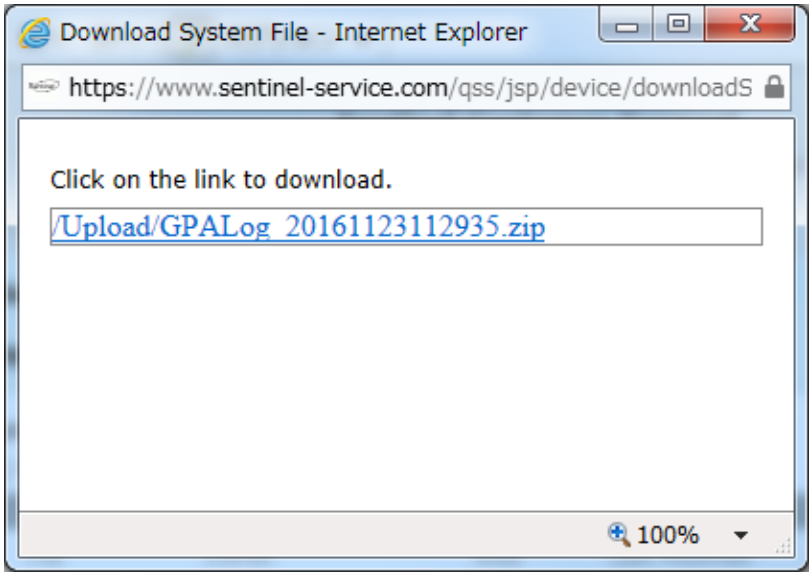
Download Hardware Status Log to pc you use from server at the time of log file reference.
Operate according to the following procedure.

1 Select the device for Collect Hardware Status Log and click [SERVICE] - [FILE MANAGEMENT] - [Manage system files].

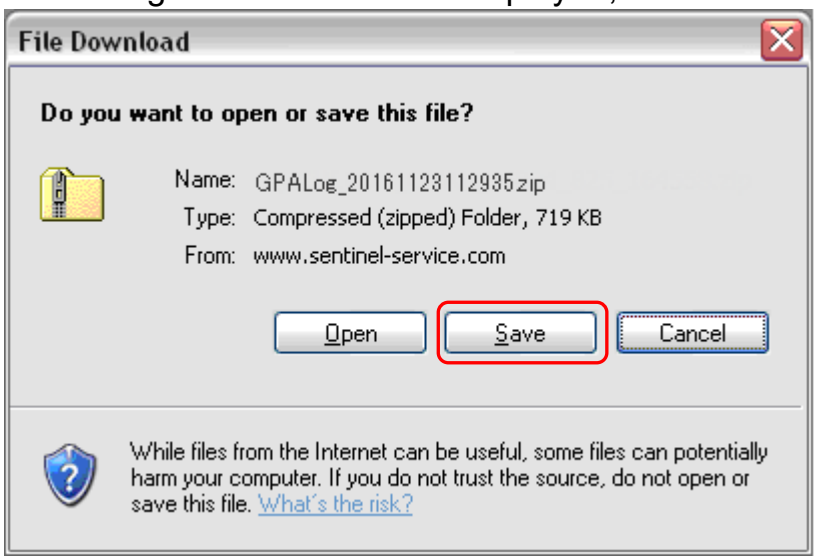
2 The screen of System Files is displayed, so select {Unit name}Log_{“Year-Month-Day_Hour-Minute-Second”}.zip and click “Download”.



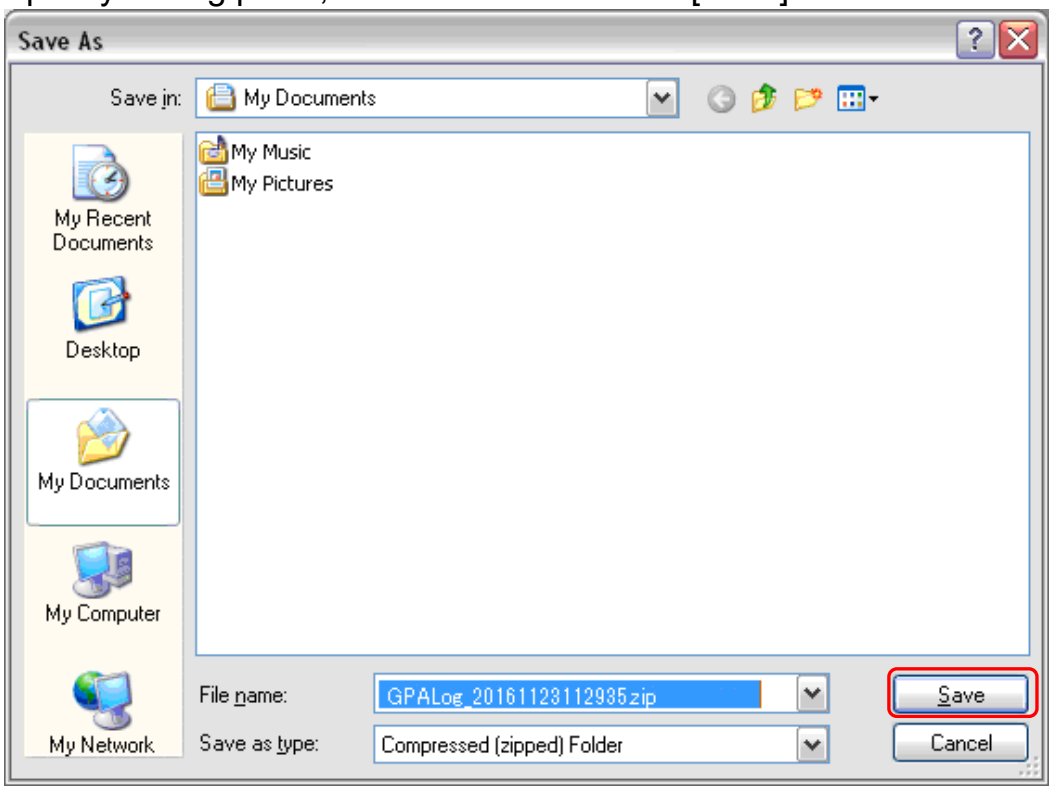

3 The following window is displayed, so click a link.



4 The dialog of file download is displayed, so click “Save”.




5 Specify saving place, the file name and click [Save].




6 Execute the same operation to download other status log files.

# 7.5 Add readings

[Add readings] can be used to enter default at the registration of the device to the server or to manually enter the value in property.

It is possible to manually enter the value into monitoring database that compiles obtained data.

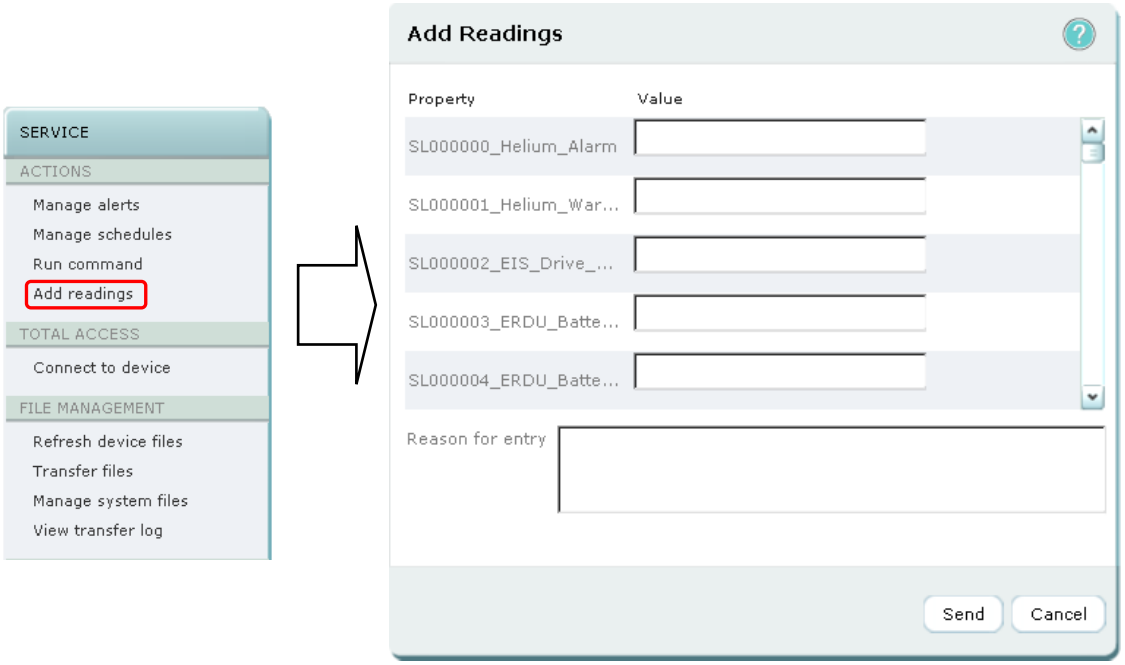



Figure7-40 Add readings

Monitoring object items are listed.

Figure7-41 Add readings

(1) Property

Monitoring target property name is displayed.

(2) Value

Enter the value to add.

(3) Reason for entry

The reason for Add readings is entered.

(4) Send

The added value is sent.

(5) Cancel

Add readings is canceled and the screen is closed.

(6) Help

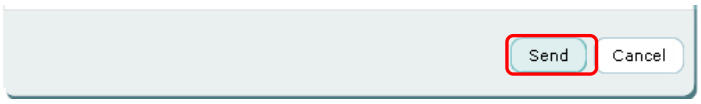
Click , so online help is displayed.

The operation procedure is described below.

1 Enter change value in desirable property input field.

2 Enter the reason for entry.

3 Click [Send] button.




4 Changes are reflected in Reading screen.

# 7.6 File Management

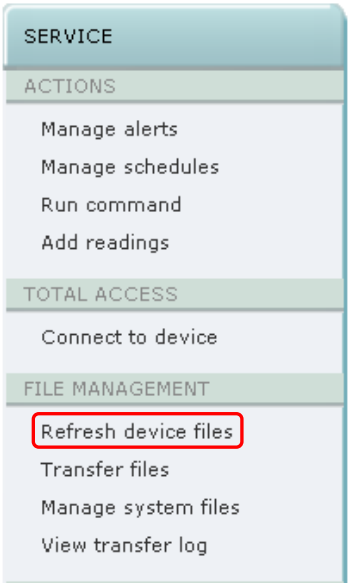
## 7.6.1 Refresh device files .....

Use [SERVICE] - [FILE MANAGEMENT] [Refresh device files] if confirming the information of files which exist in the system as follows.

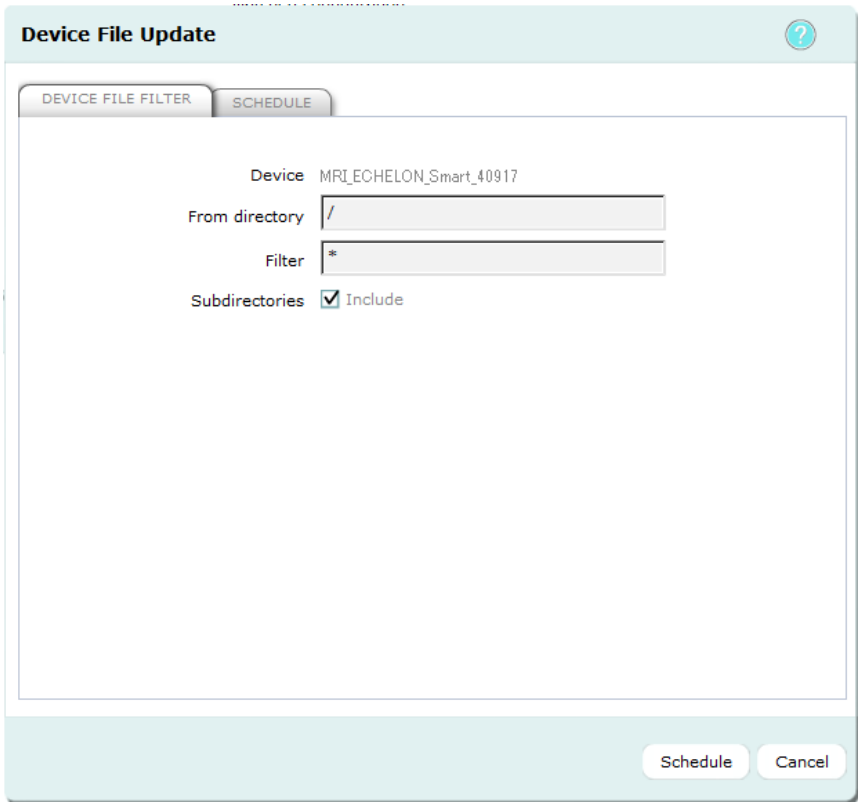
- To transfer files from the device to the server, confirmation of files which exist in the device.
- After they were transferred from the device to the server, confirmation of that files were transferred.

Operate according to the following procedure.

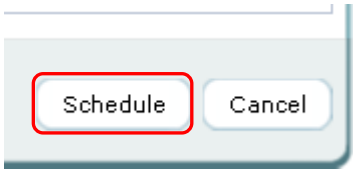
1 Click [SERVICE] - [FILE MANAGEMENT] [Refresh device files].



2 ”Device File Update” of the following screen is displayed.




3 Click “Schedule”.




**NOTE** Use default. Do not change tabs and change setting.

4 Minutes later, files of the system can be referred to from [SERVICE] - [FILE MANAGEMENT] [Transfer files] .

## 7.6.2 Transfer files

[Transfer files] can be used to transfer from the server to the device or from the device to the server.

Select the device to transfer files and click [SERVICE]-[FILE MANAGEMENT]-[Transfer files].

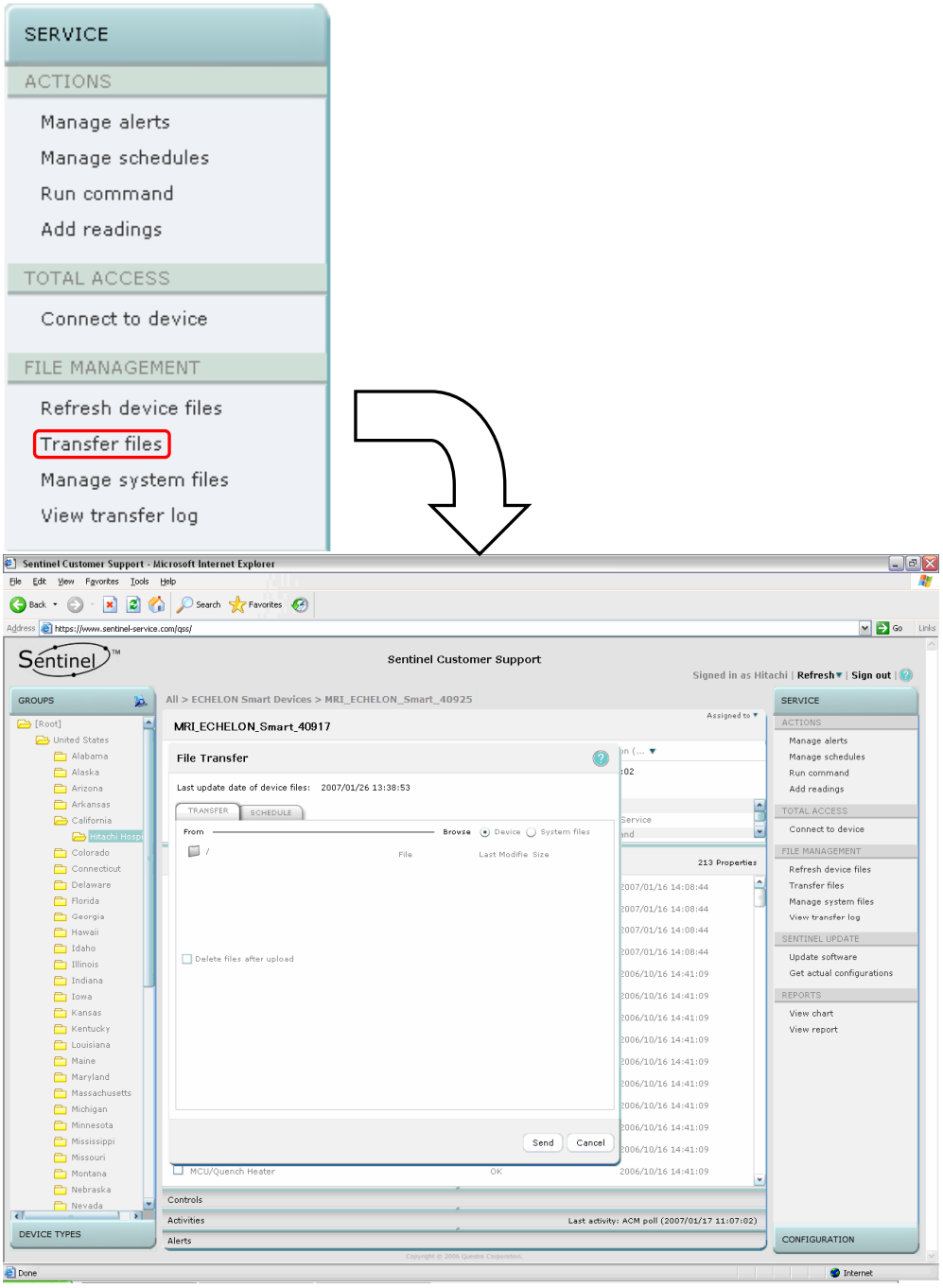



Figure7-42 Transfer files

### 7.6.2.1 Transfer files from the device to the server

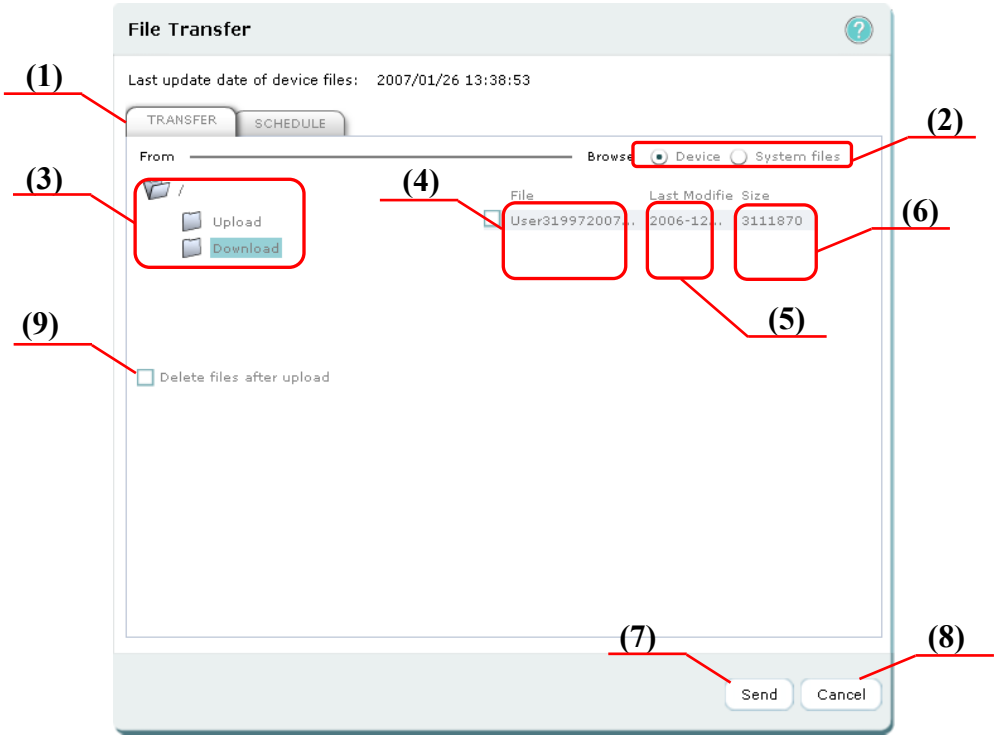



Figure7-43 Screen for transfer from the device to the server

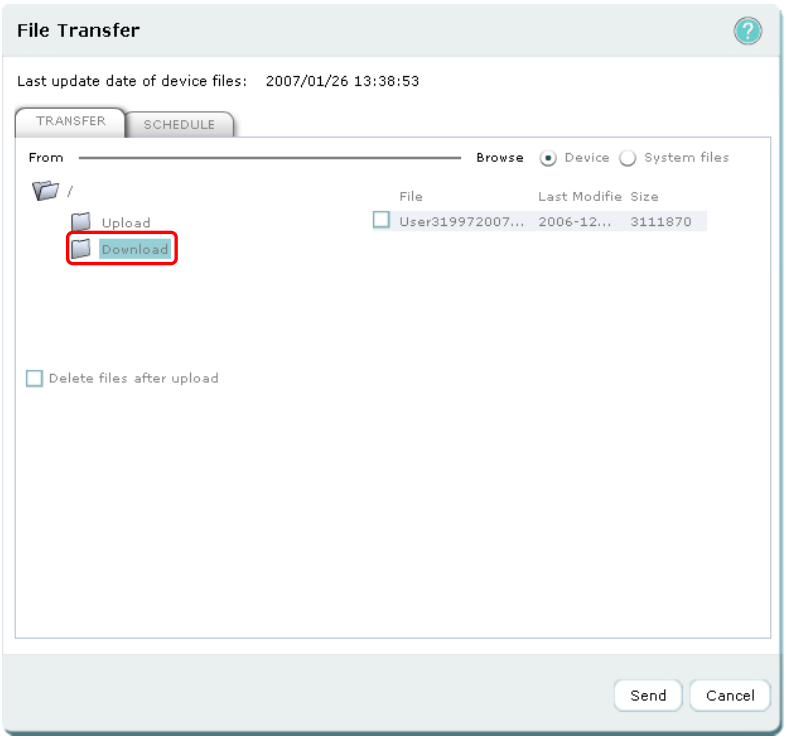
Table7-11 Setup Items of File Transfer (MRI device to server)

| | | |
|---|---|---|
| 1. | Screen switching | TRANSFER screen and SCHEDULE screen can be switched. |
| 2. | From | Transfer source is checked. |
| 3. | Directory | Transferer directory is displayed. |
| 4. | File | A file in the selected directory is displayed. |
| 5. | Last Modified | The last modified date is displayed. |
| 6. | Size | File size is displayed. |
| 7. | Send | A file is transferred. |
| 8. | Cancel | Transfer is canceled and this screen is closed. |
| 9. | Delete files after upload | Tick here if deleting a file after uploading. |

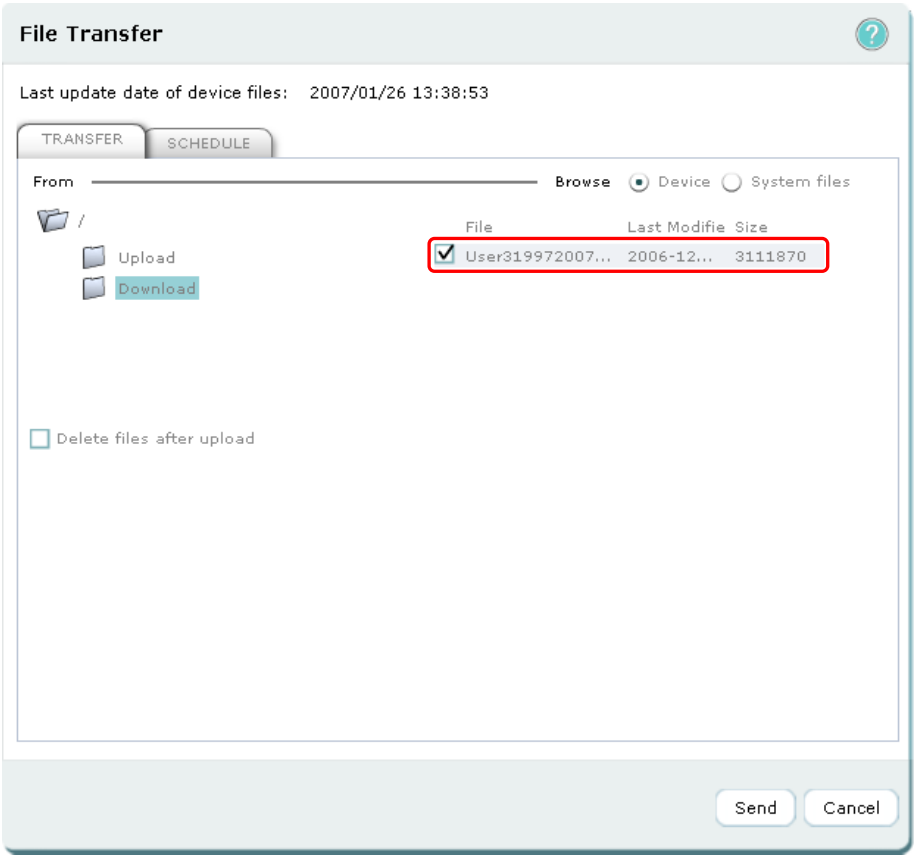
The following it the procedure to transfer from the device to the server.

1 Tick “Device” Browse box on File Transfer screen.

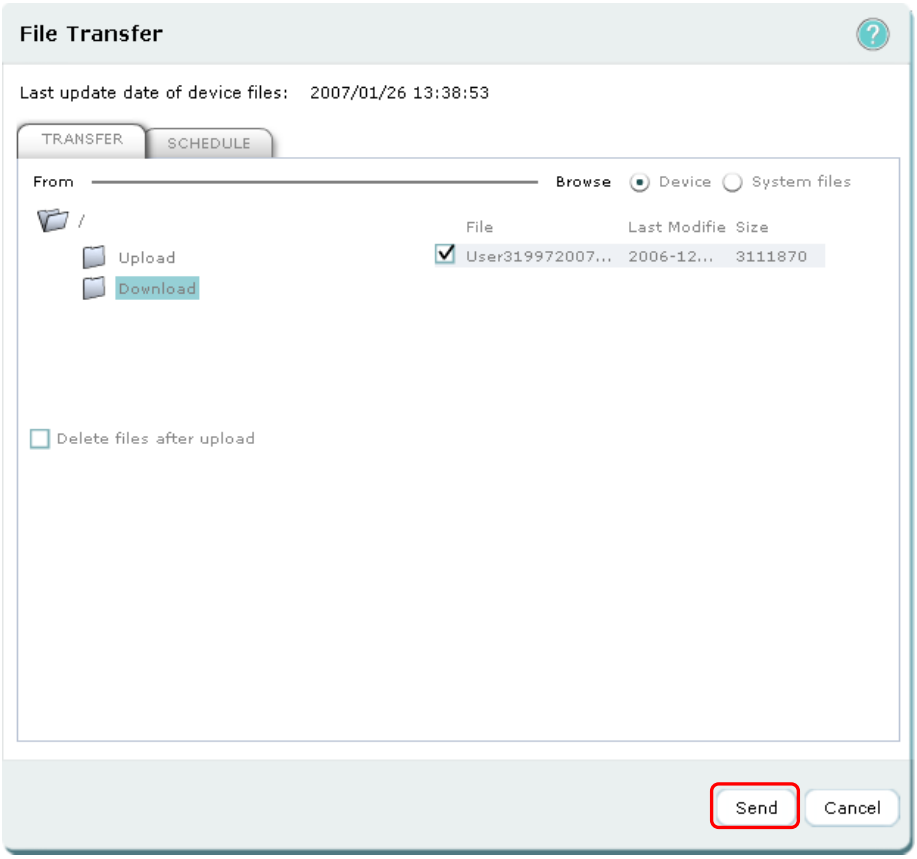
2 Click a directory that includes desirable file to transfer to the server.



3 Tick desirable file to transfer to the server.



4 Click [Send].




**NOTE** If you delete a file in the device after transferring a file to the server, tick Delete files after upload before transferring.

### 7.6.2.2 Transfer files from the server to the device

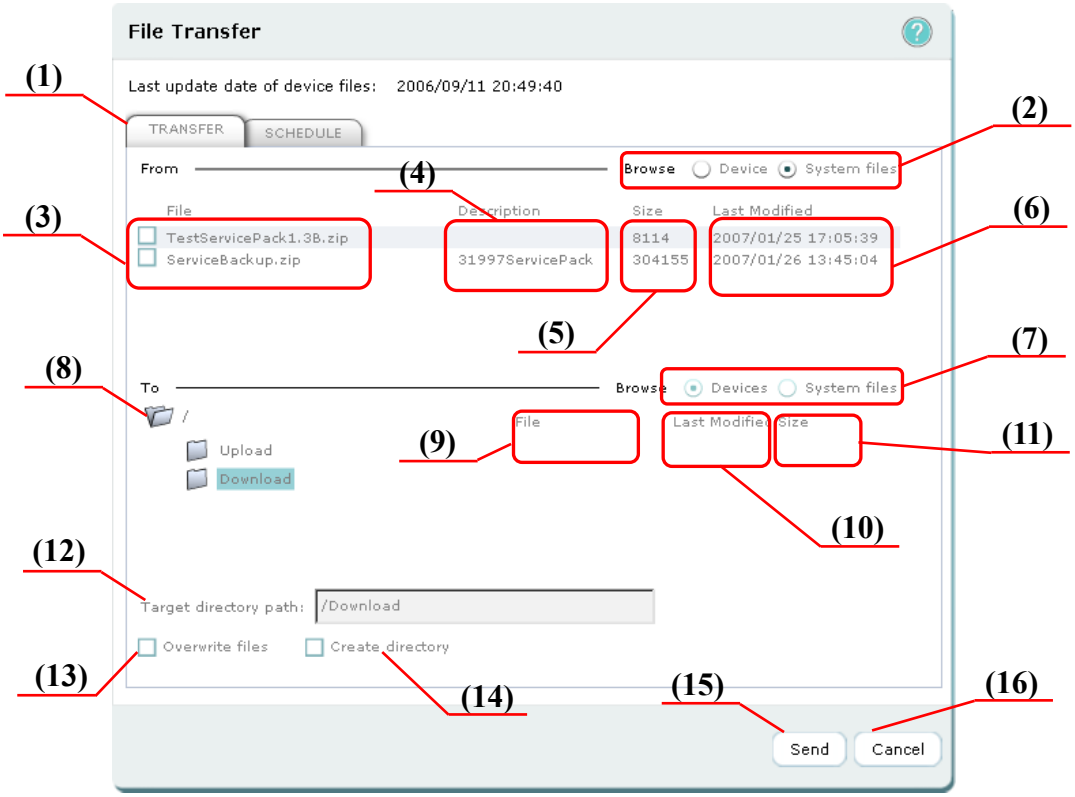



Figure7-44 Screen for transfer from server to the device

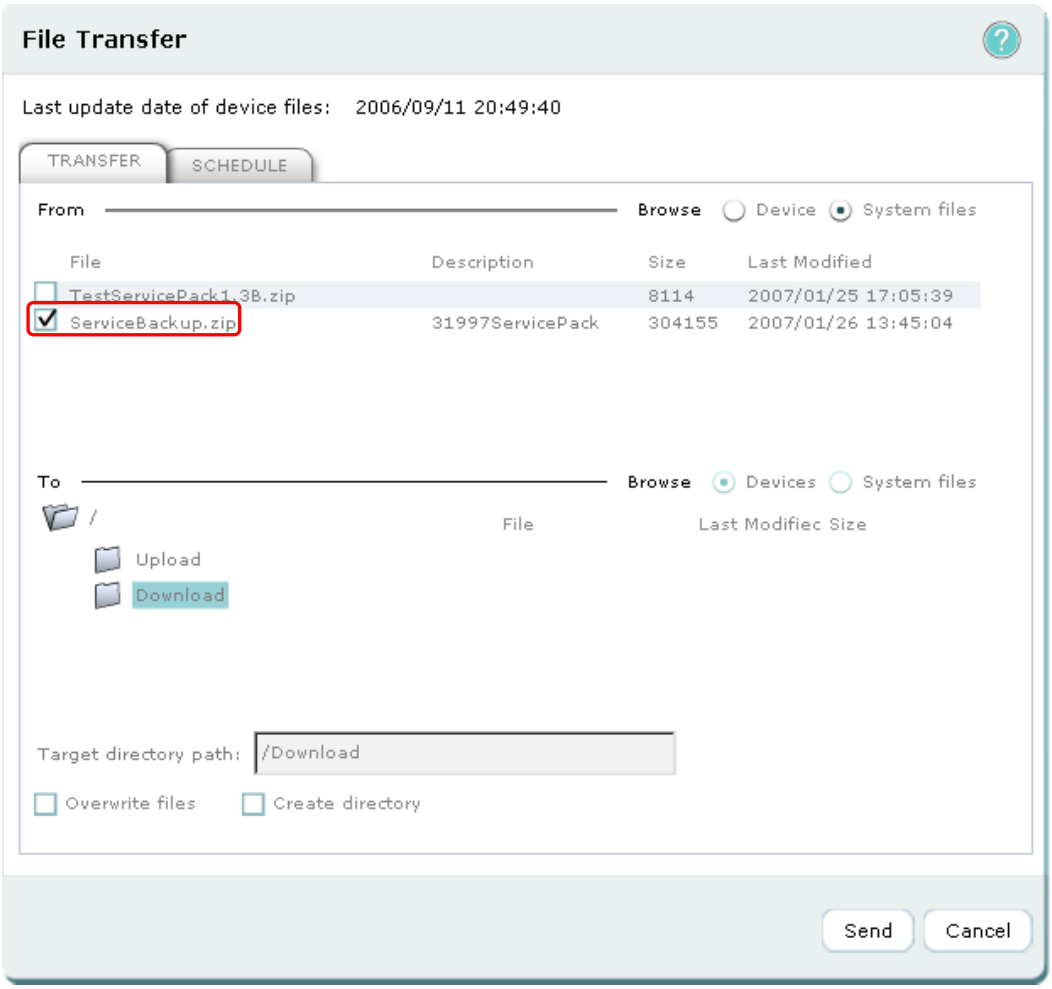
Table7-12 File transfer setup items (the server - the device)

| | | |
|---|---|---|
| 1. | Screen switching | TRANSFER screen and SCHEDULE screen can be switched. |
| 2. | From | Transferer is ticked. |
| 3. | File | The forwarding file is ticked. |
| 4. | Description | File description is displayed. |
| 5. | Size | File size is displayed. |
| 6. | Last Modified | The last modified date is displayed. |
| 7. | To | It is automatically changed after checking a transferer. |
| 8. | Directory | Transferer directory is displayed. |
| 9. | File | A file in the selected directory is displayed. |
| 10. | Last Modified | The last modified date of file is displayed. |
| 11. | Size | File size is displayed. |
| 12. | Target directory path | Specify the directory that a file is saved in. (Specification is possible by directly clicking an icon in a folder) |
| 13. | Overwrite files | Choose whether to overwrite if same name file already exists. |
| 14. | Create directory | New directory is created. |
| 15. | Send | File is transferred. |
| 16. | Cancel | The transfer is canceled and this screen is closed. |

The following is the procedure to transfer from the sever to the device is described below.

1 Tick “System files” Browse box of [From].

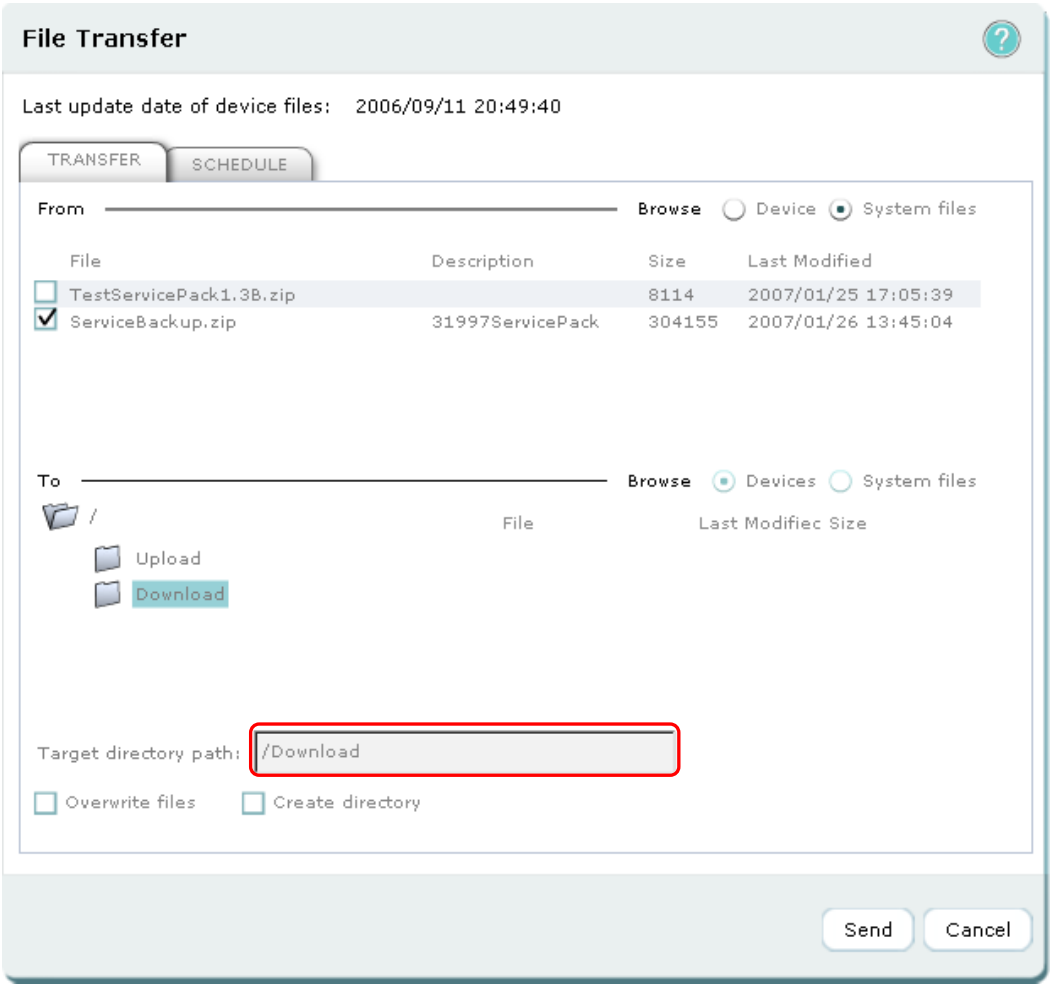
2 Tick desirable file to send to the device.




**NOTE** Upload the file in advance in reference to section 7.6.3.1 if transferring files in Local PC.

3 Specify a directory that a file is saved in.

Enter "/Download "in [Target directory path] box.




4 Click [Send].

**NOTE** If the file that has same name already exists, tick ☐ Overwrite files before transferring.

## 7.6.3 Manage system files

The list of files stored in the server is displayed.

It is also possible to upload files in Local PC and download files stored in the server.

System Files in the following list are displayed.

Table7-13 Display of System Files

| Condition | Display of Files |
|---|---|
| A file that is uploaded from user's Local PC. | Yes |
| A file that is transferred from the device registered with the group user belongs to. | Yes |
| A file that is uploaded from Local PC by the other user. | No |
| A file that is transferred from the device registered with the group user does not belong to. | No |

Moreover, the system file has the file type that exists in the following table.

Table7-14 System File kinds

| File Name | Contents |
|---|---|
| Screen_{Device Name_YMDHMS}.png | This file is uploaded after image capture command is executed. See section 7.4.2.1 |
| diag_dump_info_{System name}_{Serial number}_{"MonthDay"}_{"HourMinuteSecond"}.zip | This file is uploaded after log collection command is executed. See section 7.4.2.2 |
| BELogFile.zip | |
| ScanLogFile.Zip | |
| ReconLogFile.zip | |
| ServiceBackup.zip | This file is uploaded after service backup command is executed. See section 7.4.2.3 |
| DICOM{YMDHMS}.zip | This file is generated when the library is acquired from MRI device. See section 7.7.6 |
| {User + "Serial No" + "Data"}.zip | {User +"Serial No" + "Date"}.zip is generated when a library is acquired from MRI device. See section 7.7.7 |
| {YMD}.txt | {YMD}.txt is the defect report sent from MRI device by Sentinel Messenger. See Instruction Manual. |
| LogReader.msi | LogReader.msi is the install file of Log Reader. |
| {Manual Name}.pdf | {Manual Name}.pdf are various manual. |
| PrescanData_{"YMDHMS"}.zip | This file is uploaded after Get Prescan Data command is executed.<br>See section 7.4.2.8 |

| File Name | Contents |
|---|---|
| {Unit name}Log_{"YMDHMS"}.zip | This file is uploaded after Collect Hardware Status Log command is executed.<br>See section 7.4.2.10 |
| ManageSupportTotal.xml | This file contains operation report for one month.<br>This file is generated once a month. |
| ManageSupportDaily_{“YMDHMS”}.xml | This file contains last operation report. It is generated every time power on the MRI system. |

Select the device to refer files and click [SERVICE]-[FILE MANAGEMENT]-[Manage system files].

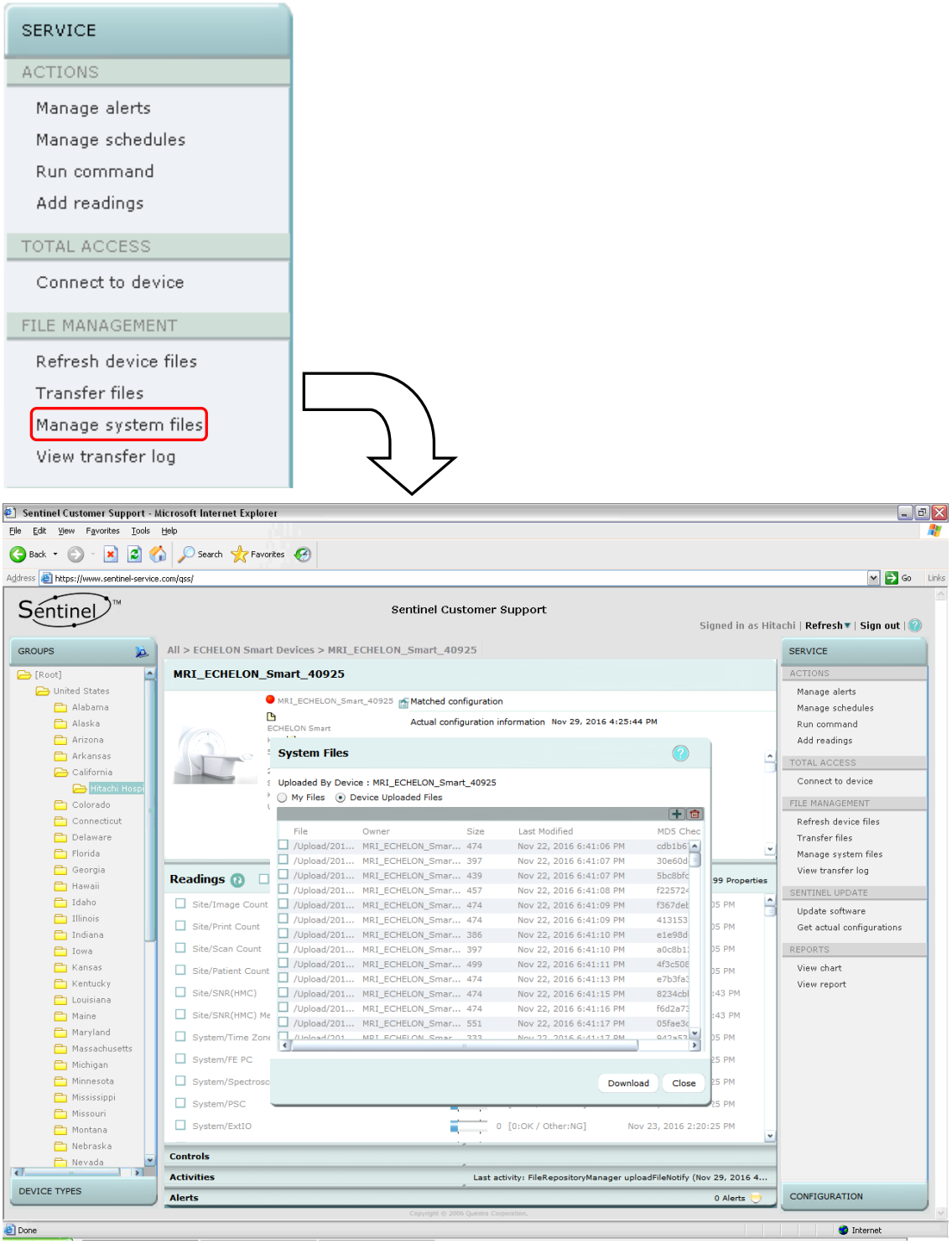



Figure7-45 Whole screen of Manage system files

The system file management screen is displayed.

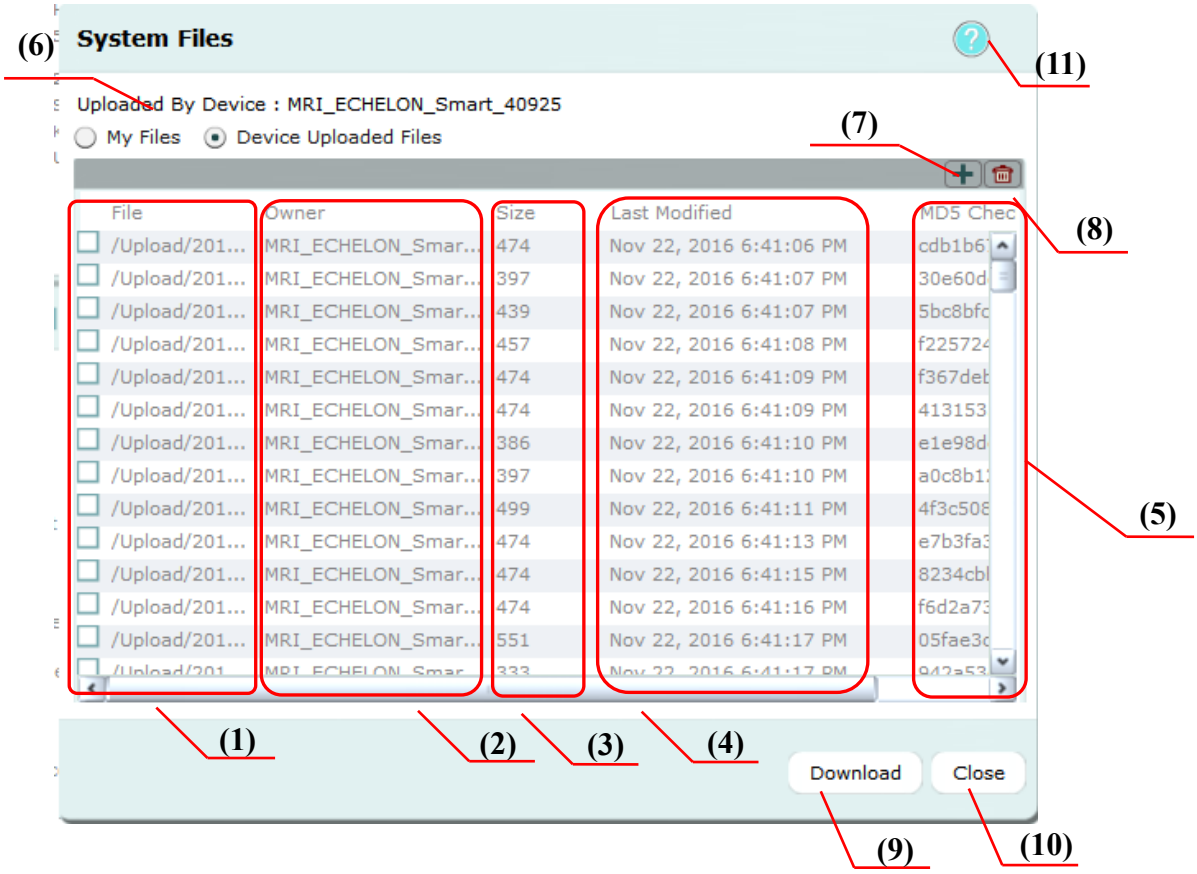



Figure7-46 Manage system files (Device)

(1) File

File names are indicated. Tick the box on the left side if downloading or deleting files.

(2) Owner

File owner is displayed.

(3) Size

File size is displayed.

(4) Last Modified

The file date is displayed.

(5) MD5 Checksum in Hex

File MD5 checksum is indicated.

(6) Change display

File upload source which “System Files” screen indicates can be changed by “My Files” and “Device Uploaded Files”.

(7) Add

File can be uploaded from local PC if you click .

(8) Delete

A ticked file is deleted if you click .

(9) Download

By clicking, selected files can be downloaded.

(10) Cancel

This operation is canceled and the screen closes.

(11) Help

Online help is displayed if you click .

By changing displays, the list of files uploaded by users is displayed.

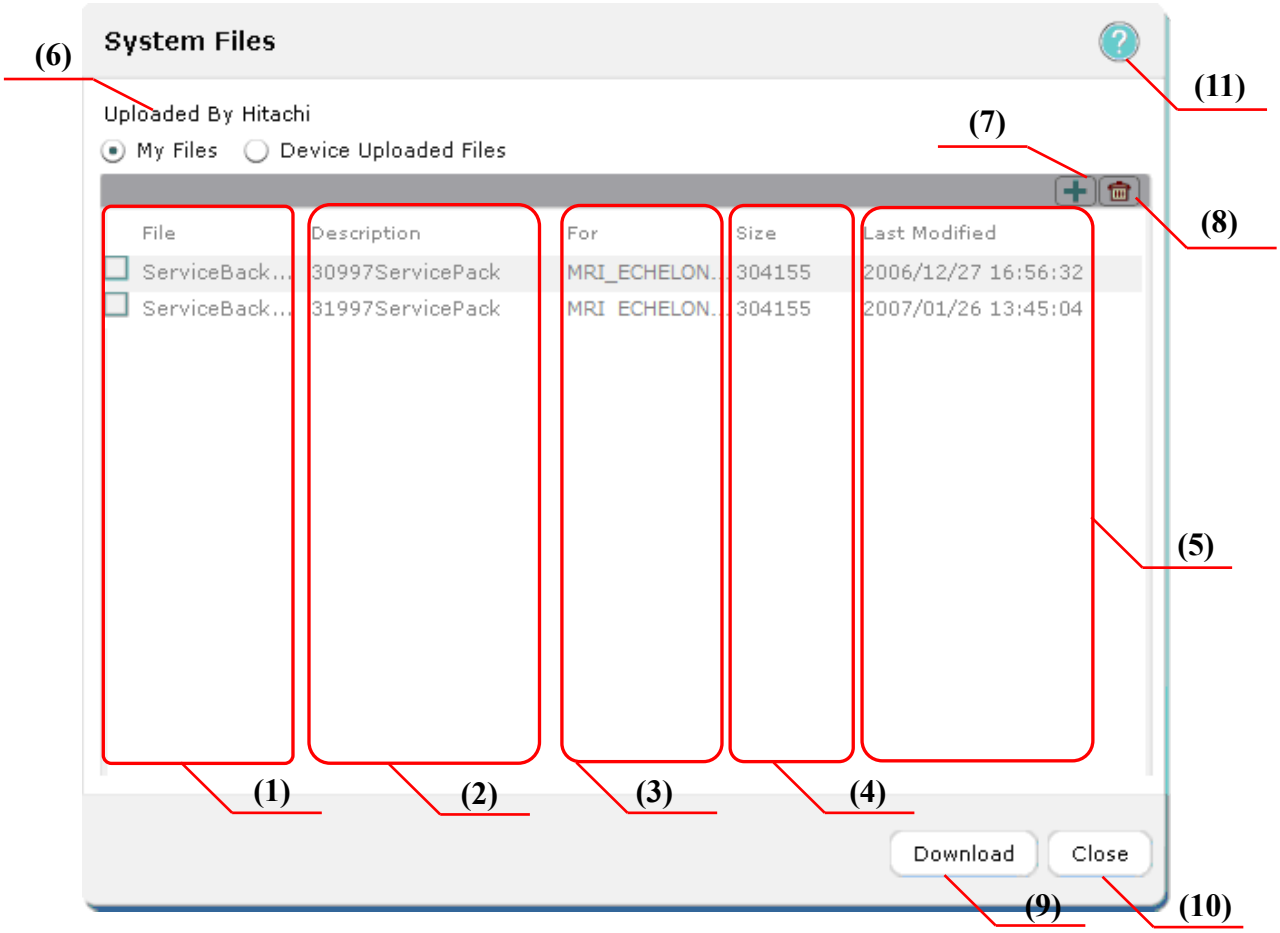



Figure7-47 Manage system files (User)

(1) File

File names are indicated. Tick the box on the left side if downloading or deleting files.

(2) Description

The description which was input at the time of upload is indicated.

(3) For

The names of the device and the group which were selected at the time of uploading files are indicated. “Friendly name” which was registered in “Personal Configuration” is indicated at the time of upload without selection. (Refer to Chapter 7.13.)

(4) Size

File size is displayed.

(5) Last Modified

The file date is displayed.

(6) Change display

File upload source which “System Files” screen indicates can be changed by “My Files” and “Device Uploaded Files”.

(7) Add

File can be uploaded from local PC if you click .

(8) Delete

A ticked file is deleted if you click .

(9) Download

By clicking, selected files can be downloaded.

(10) Cancel

This operation is canceled and the screen closes.

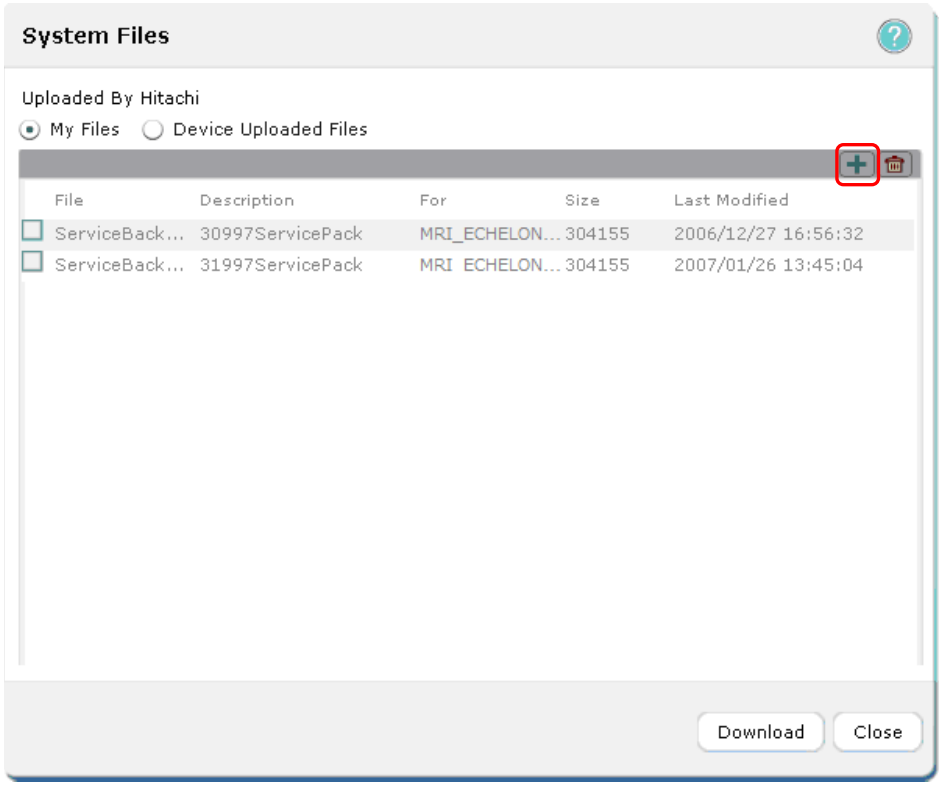
(11) Help

Online help is displayed if you click .

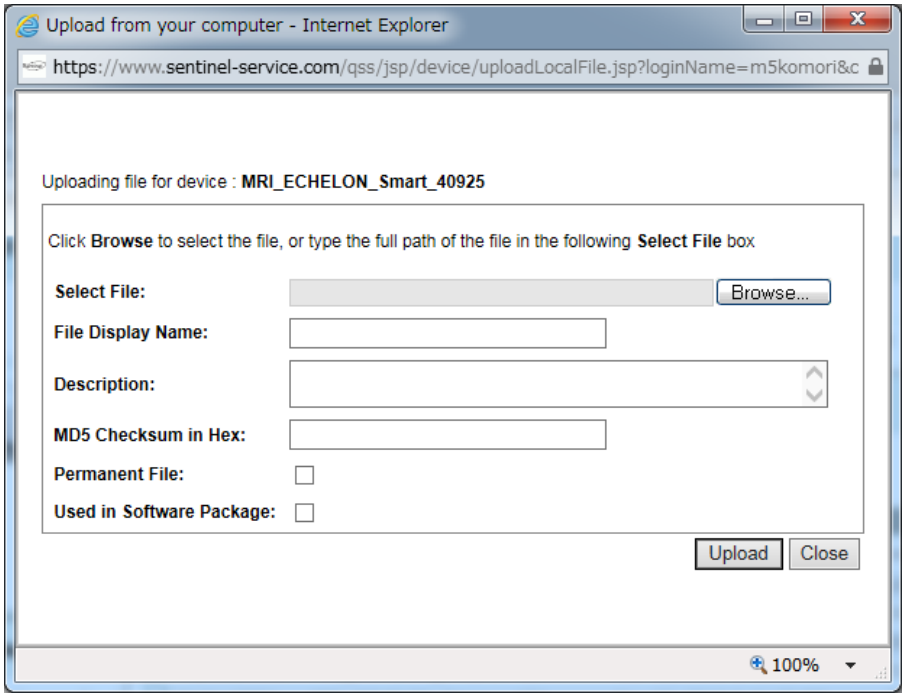
### 7.6.3.1 Upload from Local PC to the server

The following is the procedure to upload from Local PC to the server.

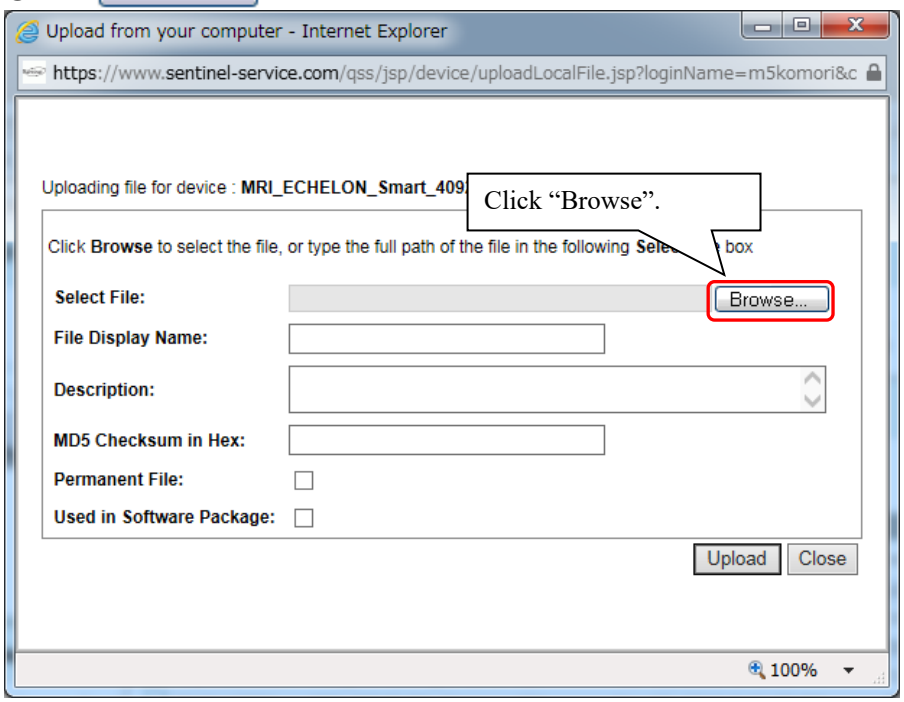
1 Display “My Files” and click .



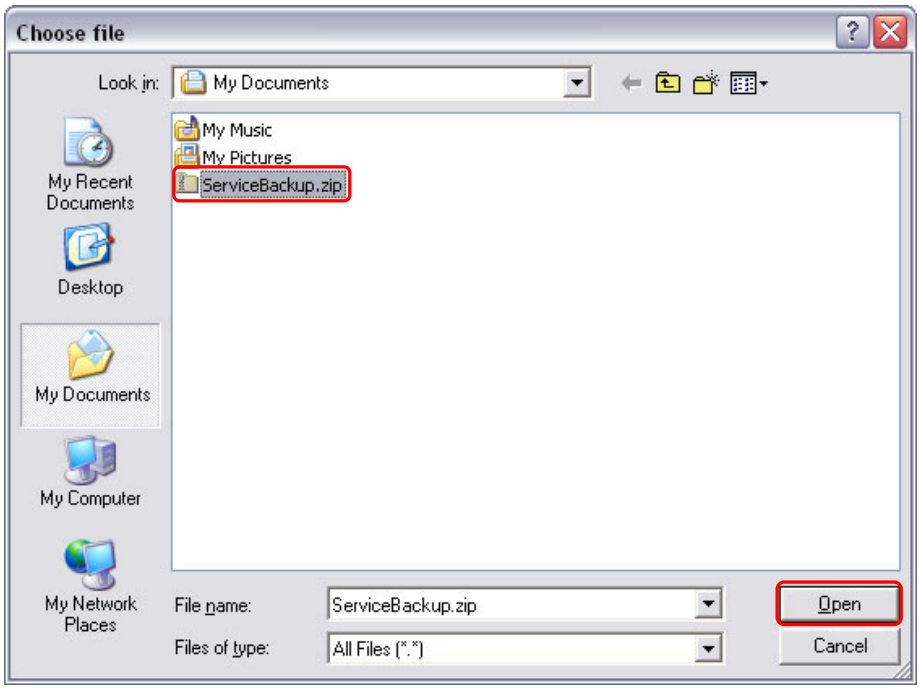

2 The reference screen of files to upload is displayed.



3 Click Browse...

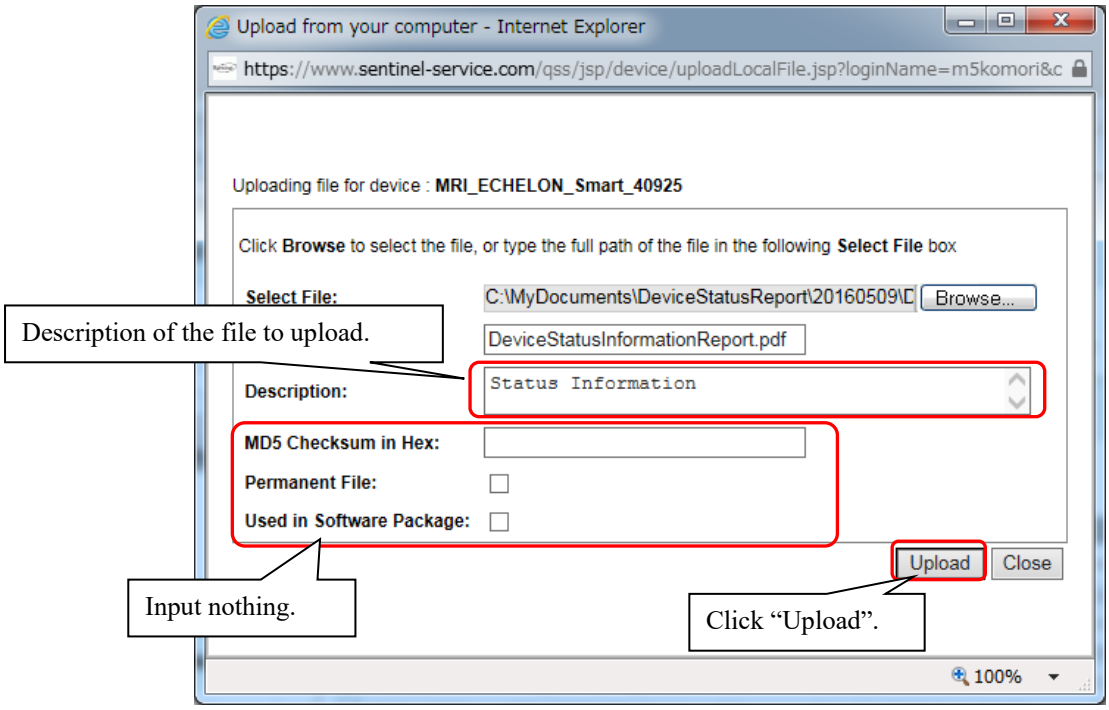



4 Select a file.

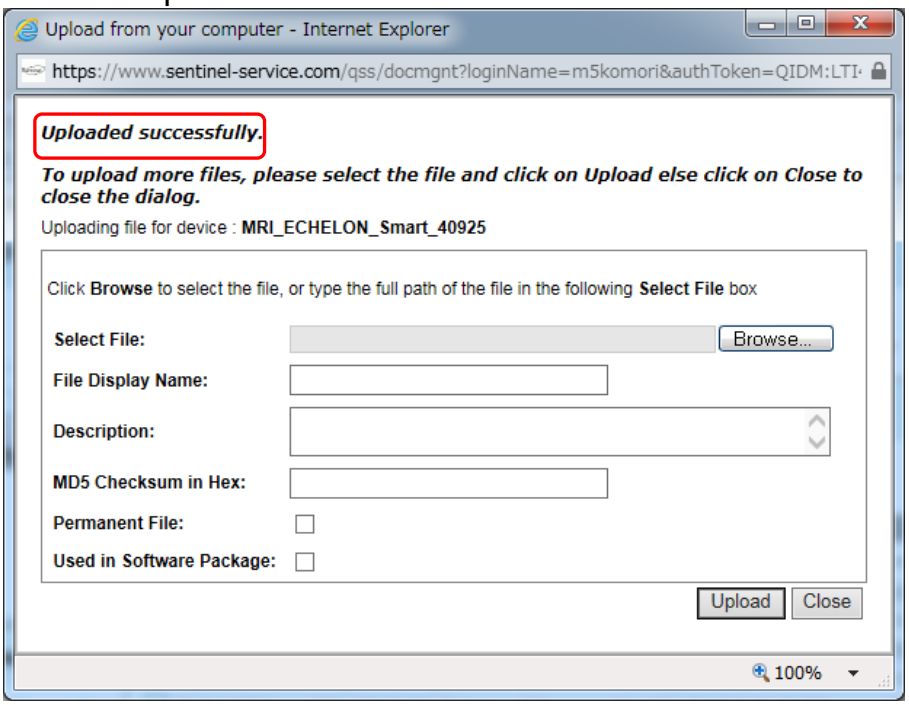



File name corresponds to only alphabetic one byte characters. Japanese file name can not be specified.

5 Input “Description” and click Upload.



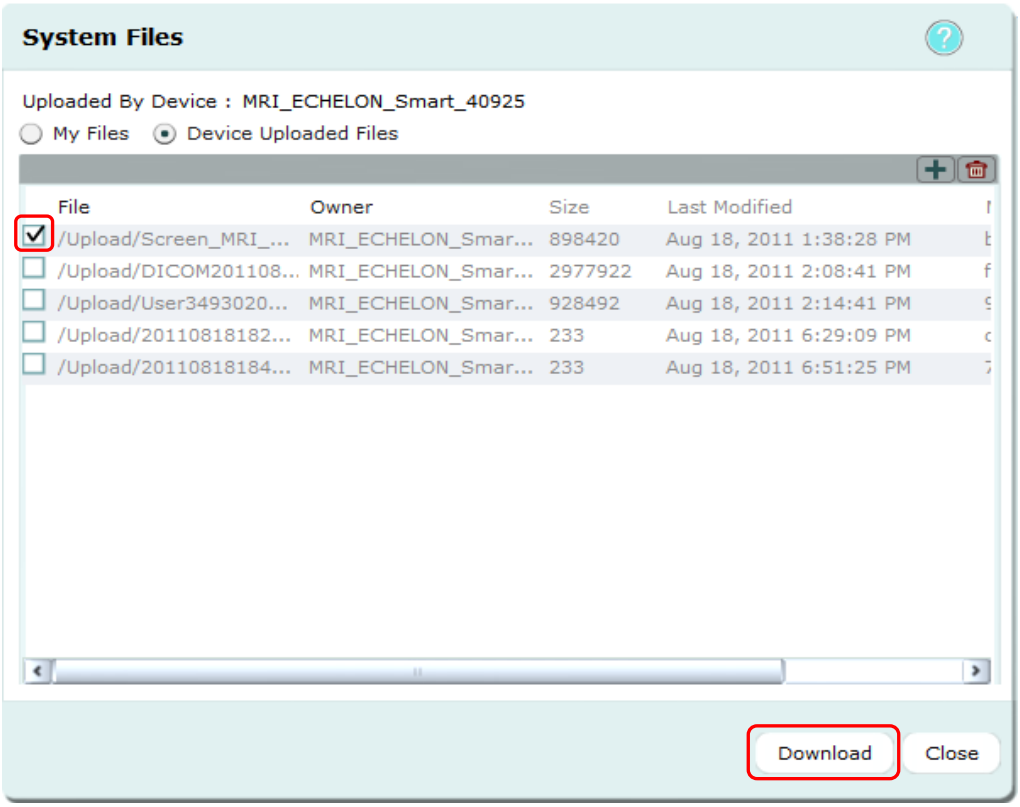

6 The file is uploaded.



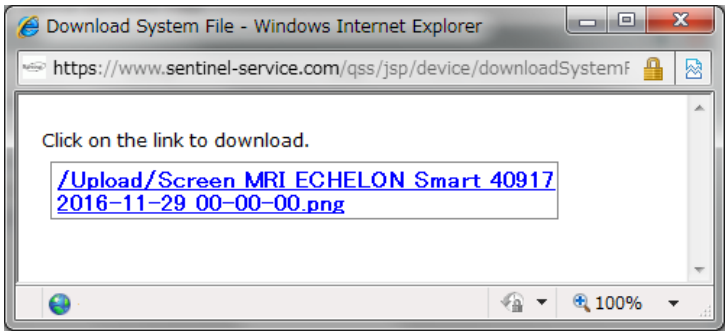
### 7.6.3.2 Download files from the server to Local PC.

The following is the procedure to download files from the server to Local PC.

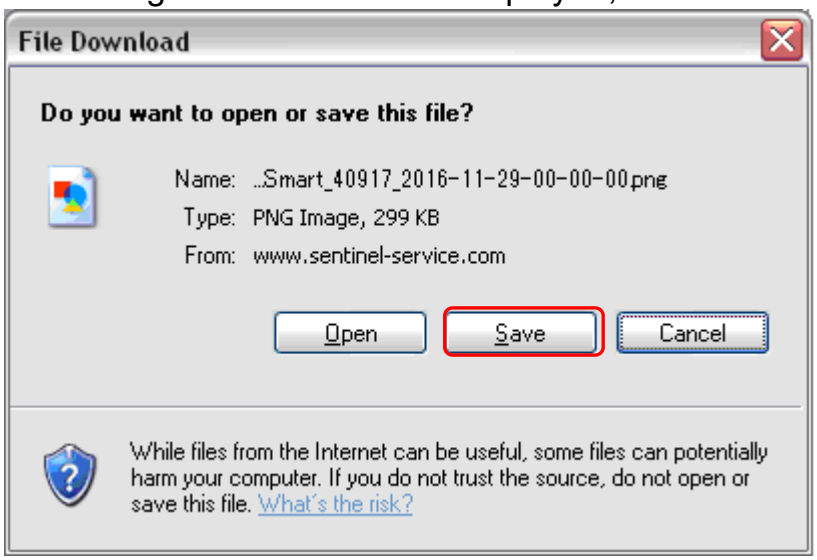
1 Select the desirable file to download and click “Download”. (Multiple selection is accepted.)



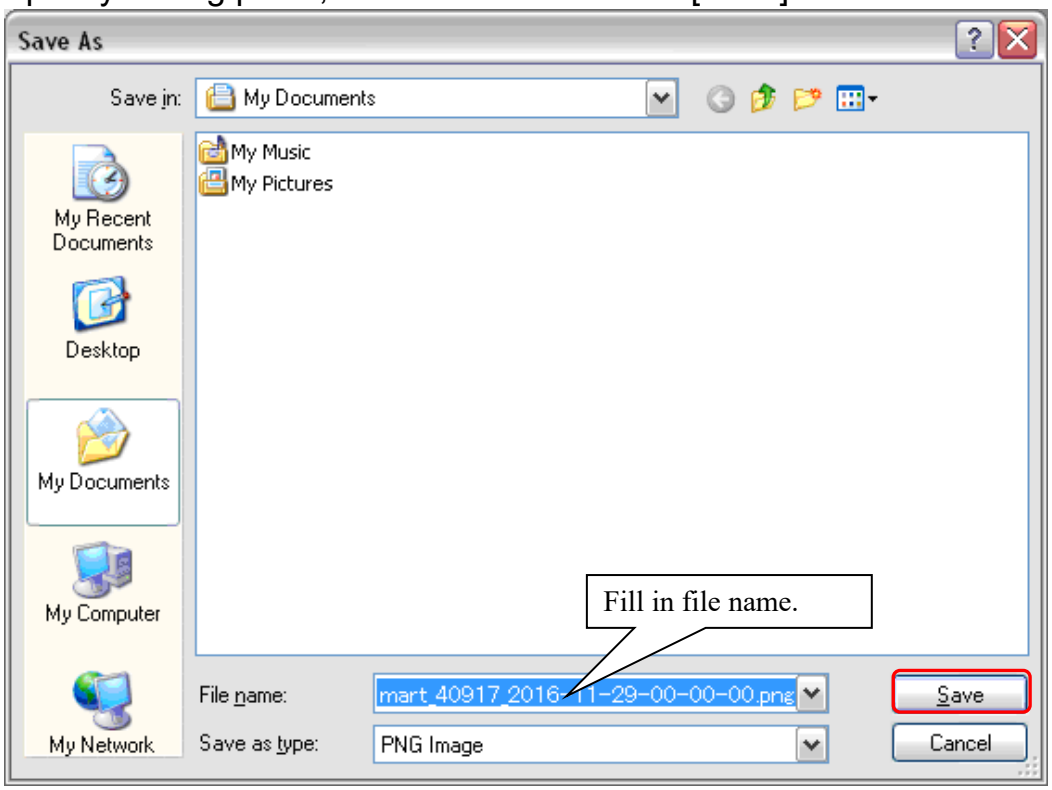

2 The following window is displayed, so click a link.



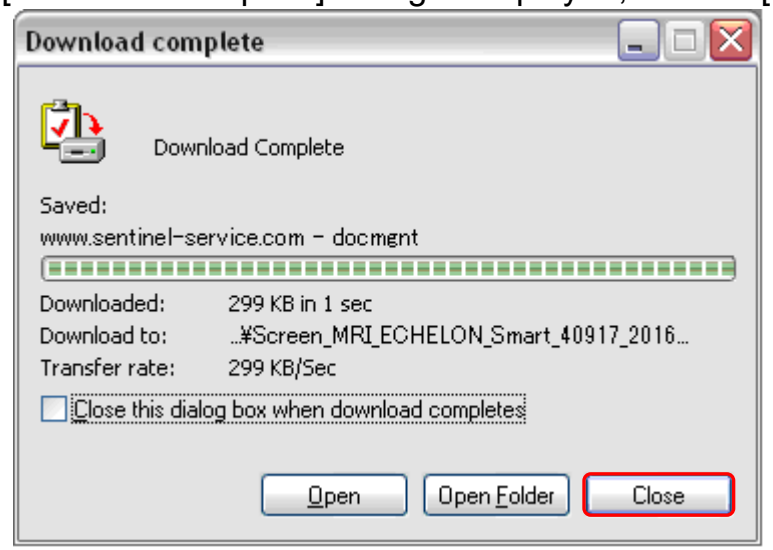
3 The dialog of file download is displayed, so click “Save”.




4 Specify saving place, the file name and click [Save].



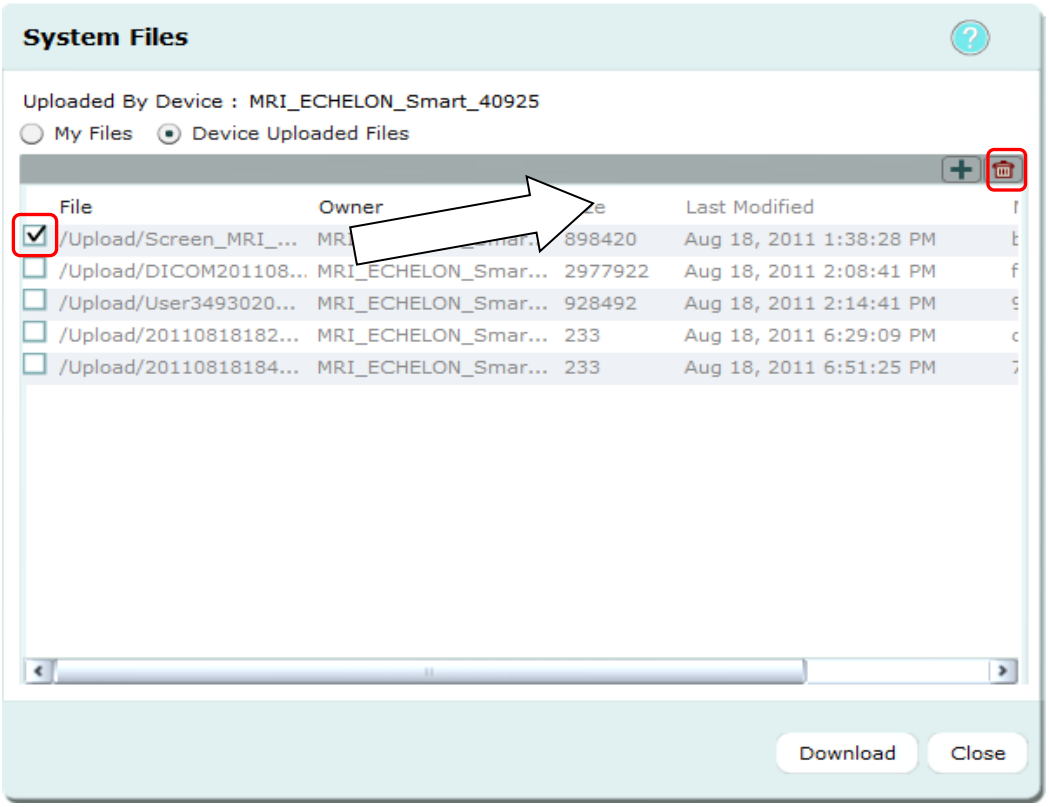
5 [Download complete] dialog is displayed, so click [Close] button.



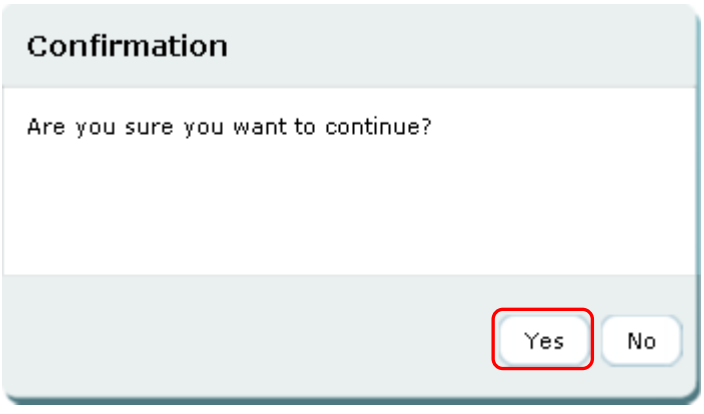
### 7.6.3.3 Server file deletion

Operate according to the following procedure if deleting the file which was uploaded to the server.

1 Tick the box ☑ of the file to delete and click 🗑.




2 The dialog of “Confirmation” is displayed, so click “Yes”.

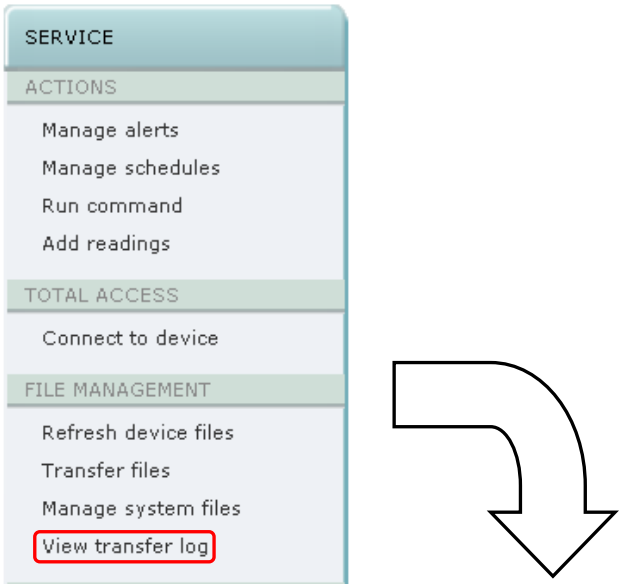



3 The file is deleted.

## 7.6.4 View transfer log

It is possible to refer to the transfer log from the server to the device and from the device to the server.

Selected device View transfer log is displayed.



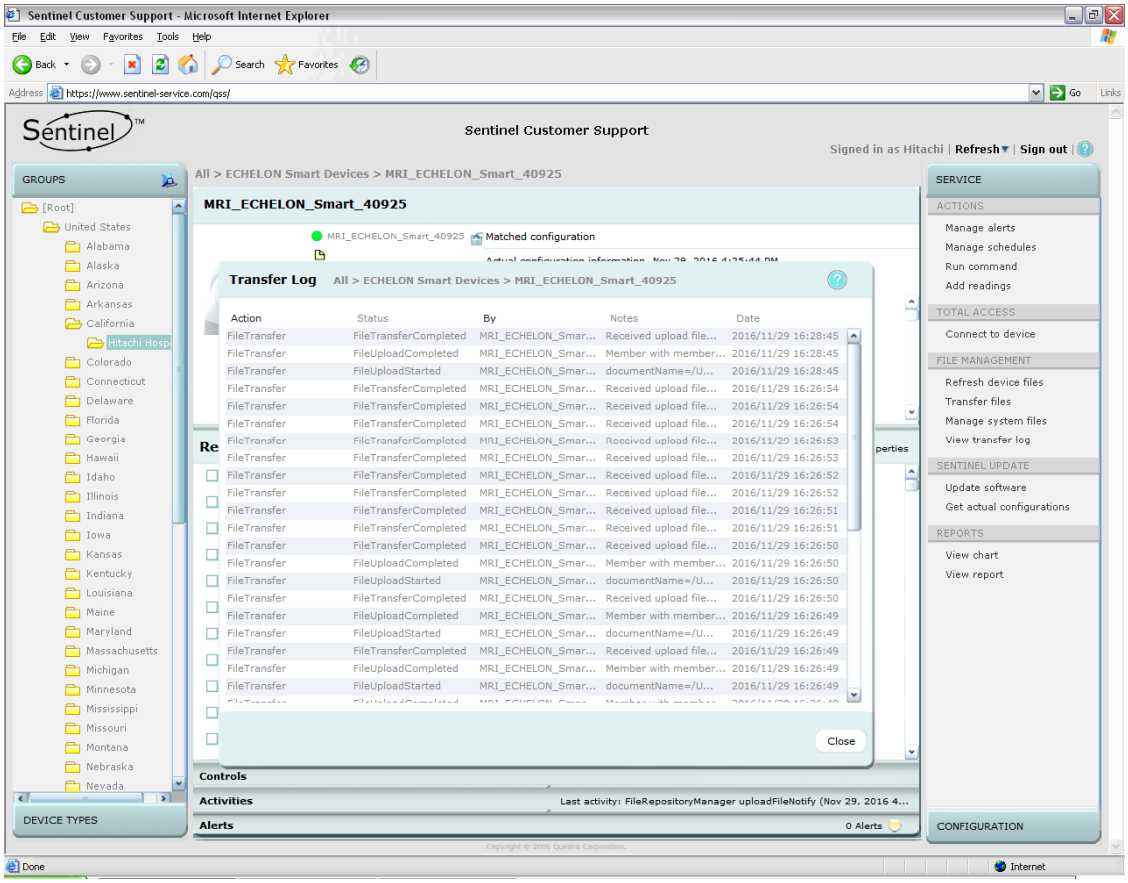




Figure7-48 Whole screen of View transfer log

Figure7-49 View transfer log

(1) Action

The action content is displayed.

(2) Status

The action status name is displayed.

(3) By

The transfer source is displayed.

(4) Notes

Transfer Log is displayed.

(5) Date

File transfer date is displayed.

# 7.7 Connect to device

- By remote desktop function, device can be controlled by remote and operation procedure can be explained.
- Because operation screen can be confirmed at the time of error occurrence, trouble situation can be grasped immediately.
- It is possible to confirm the operation screen as well as the taking picture parameter when a defective image is created.

Perform it according to the following flow if performing remote desktop in devices.

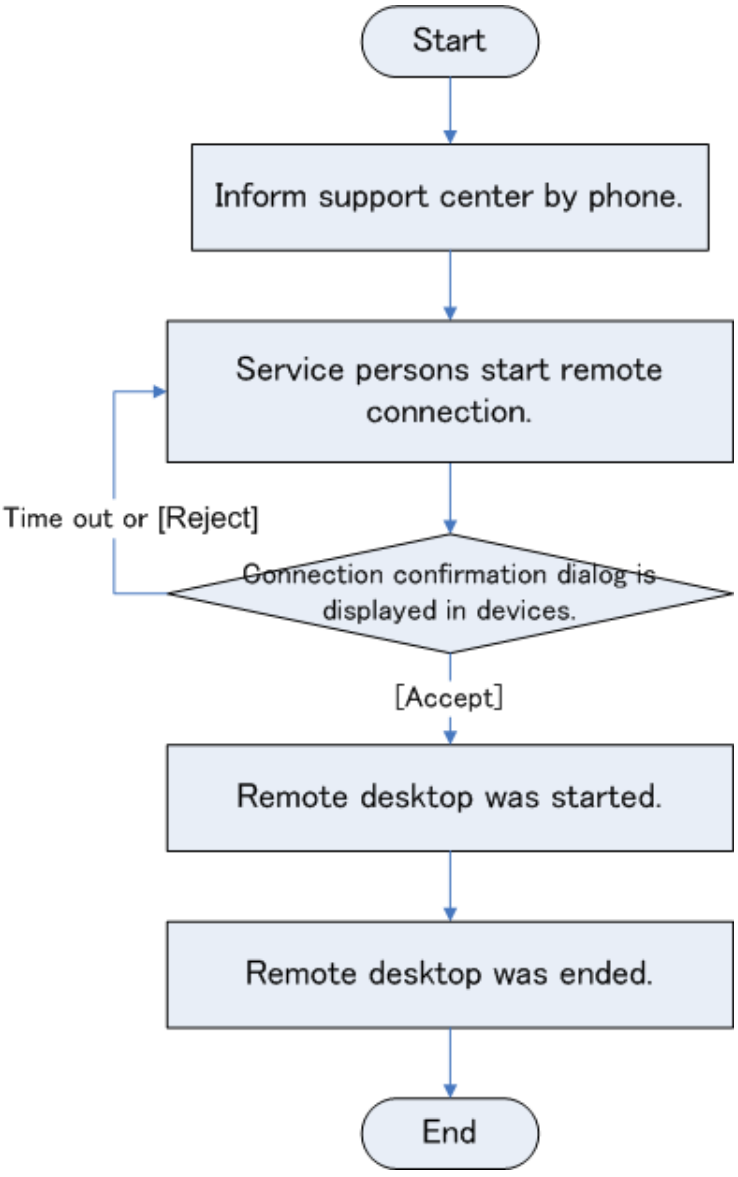


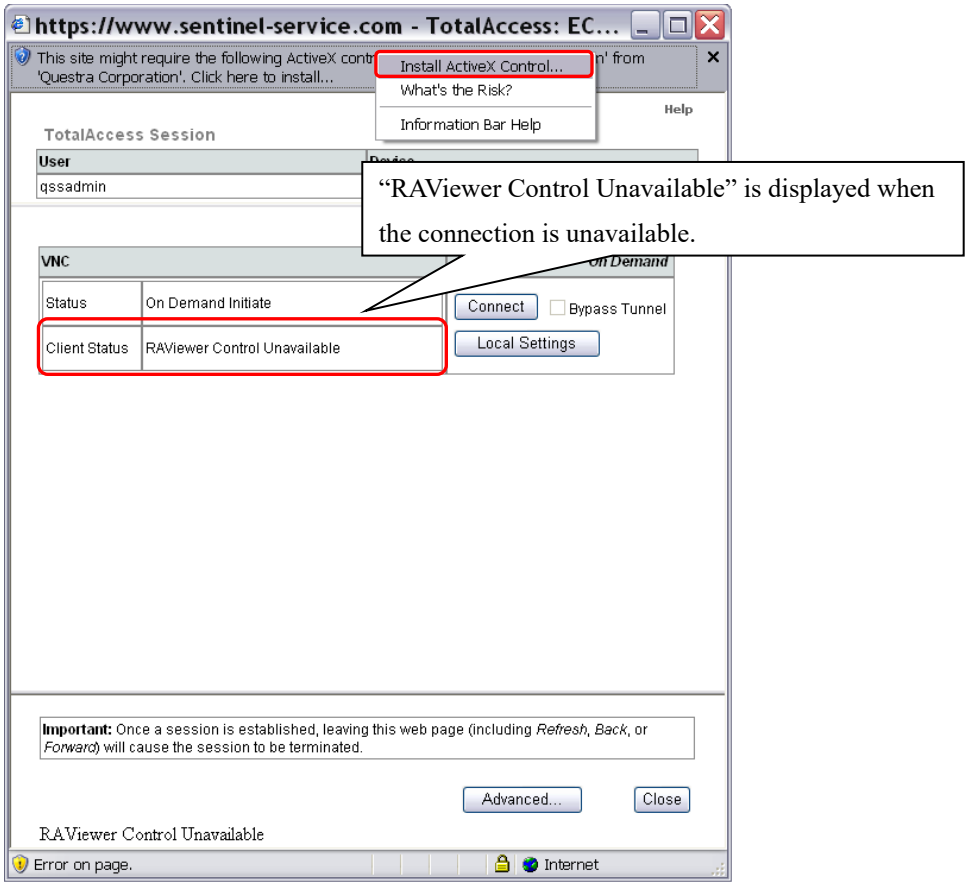

Figure7-50 A flowchart to perform remote desktop connection

## 7.7.1 Before Start .....

1 Click [SERVICE] - [TOTALACCESS] - [Connect to device].

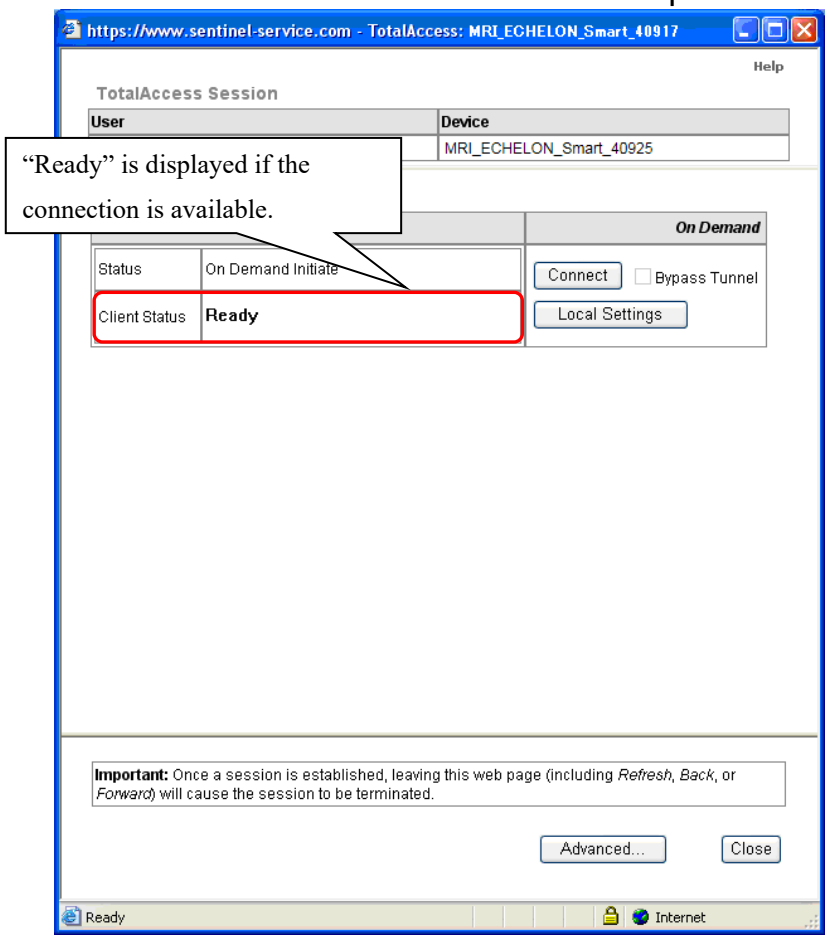
The ActiveX install screen is displayed for Windows 7 before the remote desktop function is executed. (Initial connection only)

2 Select [Install ActiveX Control].




3 Click [Install] button.

4 Device can be connected if installation is completed.

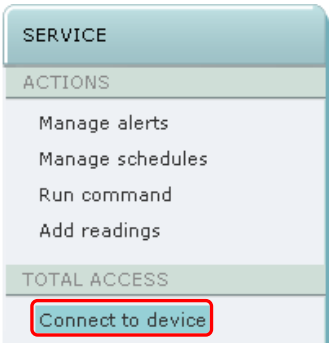


## 7.7.2 How to start

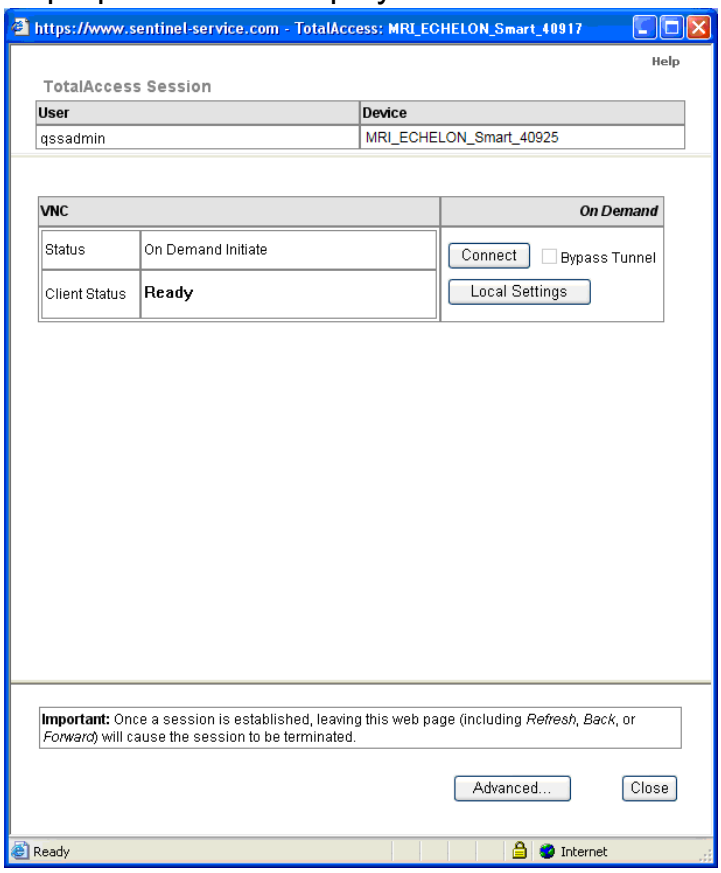
Remote desktop is used on the device.

The following is the procedure.

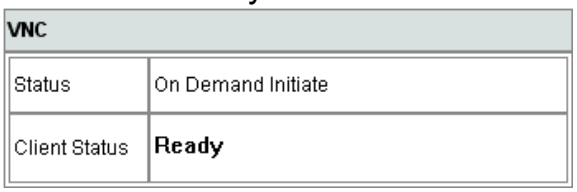
1 Click [SERVICE] - [TOTAL ACCESS]-[Connect to device].



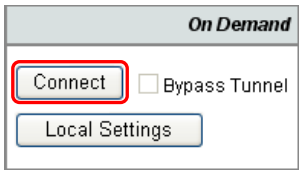

2 Pop-up window is displayed.



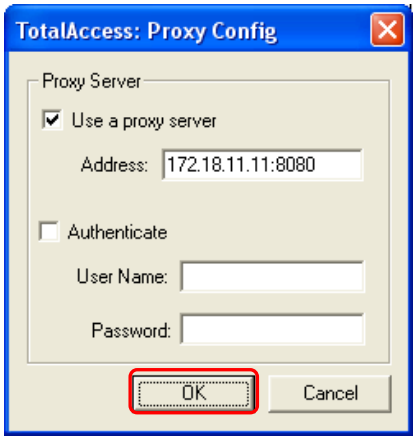
3 Wait until “Ready” character is indicated.



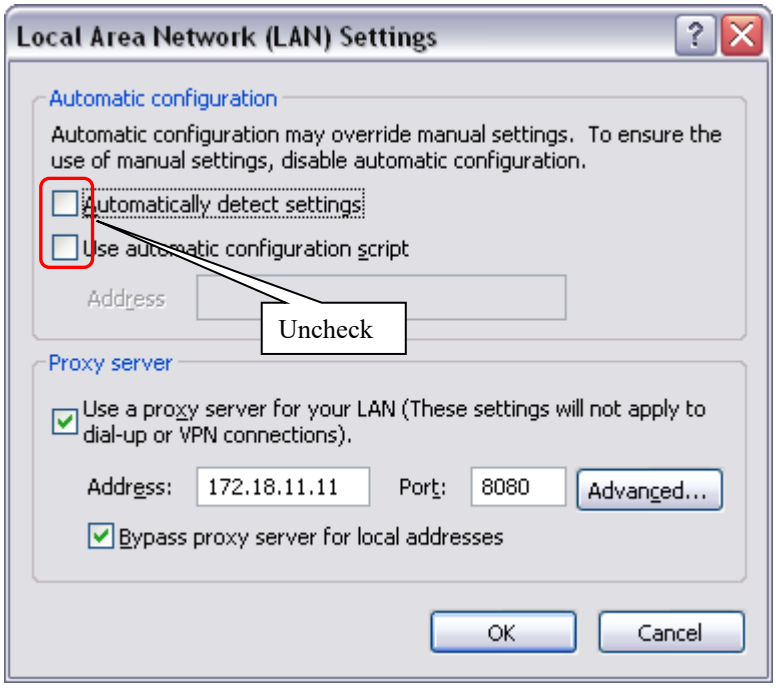

4 Click [Connect] button.




5 The following screen is displayed if proxy server is set up. Click [OK] button.

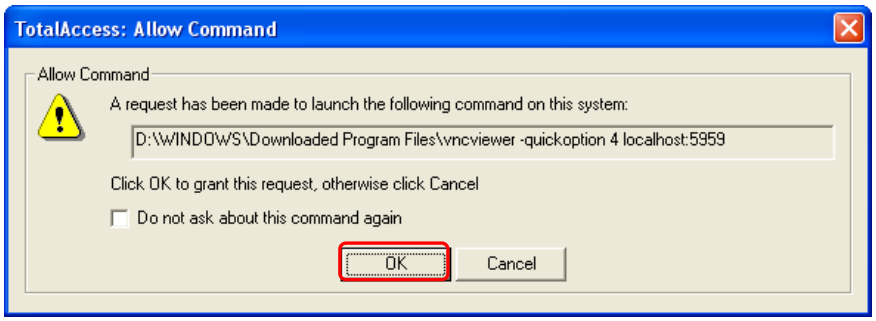



**NOTE** If “Automatically detect settings” is ticked in Internet Explorer LAN settings , the connection is unavailable. Set up the address and port.



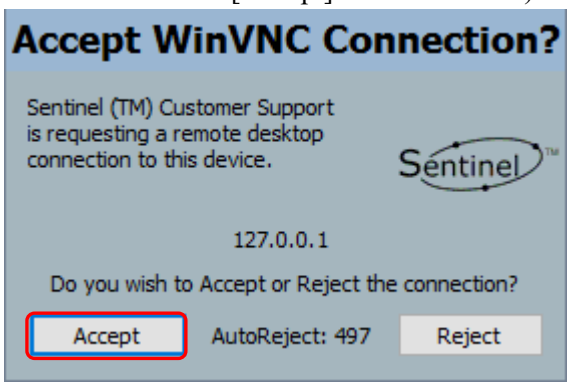
6 “Security Alert” pop-up is displayed if Firewall in Windows 7 is available. Click “Unblock”. (Initial connection only)

7 Click [OK] if the next pop-up appears.




8 The following confirmation screen is displayed on the screen of the device.

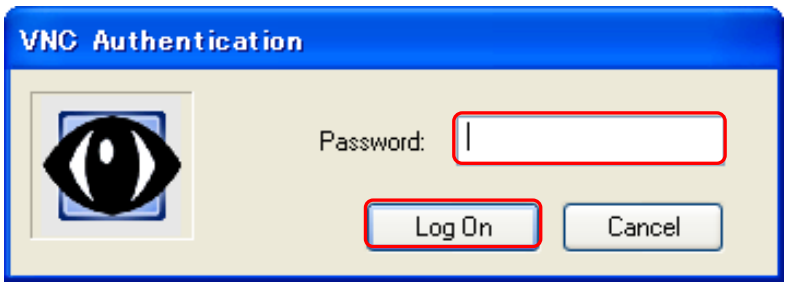
Access is available only if a user clicks [Accept]. (Reject is automatically applied if a user does not click [Accept] in five minutes.)



A dialog that indicates the users connecting with devices is displayed if [Accept] button is clicked.

9 Login/Password screen is displayed if the connection is authorized by the device.

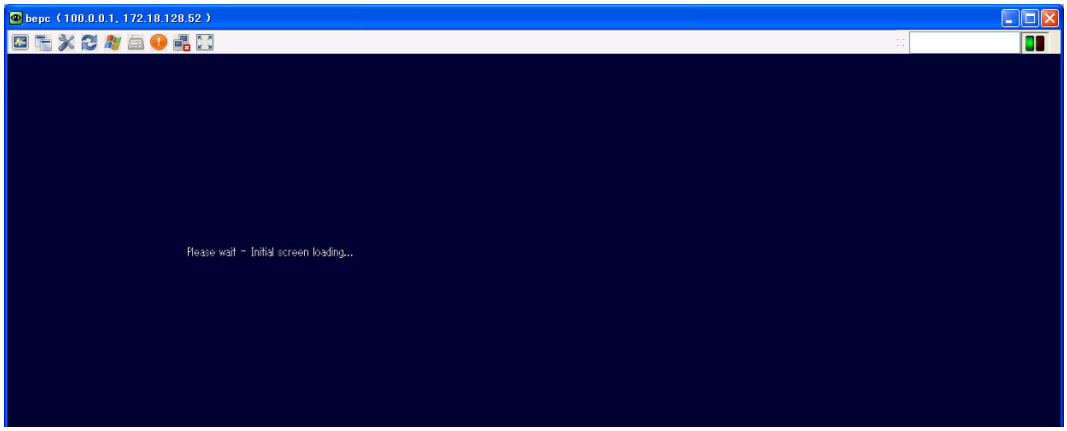
Enter a password.（Contact the system manager regarding a password.）



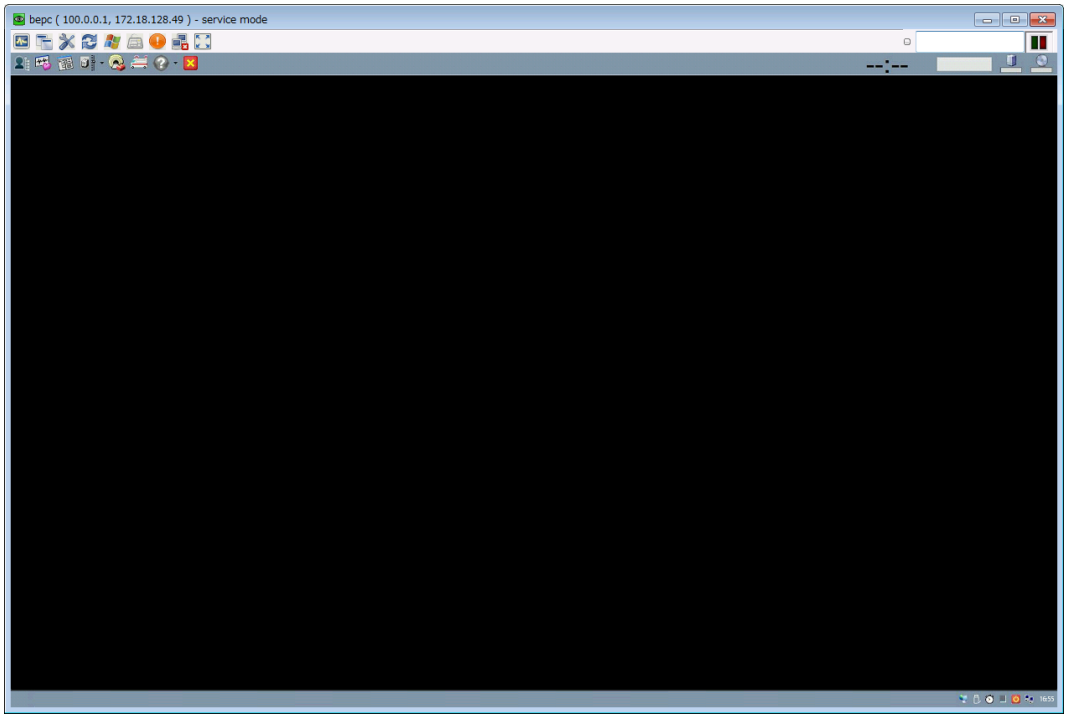

**NOTE** Close the screen and restart from the beginning if wrong password is inputted.

10 The viewer is launched when the connection is provided.

It takes few minutes to display the desktop.



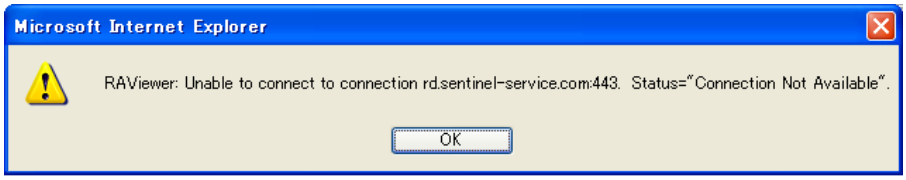
11 Device desktop is displayed.

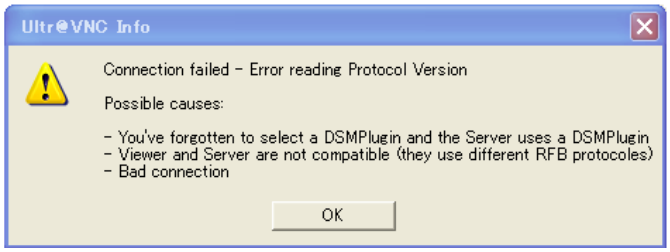



**NOTE** Wallpaper becomes black at the time of remote desktop connection.

12 Click or icon to terminate remote desktop connection.

**NOTE** If the following error appears at VNC connection, reconnect after a few minutes.



## 7.7.3 VNC viewer

The following VNC viewer is launched when the remote desktop is executed.

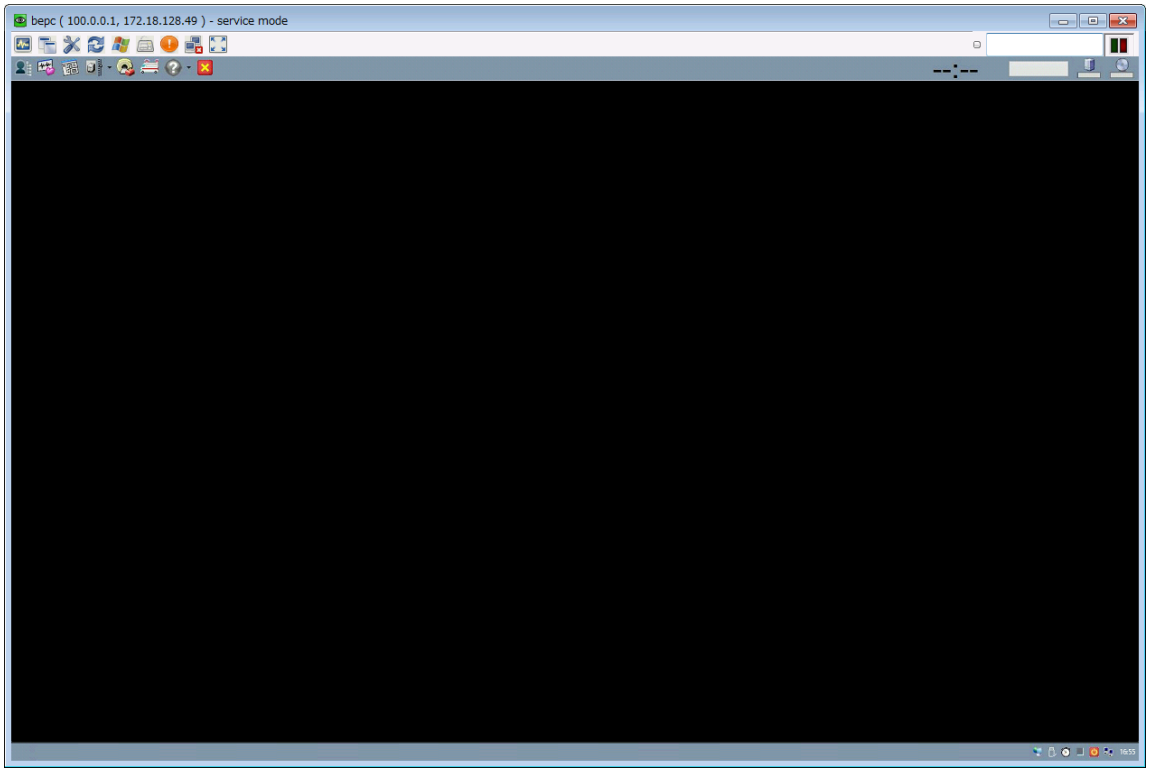



Figure7-51 whole screen of VNC Viewer

Main function tool bar is displayed at the top of the Viewer.

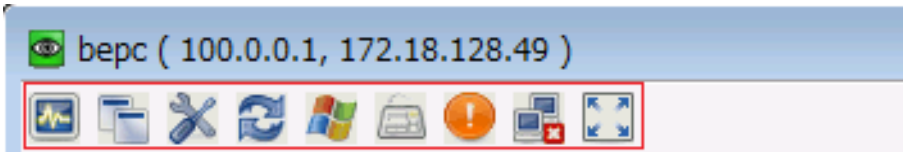
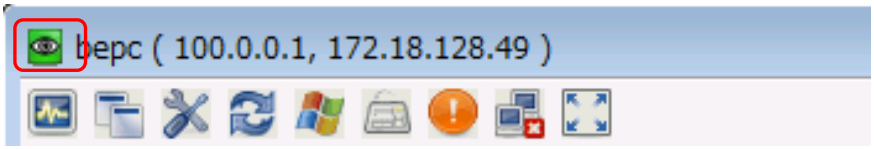


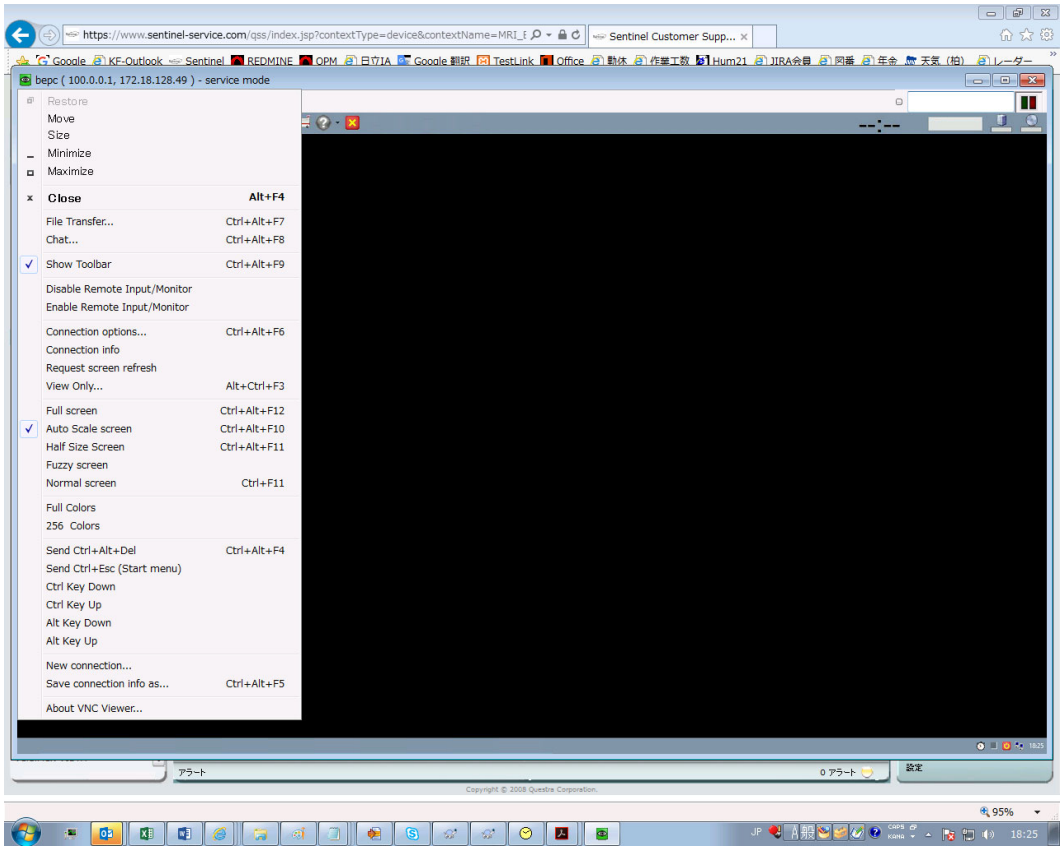

Figure7-52 Icons

Operate the following procedure if the screen size and color are changed.

1 Click an icon.



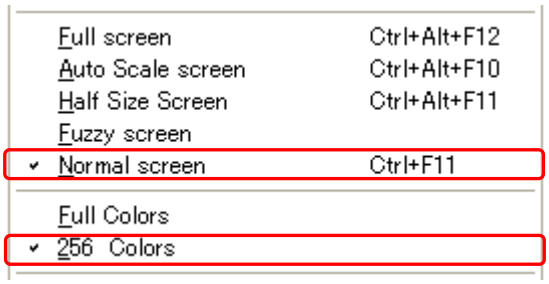

2 The pulldown menu is displayed.



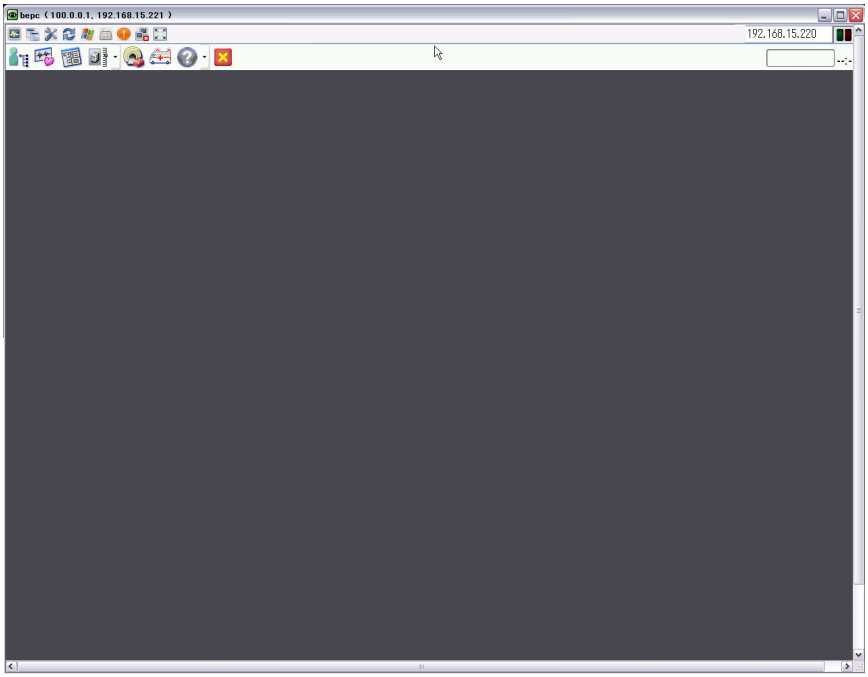

3 Screen design can be changed by the pulldown menu.

The default screen size is “Auto Scale screen” and the default color is “Full Colors”.

4 An image is displayed at the same magnification if [Normal screen] is selected. An image is displayed on 256 color display if [256 Colors] is selected.




5 Screen design is changed.



Regarding VNC viewer, if line speed becomes slow, it sometimes causes a delay in the refresh of screen information. Refresh a screen manually if a screen is distorted. Click Refresh button of VNC tool bar if refreshing a screen manually.

Figure7-53 Refresh Screen

### 7.7.4 Personal information protection mode

All items related to the following personal information are hidden so that personal information leak is prevented at the time of remote desktop connection.

Table7-15 Personal Information Protection Items

| No | Personal information | How to hide |
|---|---|---|
| 1 | PatientID | Hidden with ****<br>The latest Study ID is indicated as alternatives on Patient Directory screen. |
| 2 | AccessionNumber | Hidden with **** |
| 3 | AdditionalPatientHistory | Hidden with **** |
| 4 | BranchOfService | Hidden with **** |
| 5 | ContrastAllergies | Hidden with **** |
| 6 | CountryOfResidence | Hidden with **** |
| 7 | EthnicGroup | Hidden with **** |
| 8 | IssuerOfPatientID | Hidden with **** |
| 9 | MedicalAlerts | Hidden with **** |
| 10 | MedicalRecordLocator | Hidden with **** |
| 11 | MilitaryRank | Hidden with **** |
| 12 | OtherPatientIDs | Hidden with **** |
| 13 | PatientAddress | Hidden with **** |
| 14 | PatientAge | Hidden with **** |
| 15 | PatientBirthDateTime | 0001/1/1 00: 00: 00.000 |
| 16 | PatientComments | Hidden with **** |
| 17 | PatientInstitutionResidence | Hidden with **** |
| 18 | PatientMotherBirthName | Hidden with **** |
| 19 | PatientName | Hidden with **** |
| 20 | PatientReligiousPreference | Hidden with **** |
| 21 | PatientSex | Other |
| 22 | PatientSize | - |
| 23 | PatientTelephoneNumbers | Hidden with **** |
| 24 | PatientWeight | - |
| 25 | PerformingPhysiciansNameList | Hidden with **** |
| 26 | PregnancyStatus | Unknown |

| No | Personal information | How to hide |
|---|---|---|
| 27 | Radiologist | Hidden with **** |
| 28 | RegionOfResidence | Hidden with **** |
| 29 | Smoking Status | Unknown |
| 30 | Technologist | Hidden with **** |

The following operation accompanying inputting and referring to personal information is restricted.

- Correct Patient
- Patient Registration
- Patient Information Property (It is possible to display only.)

But it is possible to use “Rapid Registration”, register the patient and scan.

Hiding process target screens are listed below.

Table7-16 Screens that are subject to hiding process

| No | Screen |
|---|---|
| 1 | Patient Directory |
| 2 | Patient Information Property |
| 3 | Patient Registration |
| 4 | Exam Window |
| 5 | Study Selector |
| 6 | Scan UI |
| 7 | Series Selector |
| 8 | Task View |
| 9 | Accounts Setting |
| 10 | TM Raw Data Selector |
| 11 | TM Prescan Data Log Selector |
| 12 | TM Series Selector |
| 13 | Patient Registration Setting |

## 7.7.5 Service Tool & Diagnostic

It is possible to use “Service Tool & Diagnostic” by remote desktop connection. Operate the following procedure.

1 Click [Maintenance] and "Service Tool & Diagnostic” is displayed.

Figure7-54 Maintenance menu

2 Select and start tools from "Service Tool & Diagnostic” menu.

**NOTE** It is not necessary to log in with [User Recognition] because license is automatically registered during remote desk top connection.

## 7.7.6 How to acquire and display image

If there is something wrong with image, image can be acquired from device and it can be displayed.

### (1) Image upload

The following is image upload procedure.

1 Click [Patient Directory].

Figure7-55 Patient directory menu

2 The following screen is displayed.

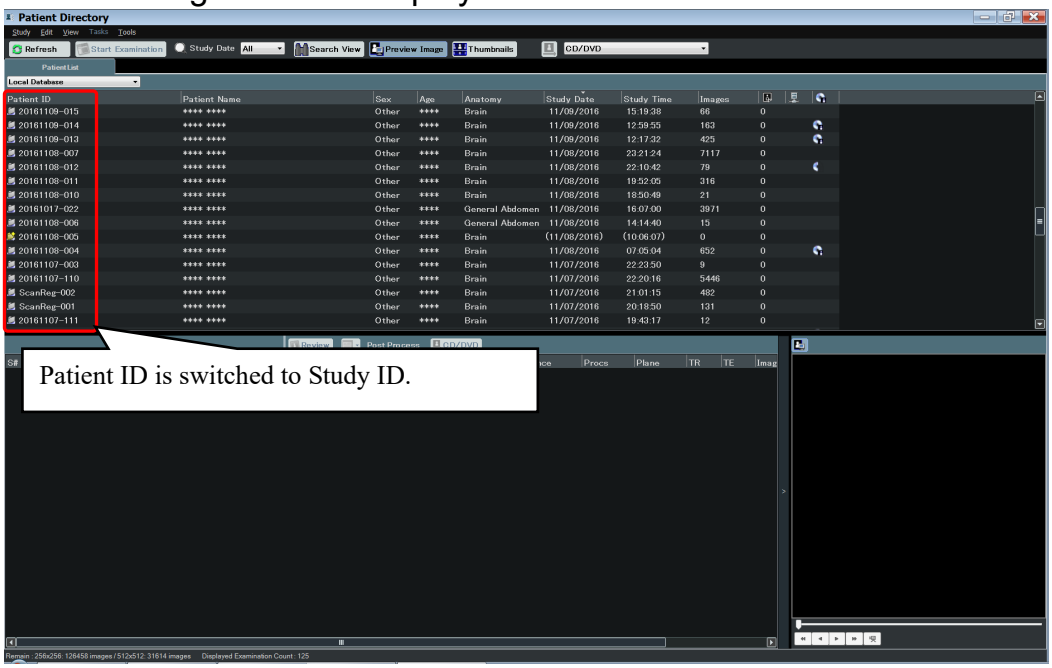



Figure7-56 Patient directory screen

3 Select the patient to upload from Patient List and choose [Remote Server] from [Send] of the menu displayed by right-click.

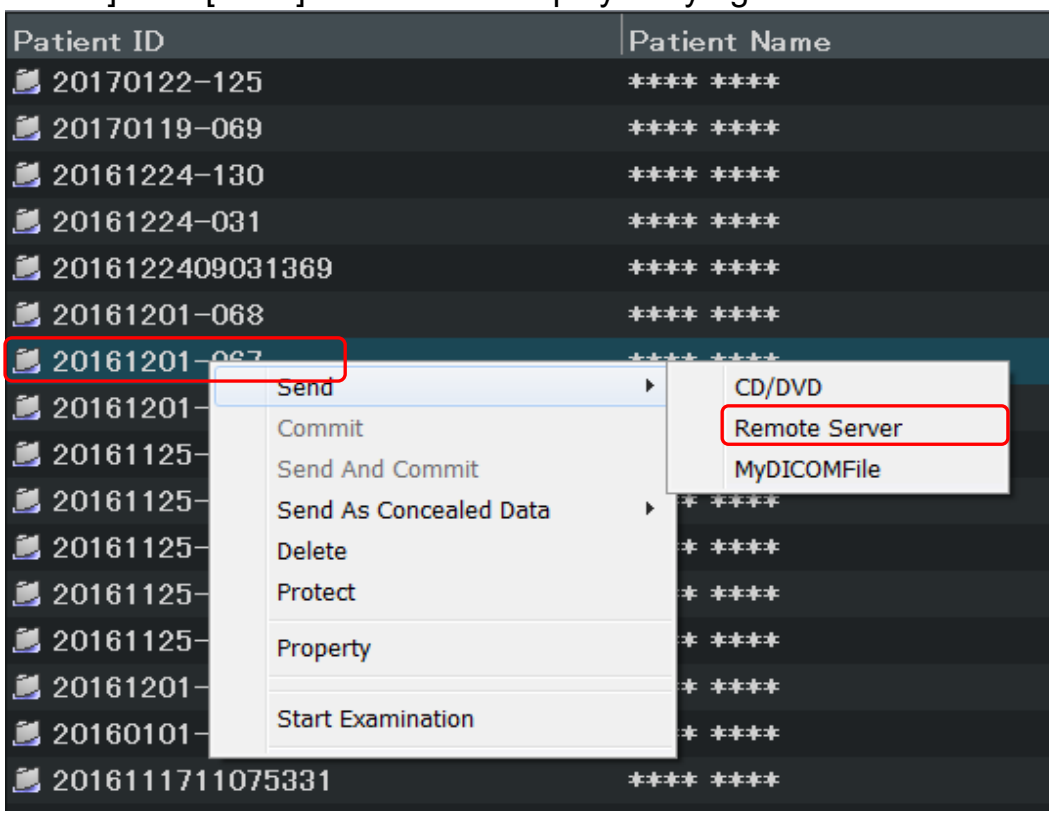



Figure7-57 Uploading patient image data

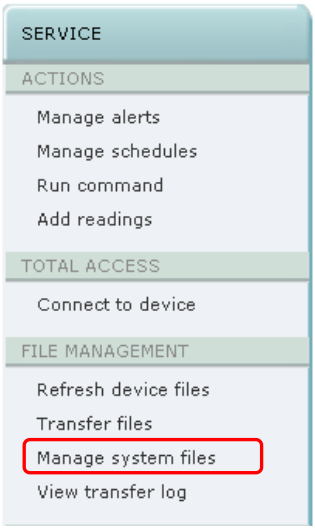
4 Click [OK] to transfer image data to support center server.

Figure7-58 File Upload

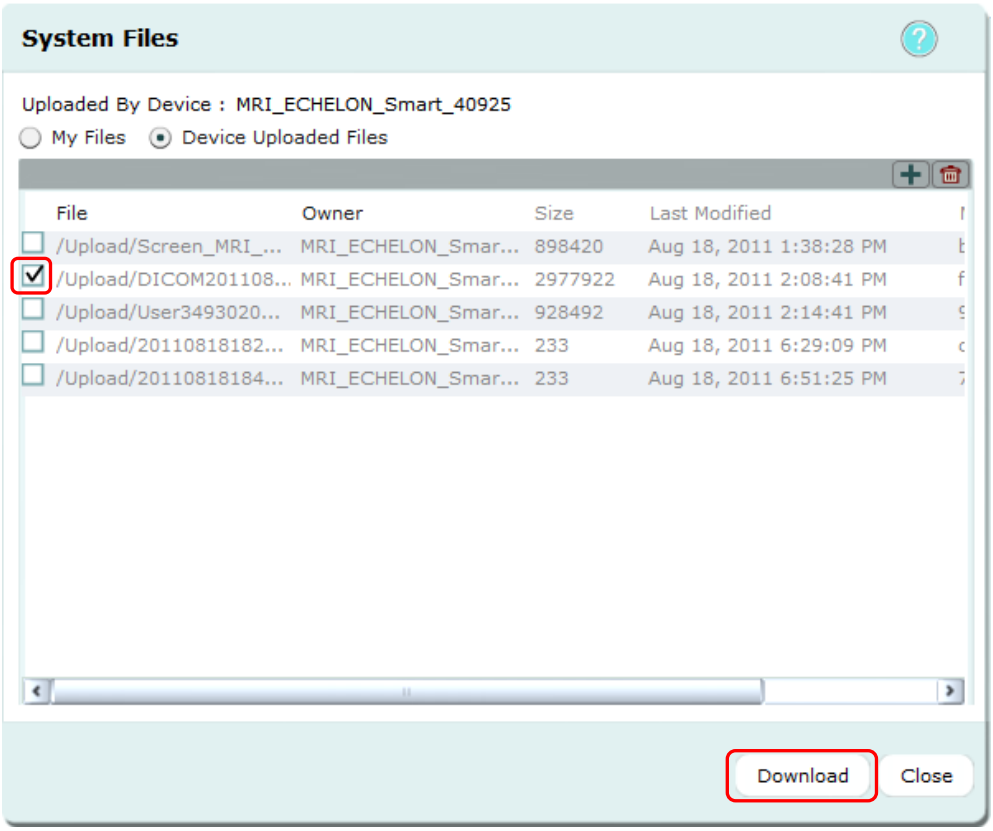
### (2) Image download

The image uploaded to server is uploaded into local PC. Operate as follows.

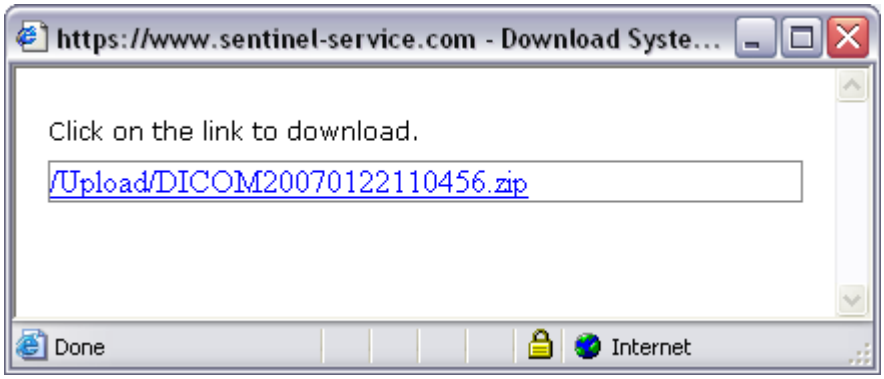
1 Choose the device where image has uploaded, and select [SERVICE] - [FILE MANAGEMENT]-[Manage system files].



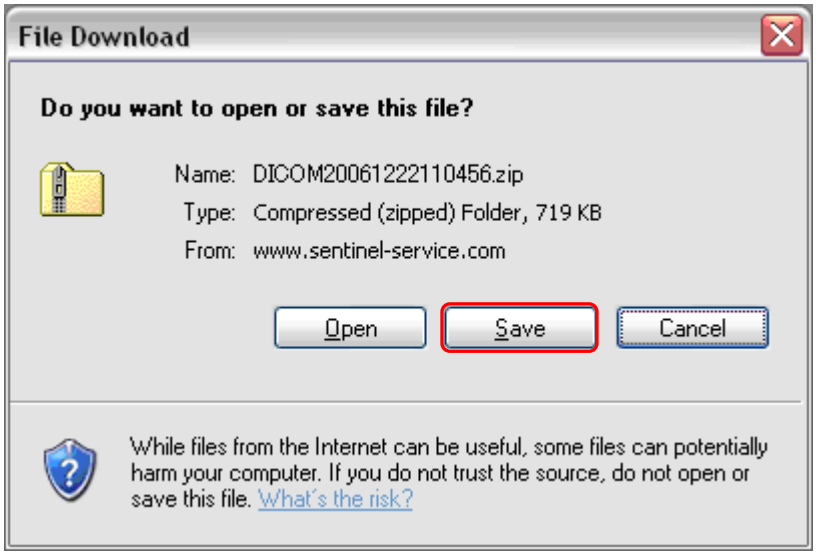

2 The screen of System Files is displayed, so select “DICOM{YearMonthDayHourMinuteSecond}.zip” and click “Download”.



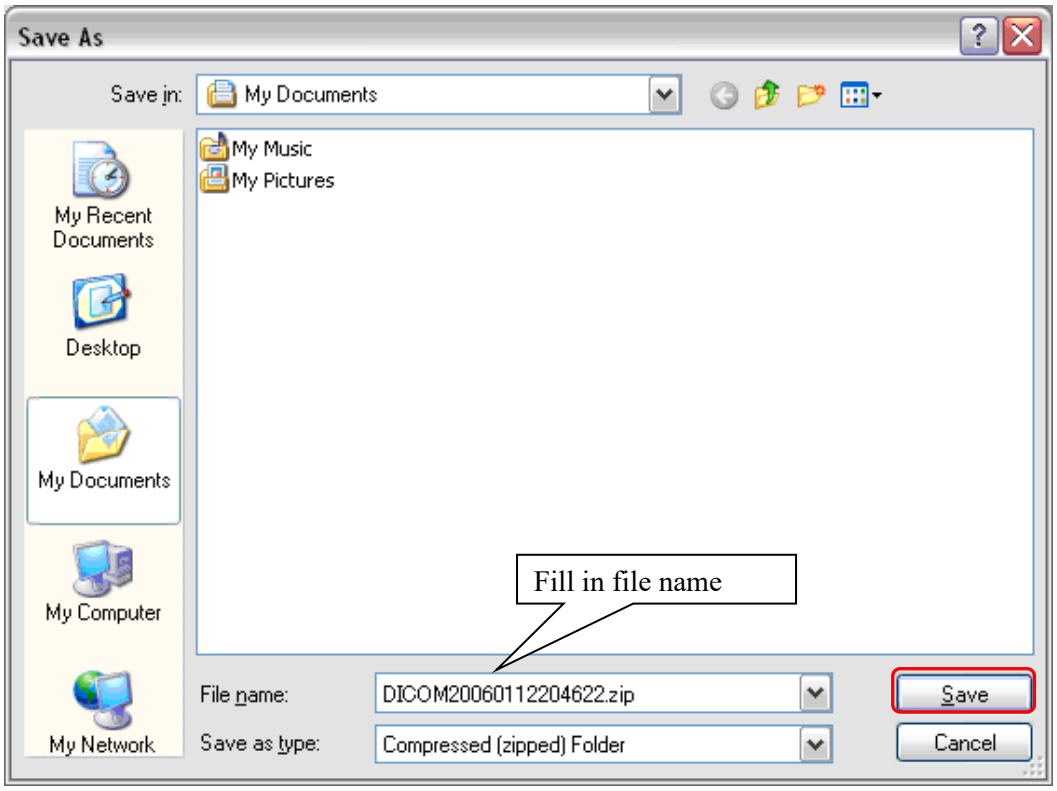
3 The following window is displayed, so click a link.



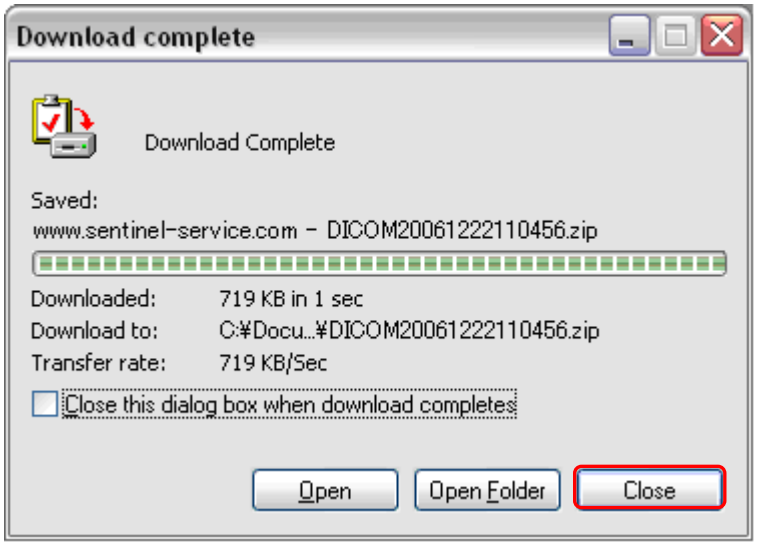

4 The dialog of file download is displayed, so click “Save”.



5 Specify saving place, the file name and click [Save].




6 [Download Complete] dialog is displayed, so click [Close].



### (4) Image display

It is possible to extract downloaded image and display it with attached viewer software. Operate according to the following procedure.

1 Open explorer, confirm the folder where the file downloaded in (3) has been saved and file is being saved.

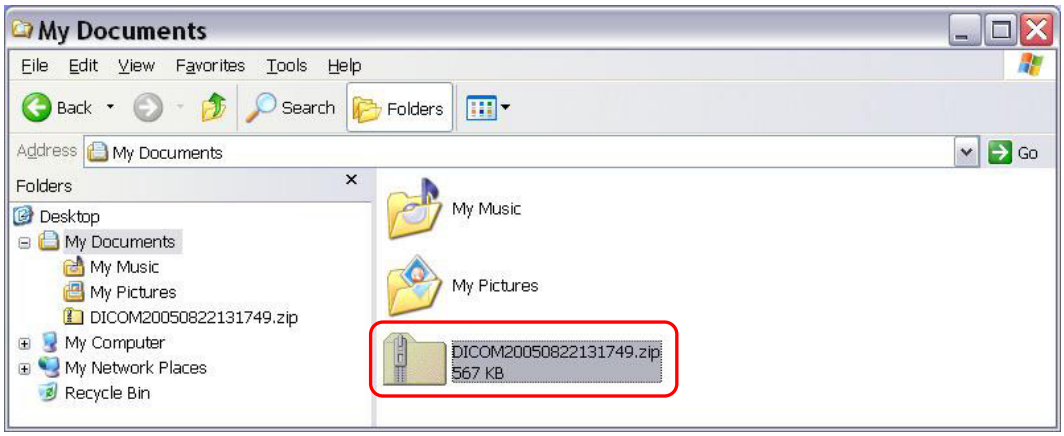



Figure7-59 My documents folder

2 Right-click screen.

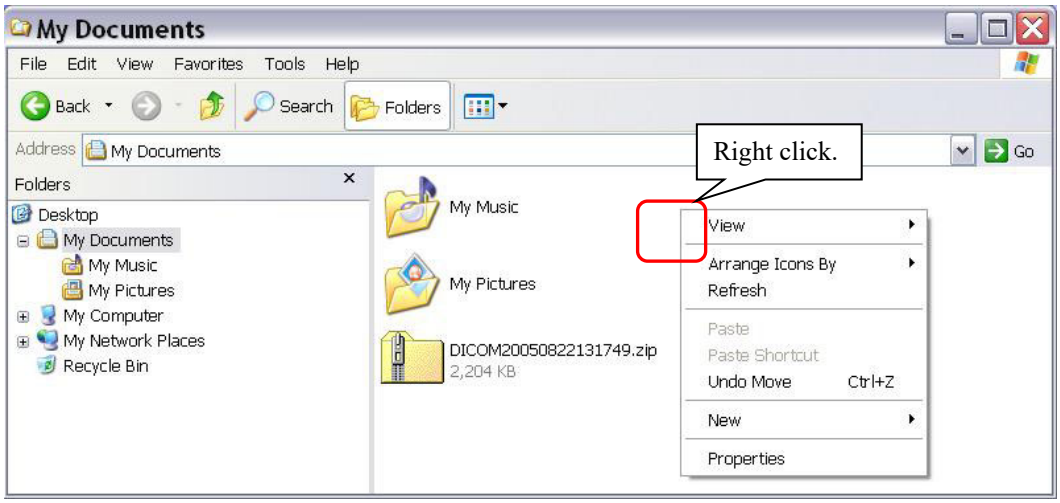



Figure7-60 My document folder select

3 Select and click [New] - [Folder].

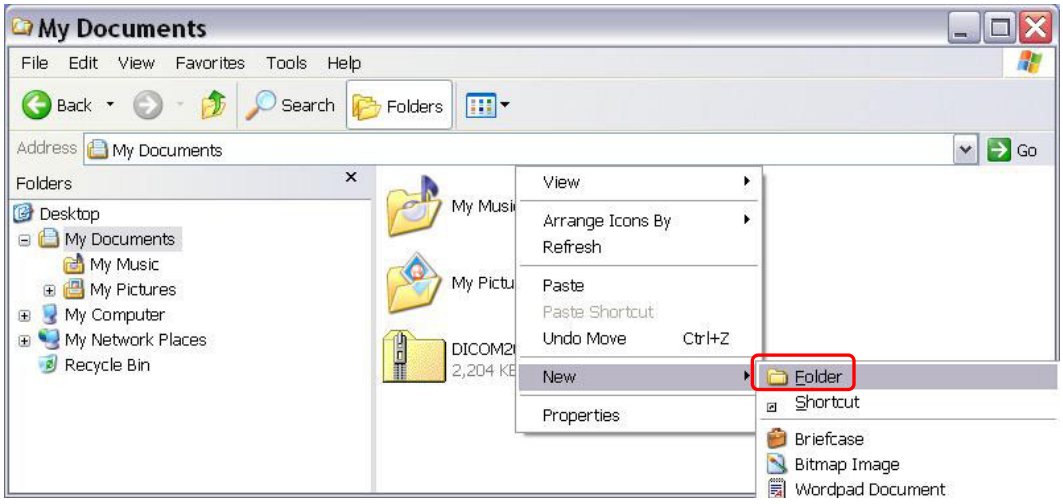



Figure7-61 Folder creation

4 ”New folder” is created, so change its name to any name.

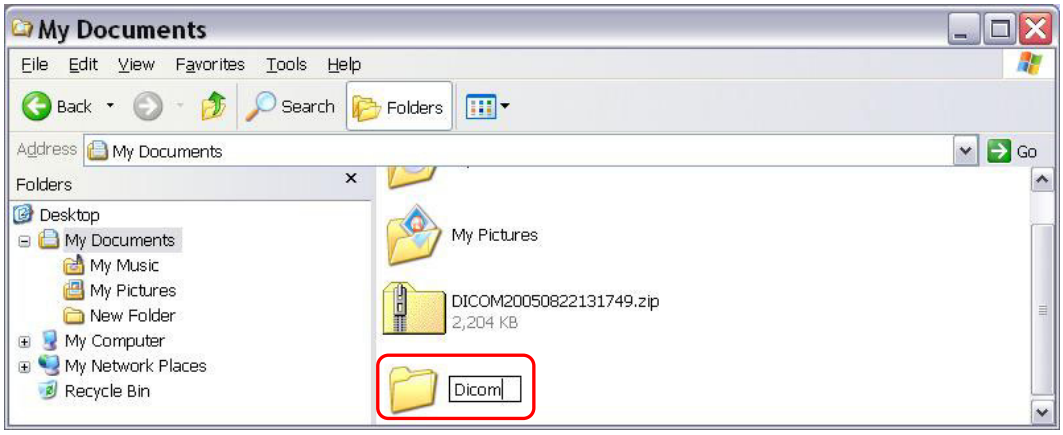



Figure7-62 Folder name input

5 Use ZIP file extraction tool and copy file to the new folder.

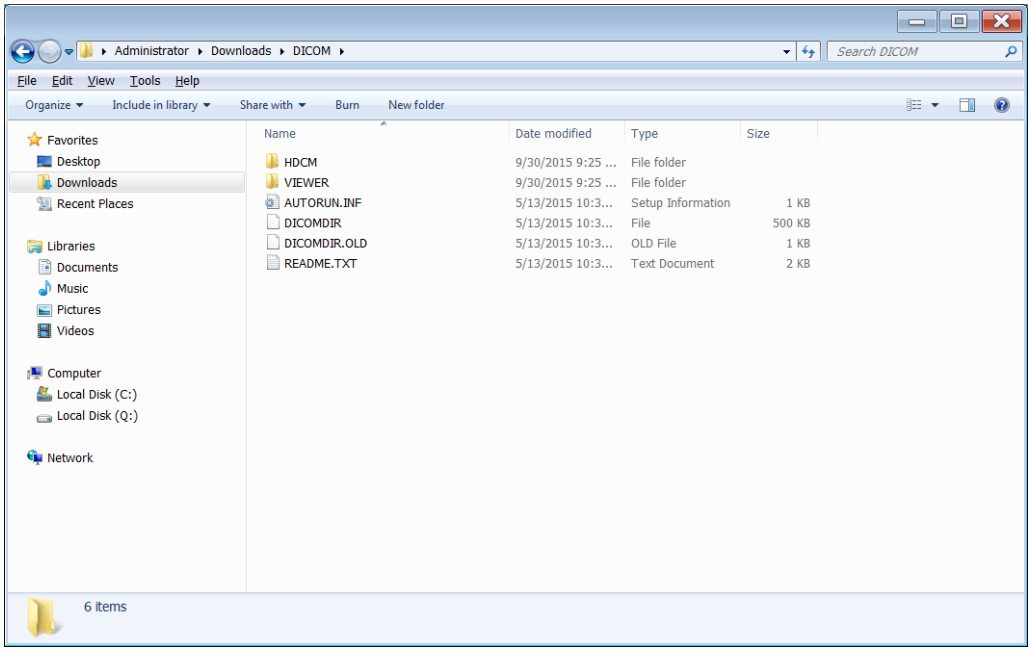



Figure7-63 File extraction

6 Double-click [VIEWER].

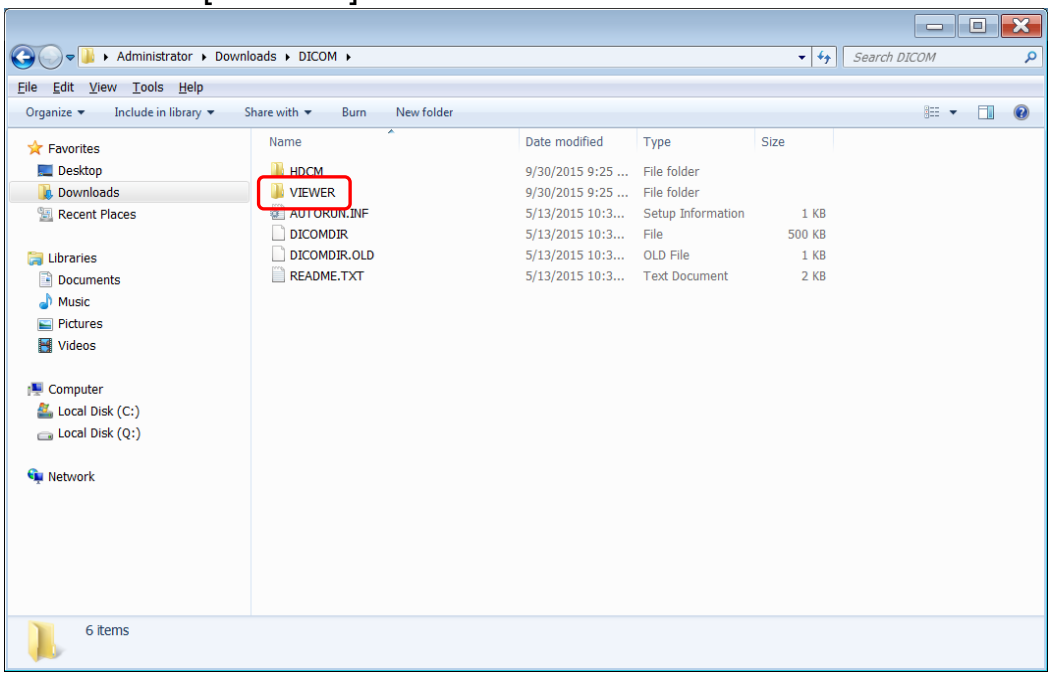



Figure7-64 VIEWER folder

7 Double-click [DCMVIEW.exe].

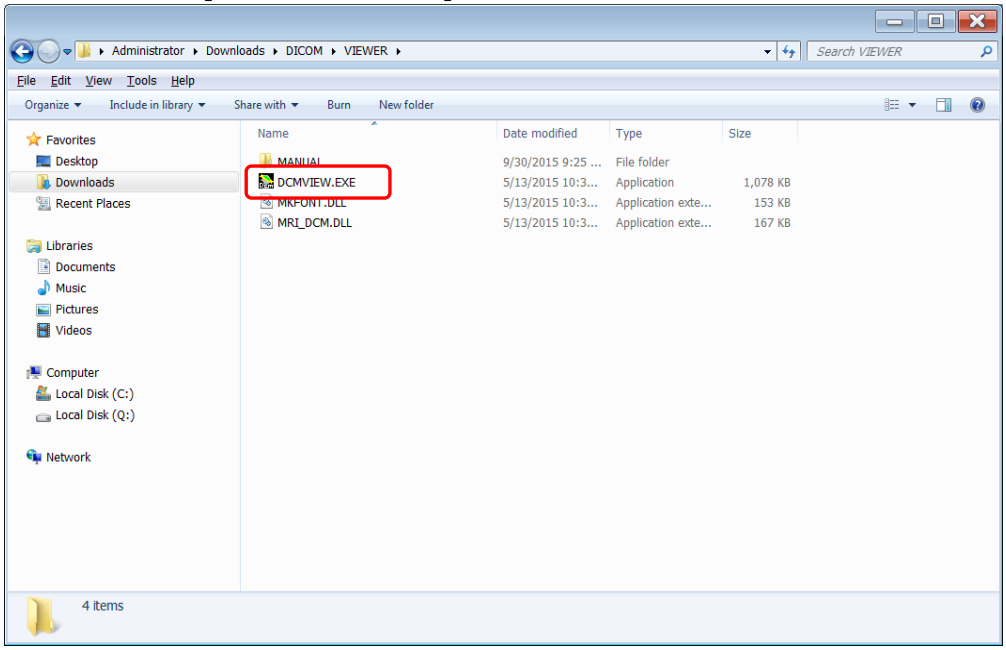



Figure7-65 Execute DCMVIEW.exe

8 License confirmation screen is displayed. Click [OK] button if agreeing with description.

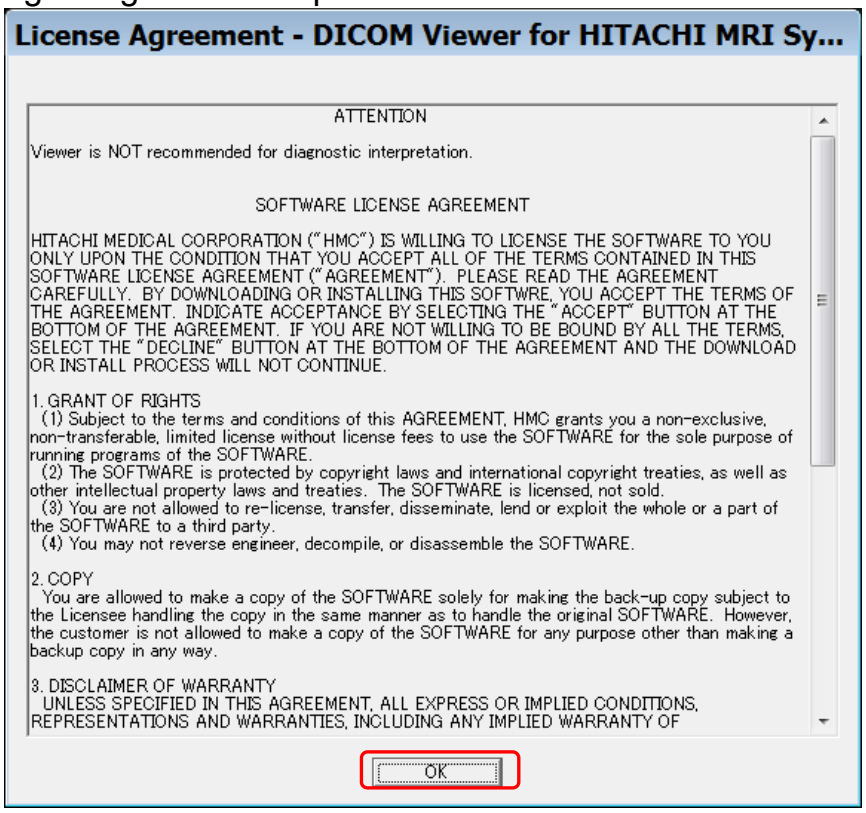



Figure7-66 Authentication screen

9 Image is displayed as follows.

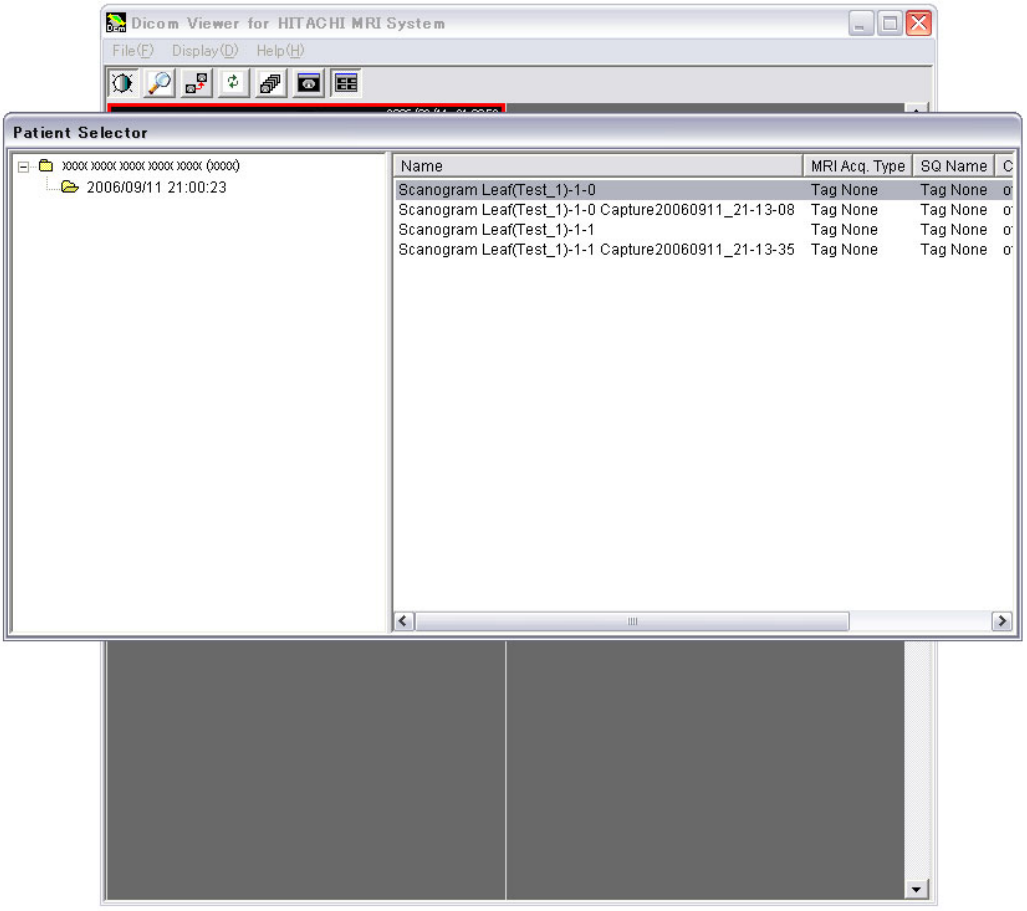



Figure7-67 Start screen

See Help for detailed usage.

## 7.7.7 How to get library

It is possible to get library from device.

### (1) Library upload (Device to Server)

Library is uploaded once from device to server for getting library. Operate the following procedure.

1 Click [Protocol/Task Library].

Figure7-68 Menu protocol/Task library

2 The following screen is displayed.

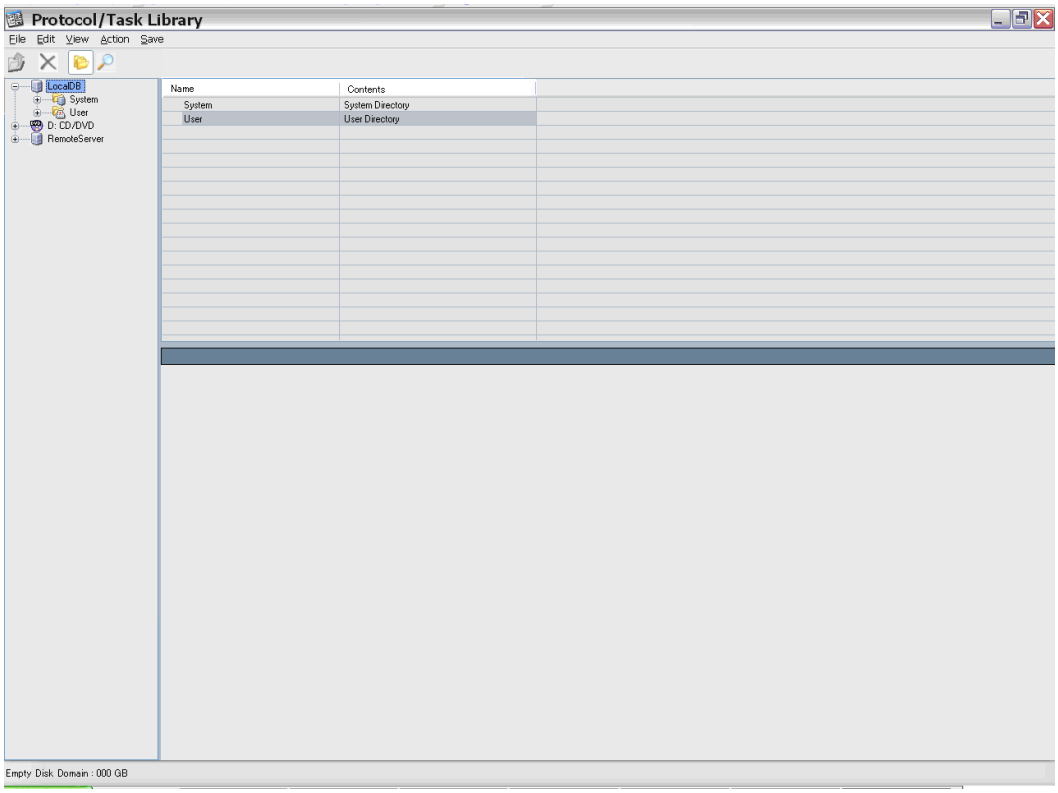



Figure7-69 Library tree screen

3 Choose “User” if selecting all protocol/Task library. Select region under “User” if selecting each region.

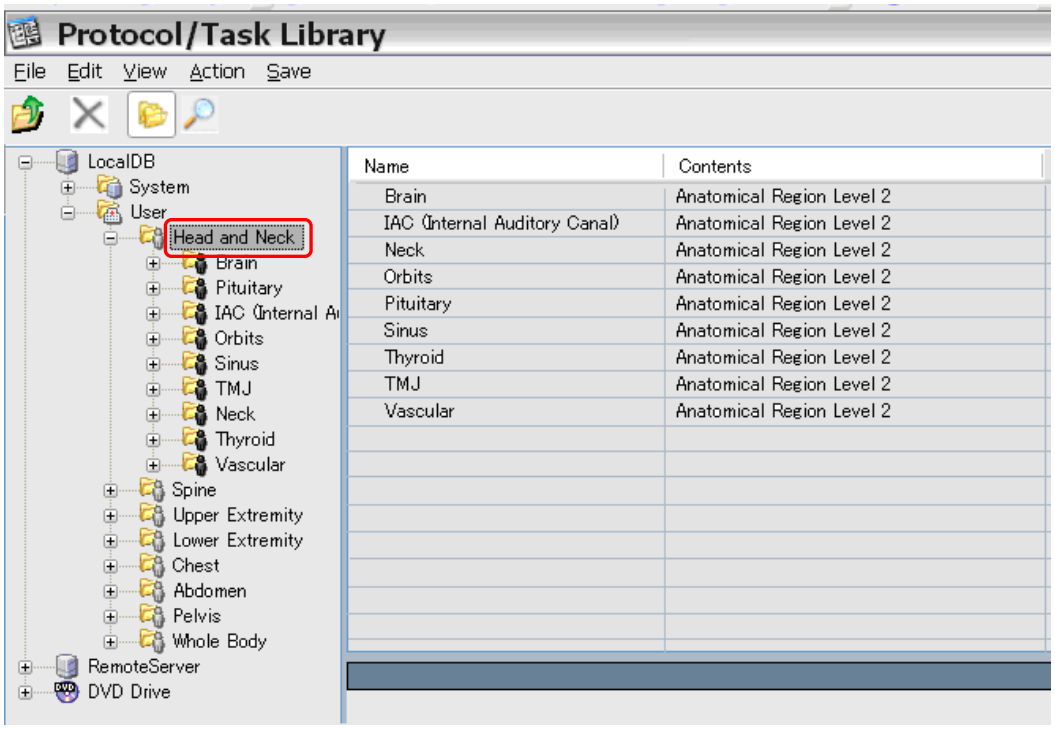



Figure7-70 Folder selection

4 Right-click and select [Send]-[RemoteServer].

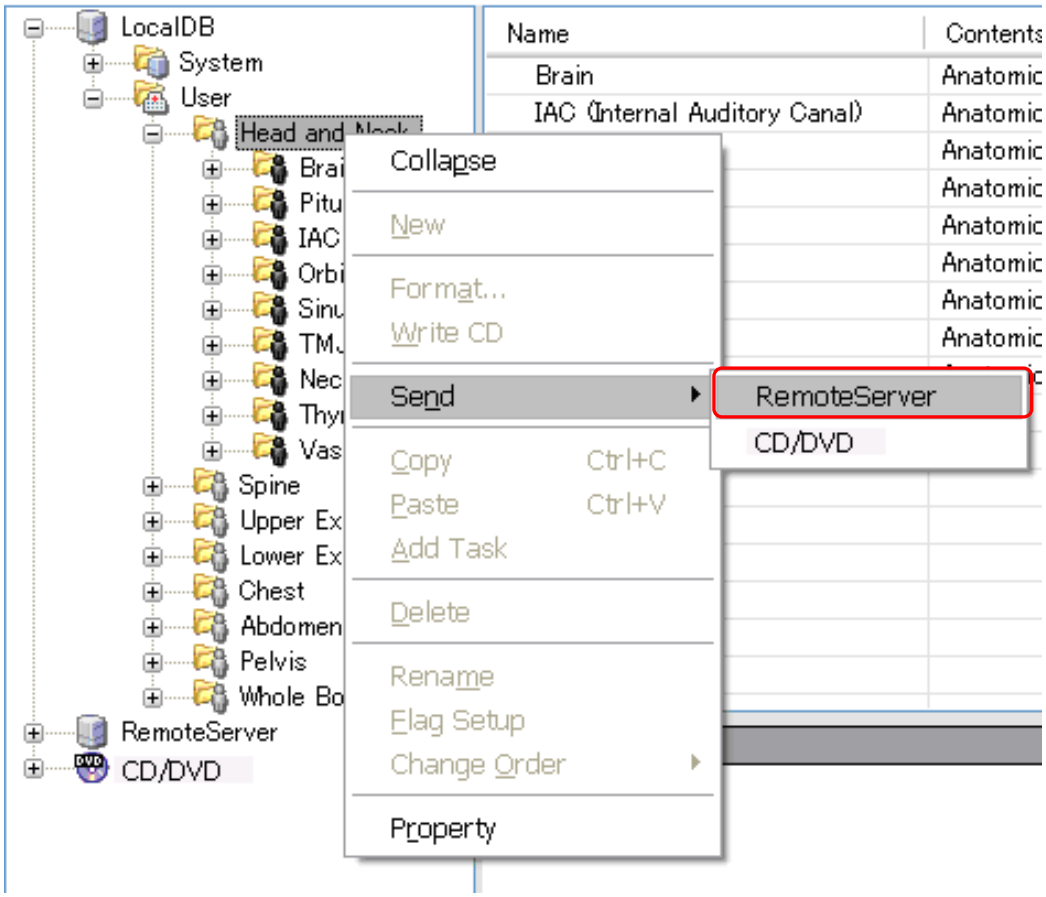



Figure7-71 Library export

5 Compression file [User + “Serial No” + “Date”.zip] is automatically uploaded to support center server.

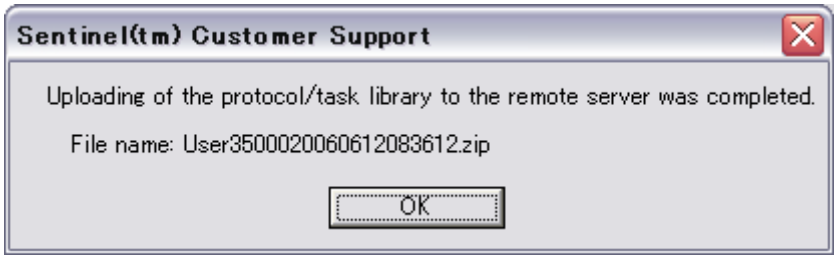
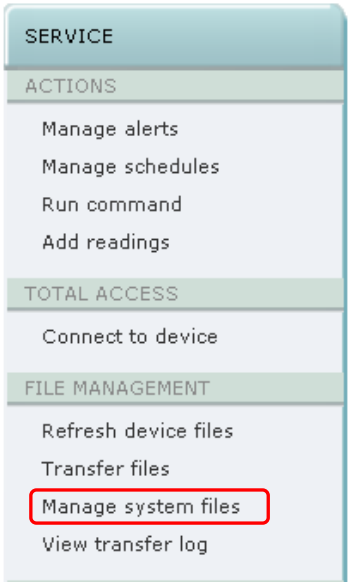
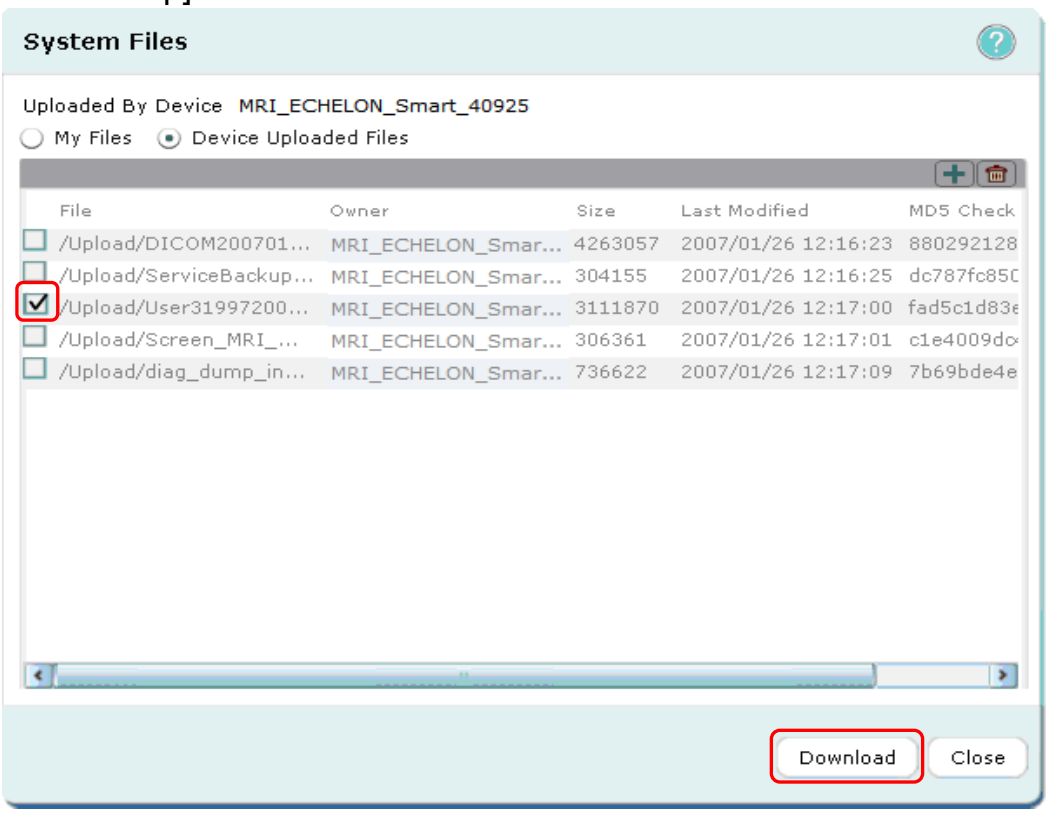



Figure7-72 Upload completion

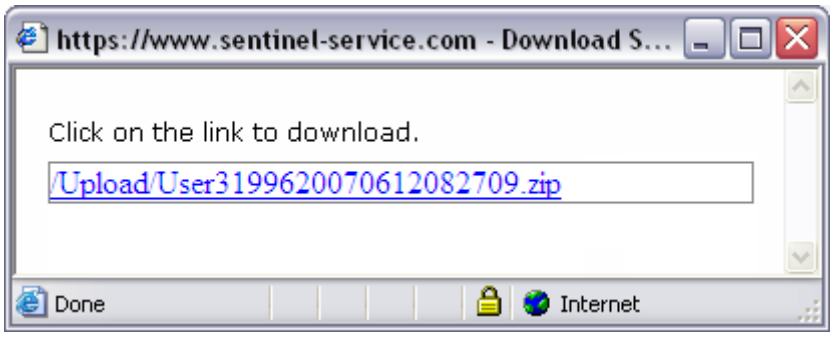
6 Select the device where Library upload was carried out and click [SERVICE] - [FILE MANAGEMENT]-[Manage system files].



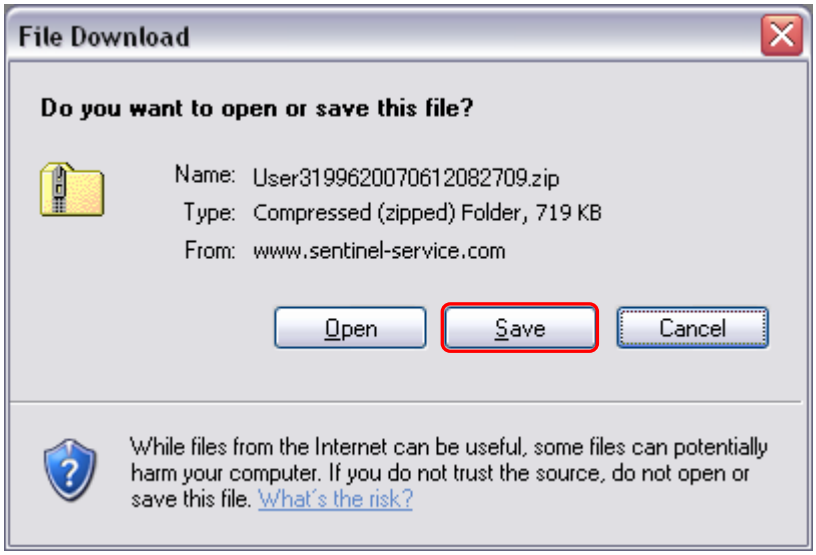

7 The screen of System Files is displayed, so select [User + “Serial No” + “Date”.zip] and click “Download”.



8 The following window is displayed, so click a link.

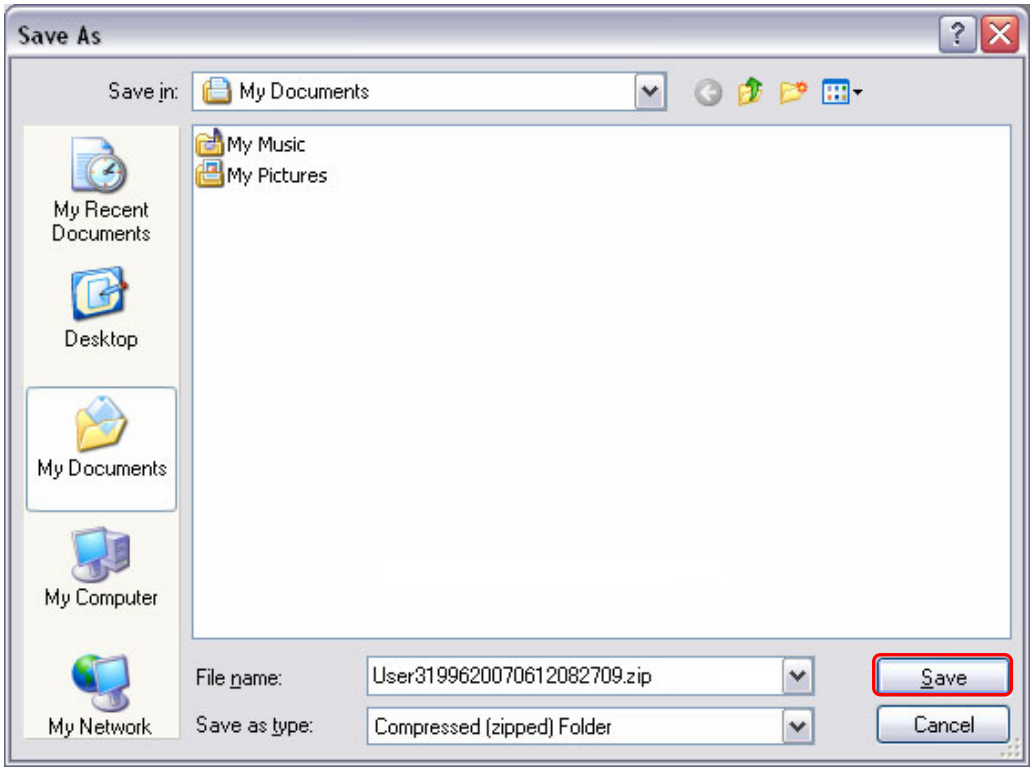



9 The dialog of file download is displayed, so click “Save”.

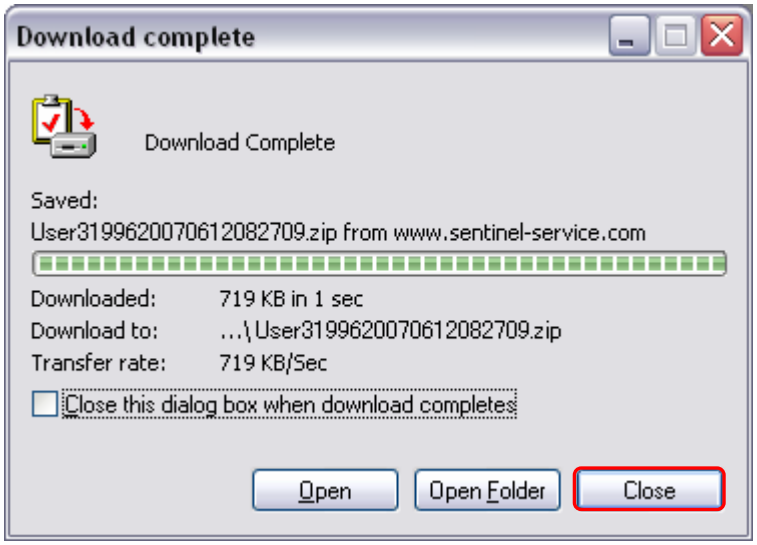


10 Specify saving place and click [Save].

**NOTE** Do not change the name of the file. The file can not be imported if the name was changed.

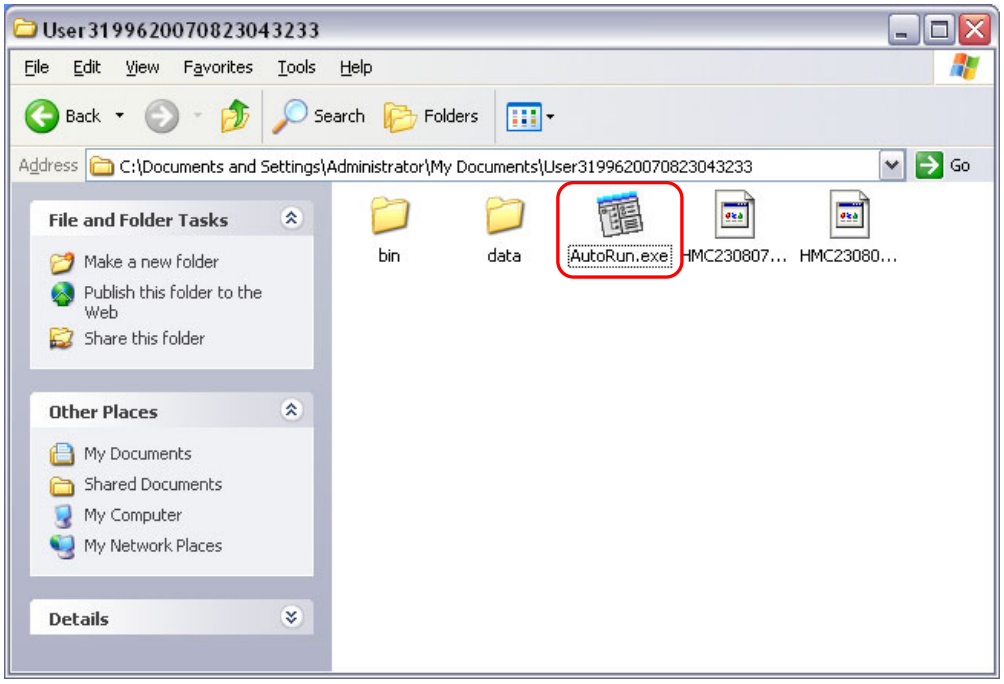



11 [Download complete] dialog is displayed, so click [Close] button.

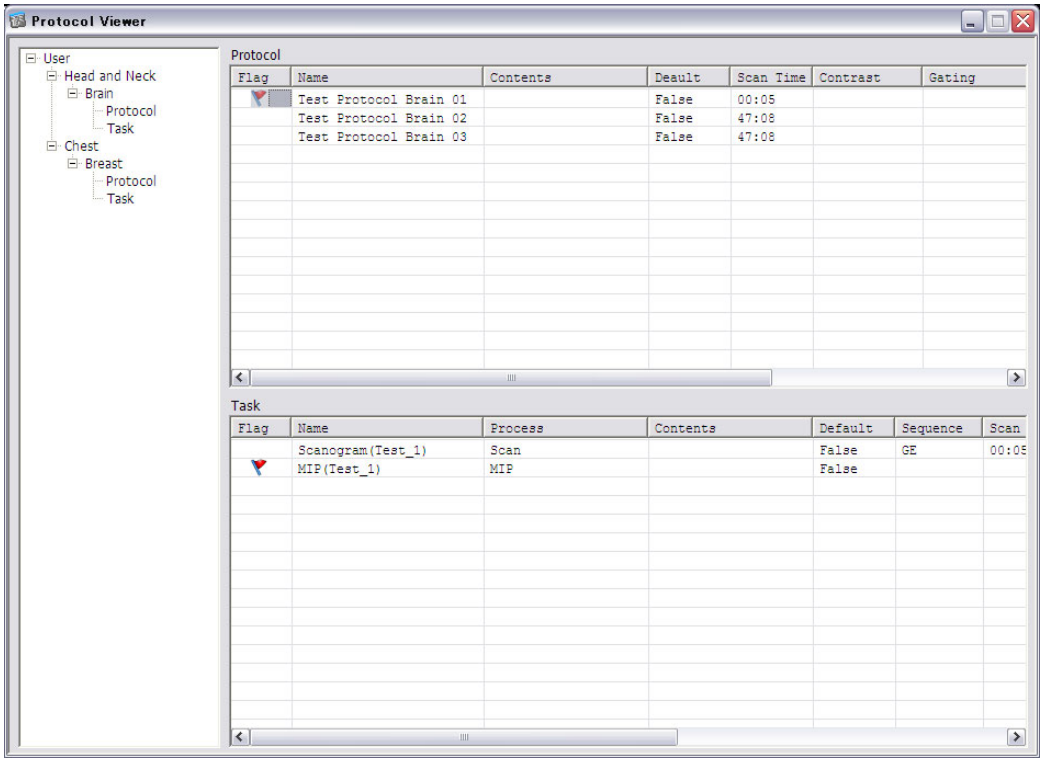


By using a viewer, a downloaded protocol/task library can be referred to. According to the following procedure, refer to it.

1 Extract a downloaded file and double click “AutoRun.exe”.




2 A viewer boots up.

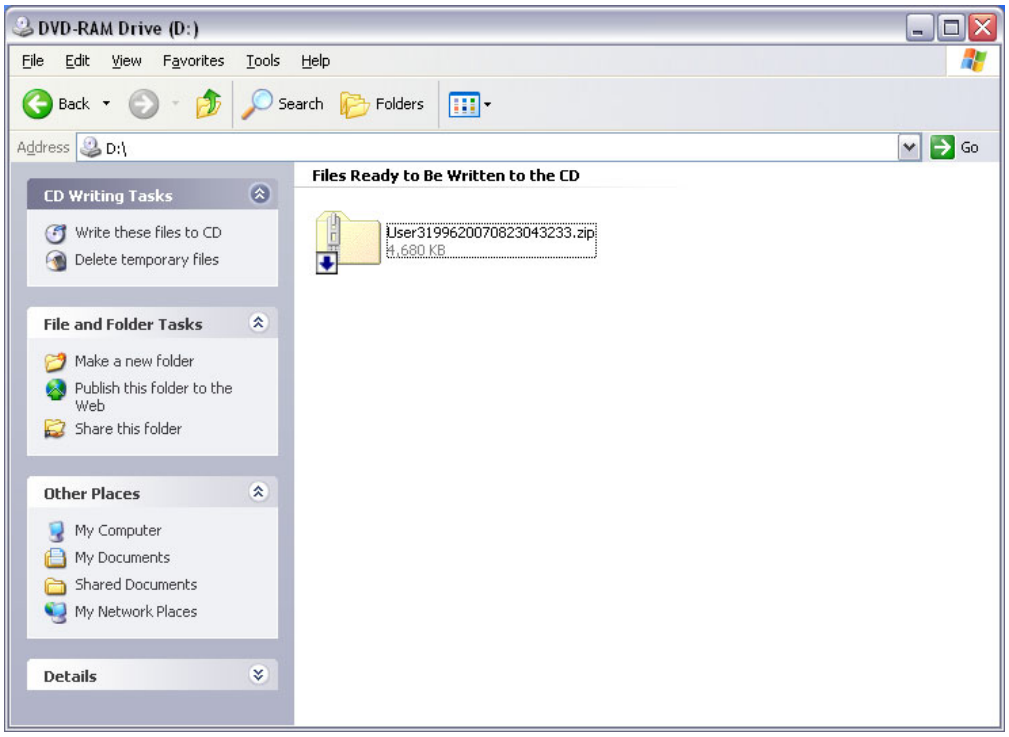


**NOTE** If Microsoft .NET Framework Version 1.1 is not installed, the following error dialog box appears. Install Microsoft .NET Framework Version 1.1.

### (2) Import to a system of Support Center

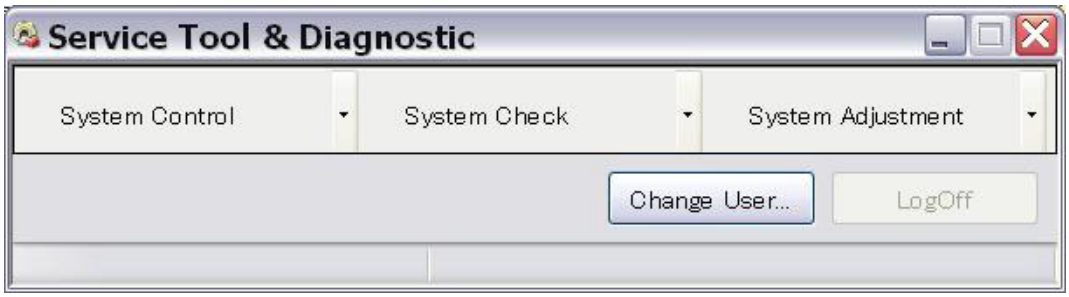
Regarding a library which was acquired from a system of customer site, you can import it to a system of Support Center and investigate it. According to the following procedure, operate.

1 Into a CD-R / DVD, save a library which was downloaded from a server.

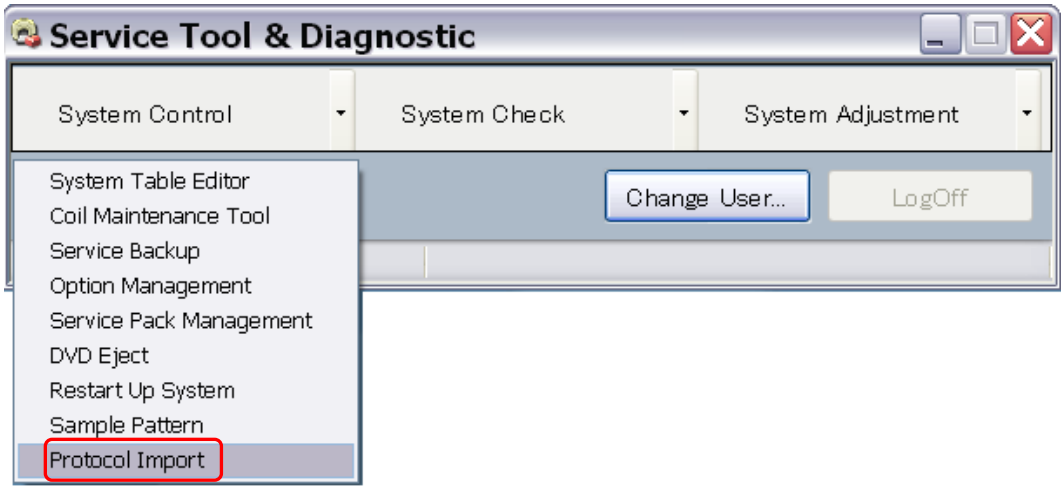



2 Into the system, insert the CD-R or DVD where the library has been saved.

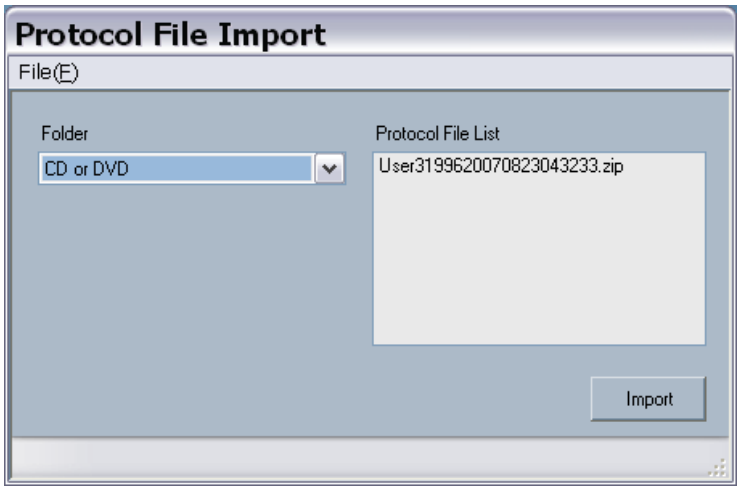
3 By clicking [Maintenance], “Service Tool & Diagnostic” appears.



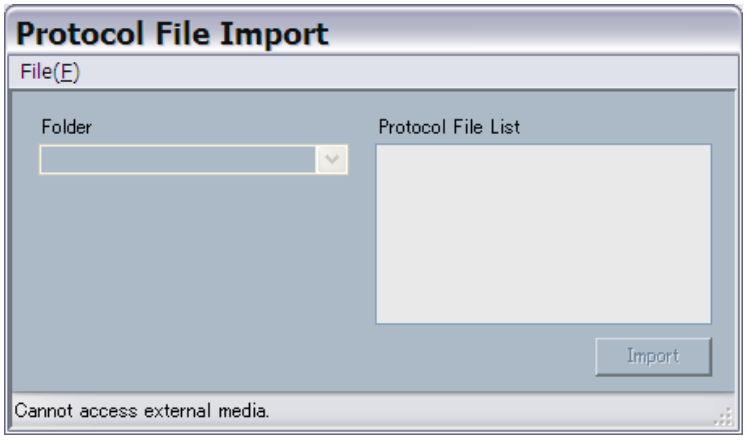
4 "System Control" tab becomes active. So choose "Protocol Import" from a pull-down menu.



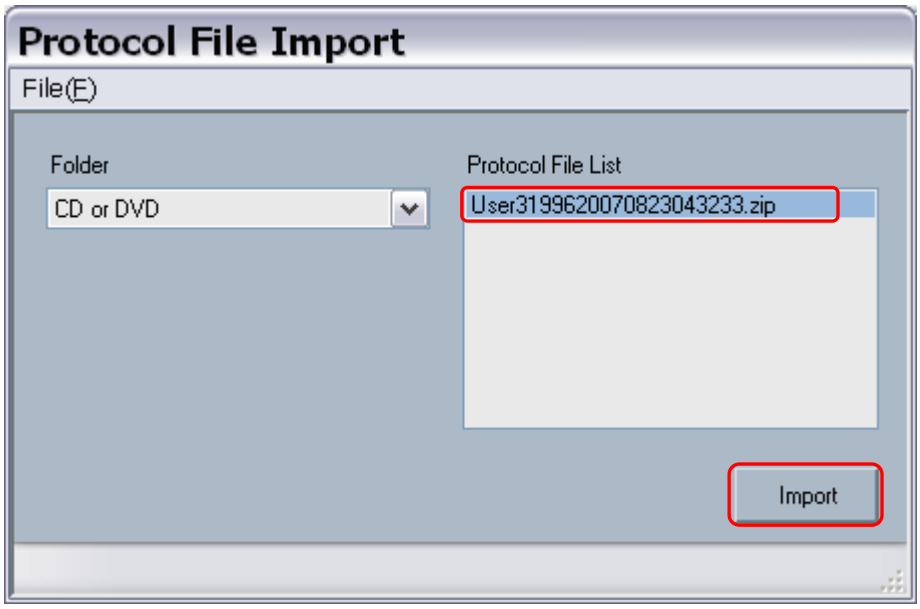

5 "Protocol File Import" screen appears.



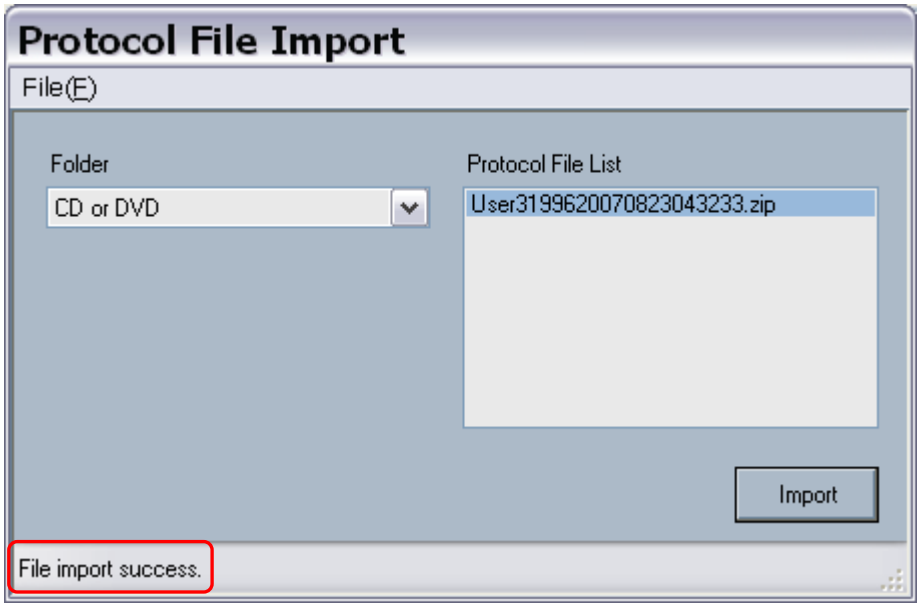

**NOTE** Unless the CD-R or DVD, which the library has been saved in, is inserted, nothing is indicated.



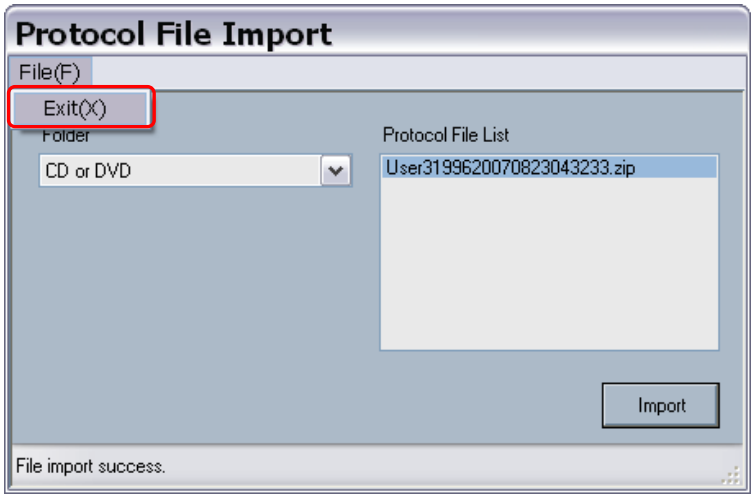
6 Choose a library to be imported, and click "Import".



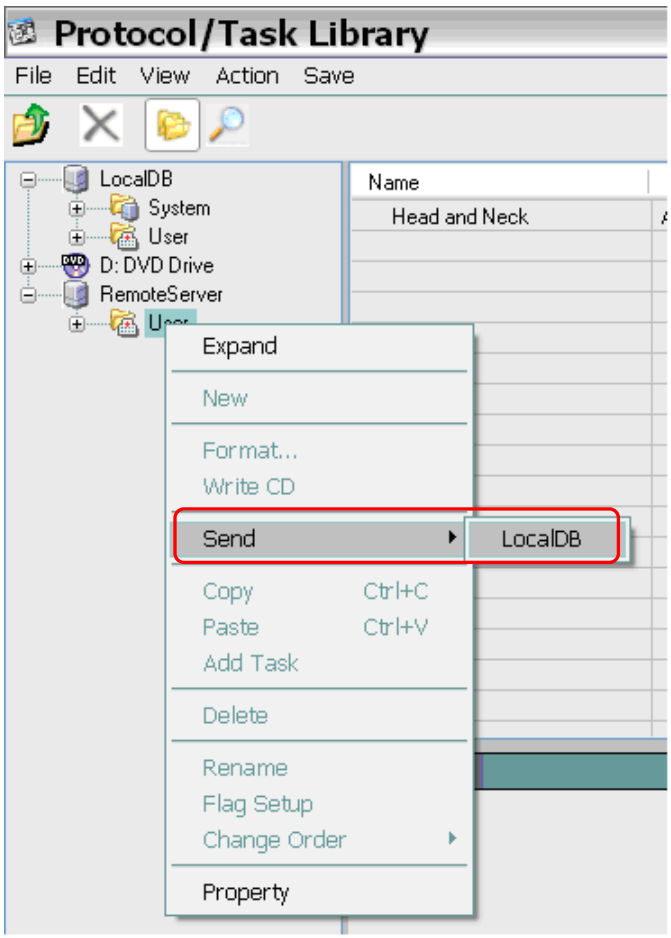

7 The library is imported.



8 By clicking [File] and [Exit], close "Protocol File Import" screen.




9 On the [Protocol/Task Library], the library that was mounted to “Remote Server” is imported. Right-click [Send] and select “LocalDB”.




**NOTE** Transfer to “LocalDB” before the system is powered off. If the system is powered off, the library disappears form “Remote Server”.

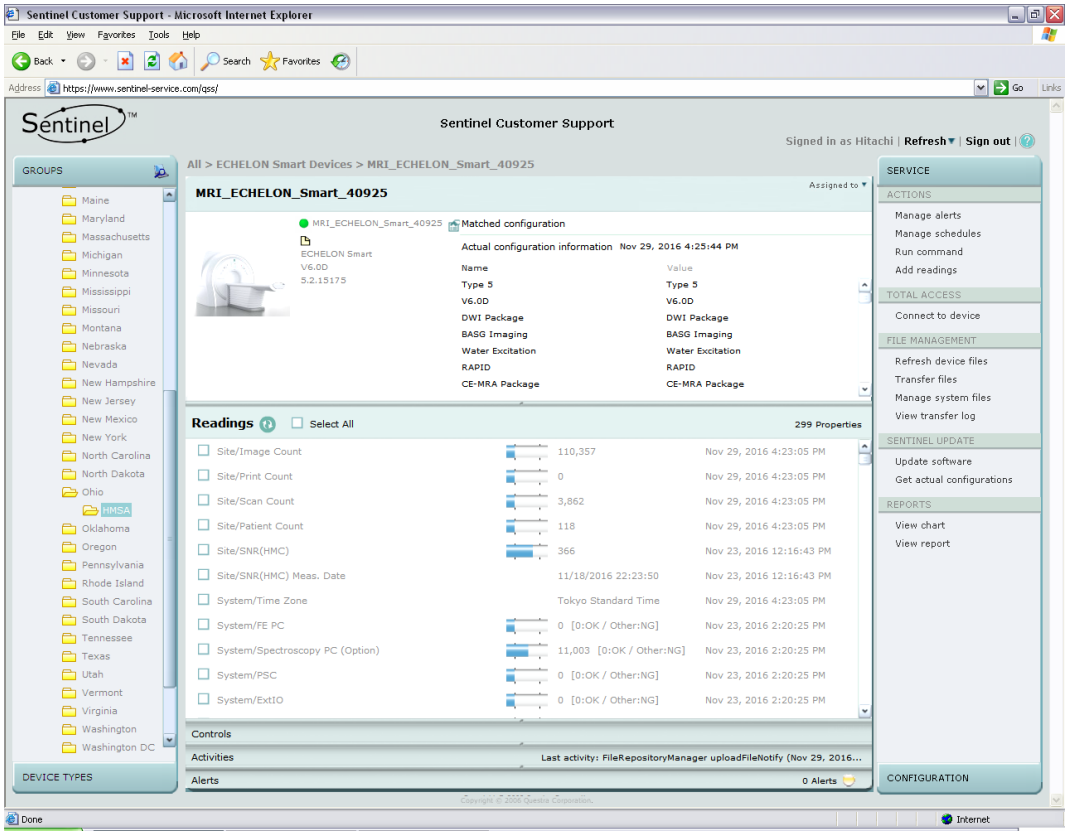
# 7.8 Update software

Service pack is applicable to device.

System administrator uploads service pack into server.

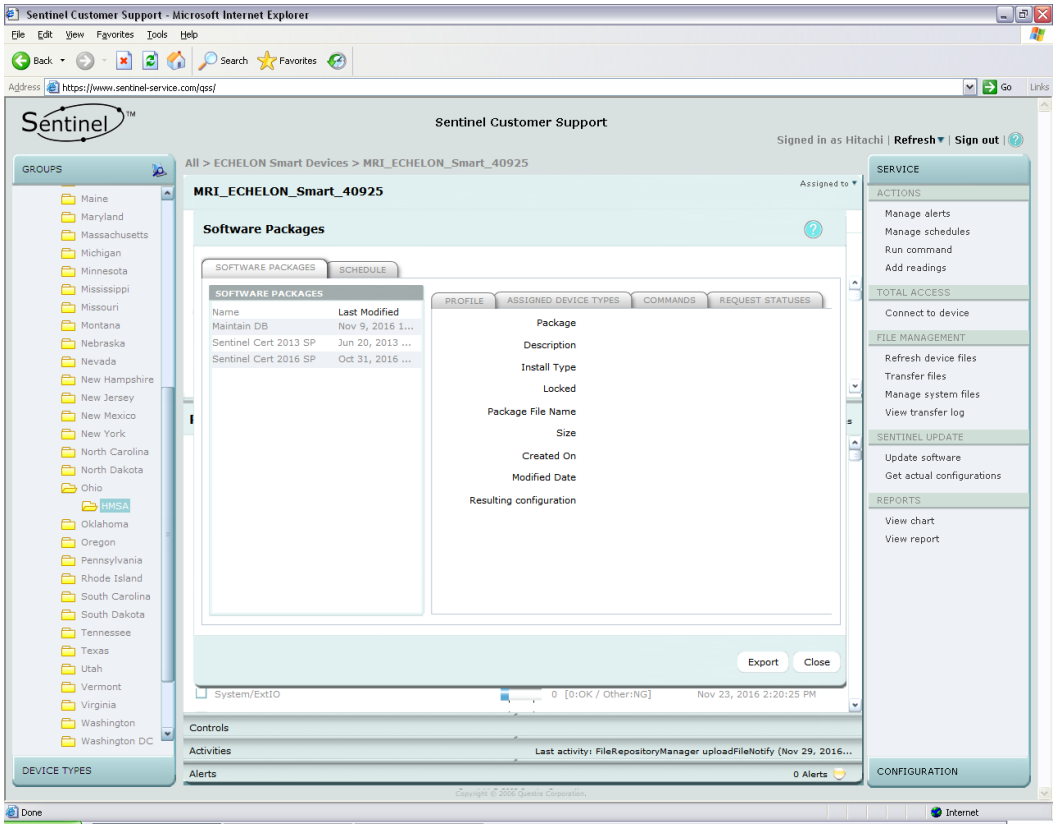
## 7.8.1 Displaying [Software update] Dialog.....

### 1 Select Service pack applicable device.



2 Click [SERVICE] - [Sentinel Update] - [Update software].

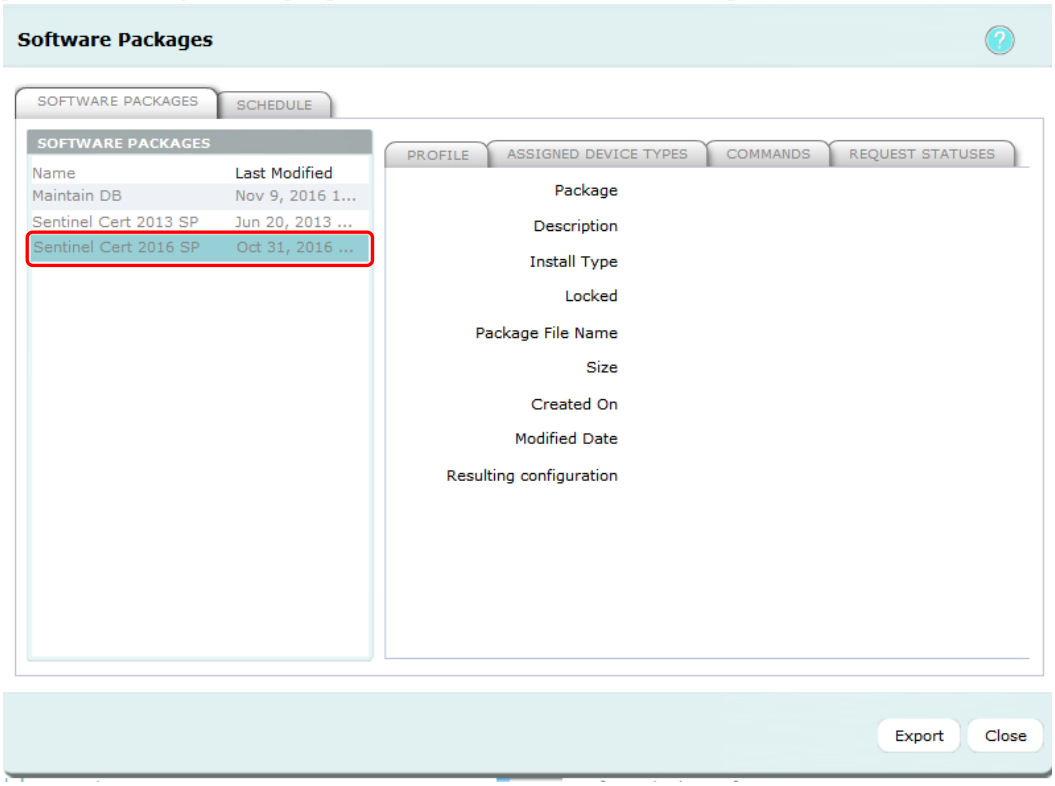
3 Open [Software Updates].



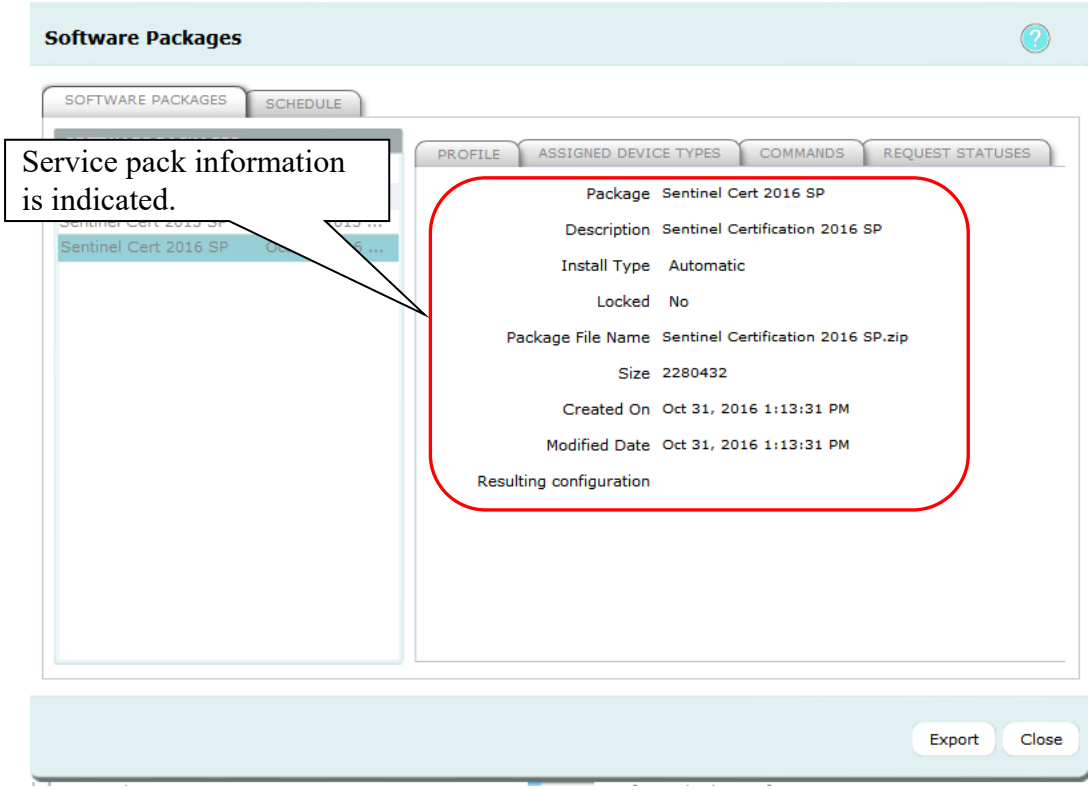
## 7.8.2 Service pack applicable schedule

Select applicable service pack at first and register application schedule.

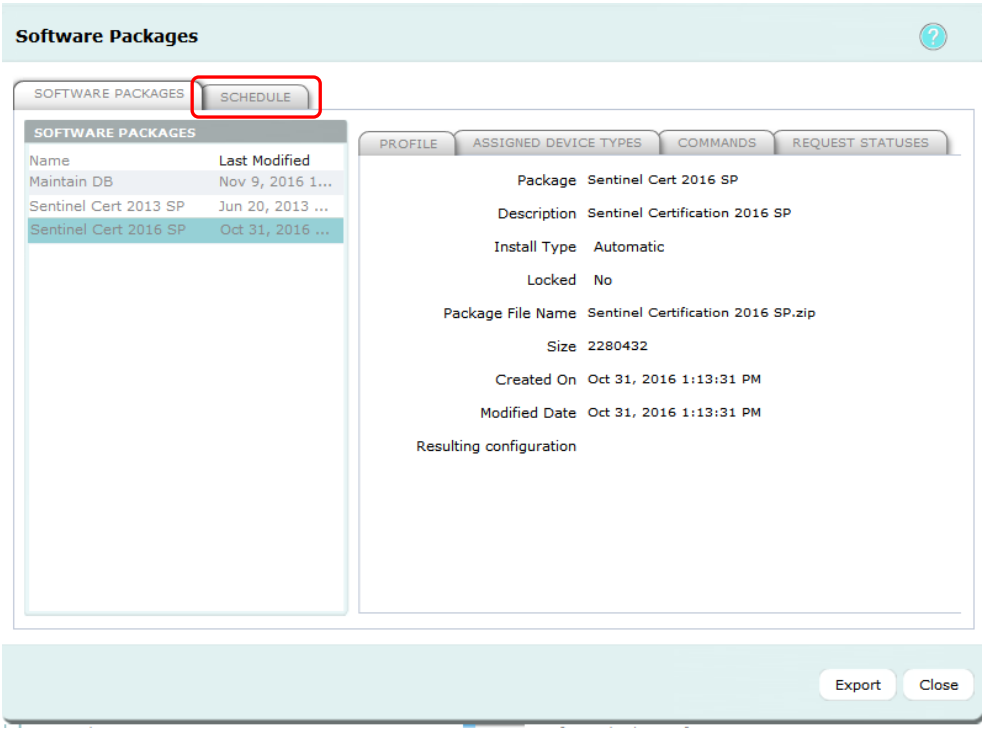
1 Select applicable service pack from [Software Updates] - [SOFTWARE PACKAGES].



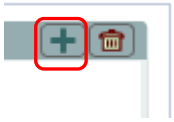
2 Lower side of the dialog indicates service pack information. See the information indicated in [ASSIGNED DEVICE TYPES] tab and [PROFILE] tab, and make sure indicated service pack is applicable.



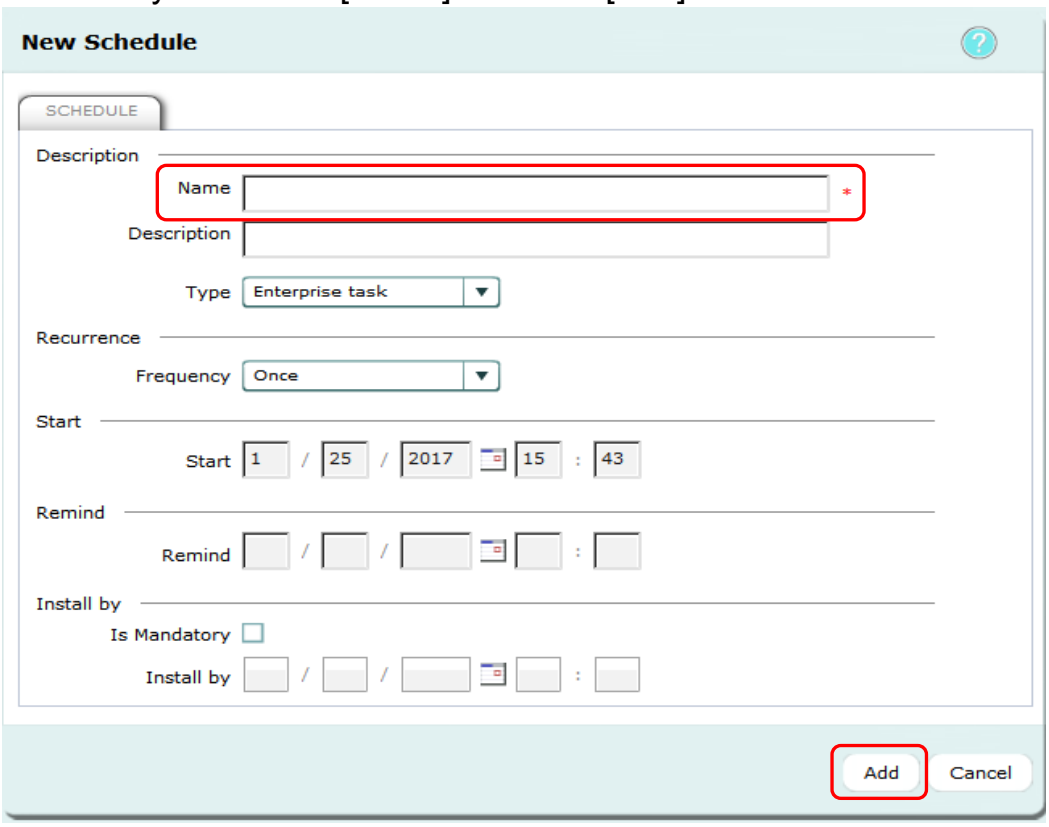

3 Click [SCHEDULE] tab.



4 Create new schedule.
Click button.



5 [New Schedule] dialog opens.
Enter easy name into [Name] and click [Add] button.

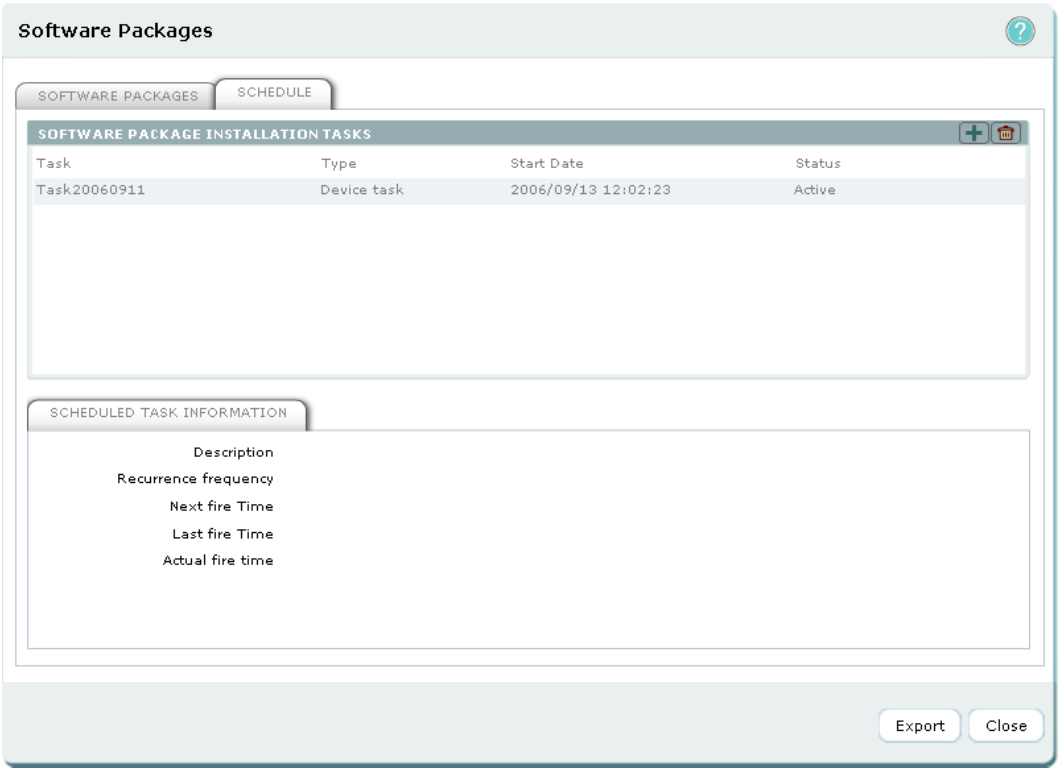



**NOTE** If name is registered once, it can not be used twice. Use different name by adding an identifier such as a number to the file name and so on, even if deleting schedule and hoping to use same name again.

**Reference: Item description**

| | |
|---|---|
| Name | Only this is mandatory item. See above **NOTE**. Up to 50 characters (25 two –byte characters). |
| Description | Schedule description. Up to 200 characters (100 two-byte characters). |
| Type | Device task and Enterprise task are selectable.<br>Device task is device initiative, so center load is low, but it has something hard to manage.<br>Enterprise task is center initiative, so it is easy to manage, but center sever load is high and delay often occurs. |
| Frequency | It is possible to repeat schedule, but make service pack application frequency once in general. |
| Start | It is possible to set up application start date.<br>**NOTE:** Service pack is not always applied on application start date due to device status. |
| Remind | If service pack is not applied up to the date set here, alarm occurs and if mail notification is set up, mail is received. |
| Install by | As the case of Remind, alarm occurs if service pack is not applied up to the date set here and if mail notification is set up, mail is received.<br>Separate to use them, like setting up “Remind” before application time limit and setting up “Install by” after application time limit. |

## 6 Schedule is registered.



## 7.8.3 Application result confirmation

The service pack is forwarded to the device, and installed automatically when becoming a date when the schedule registration was done.

Service pack application result can be confirmed with [Installed Software].

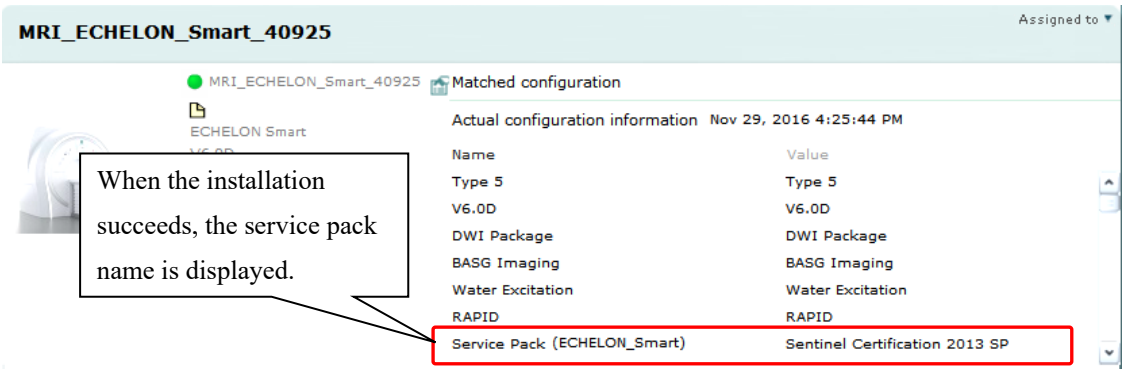



Figure7-73 Application result confirmation

That's not to say that "Installed Software" information is updated as soon as [Software Updates] operation described in chapter 7.8. It is regularly updated, but perform [Get actual configurations], (see chapter 7.9), if you hope to acquire information immediately.

# 7.9 Get actual configurations

Device "Installed Software" information is regularly updated. But by using [SERVICE] - [Sentinel Update] - [Get actual configurations], device "Installed Software" information can be updated.

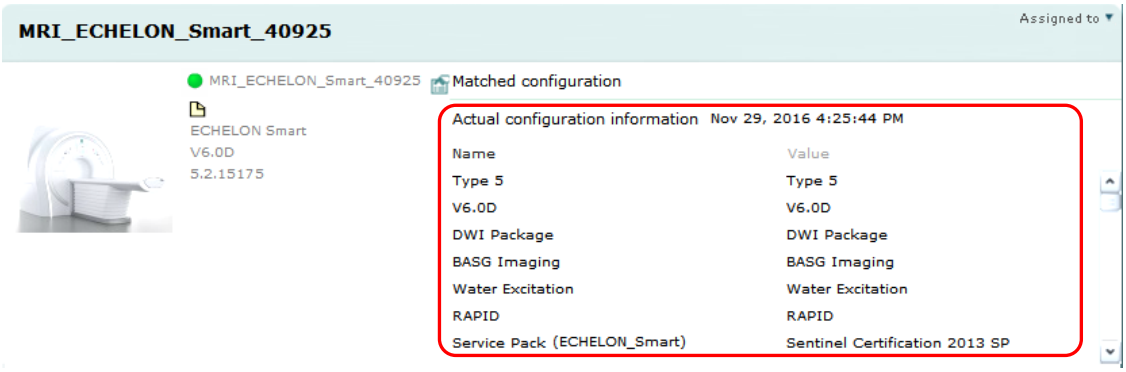
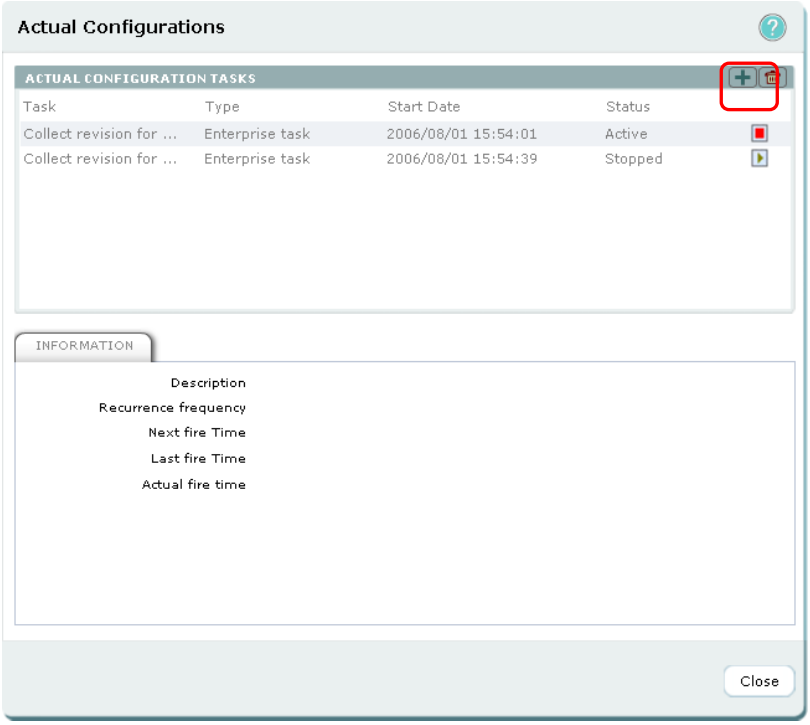



Figure7-74 Device summary

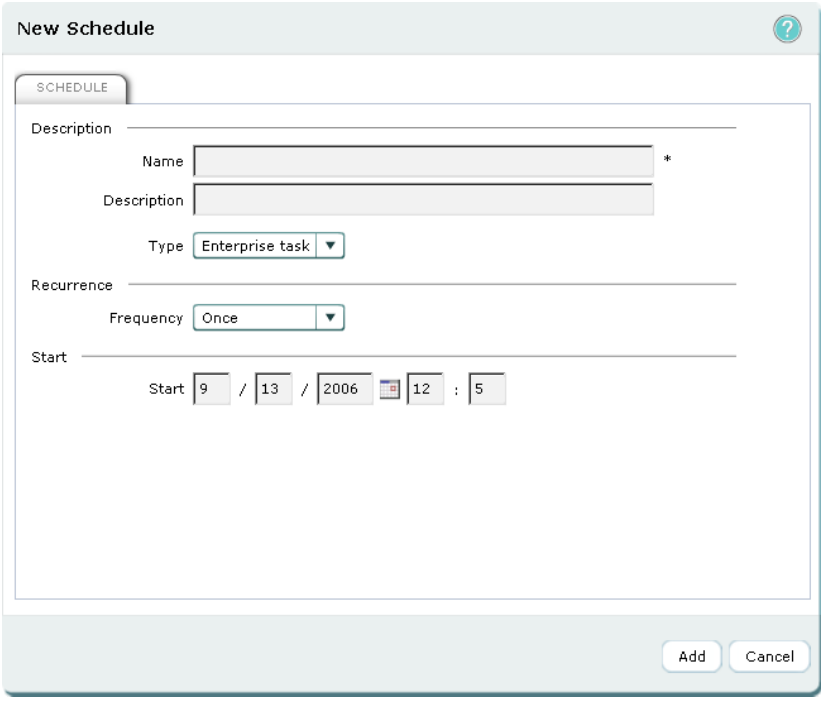
The following is "Get actual configurations" usage procedure.

1 Select the device acquiring "Installed Software" information and click [SERVICE] - [Sentinel Update]-[Get actual configurations].

2 “Actual Configurations” screen is displayed, so click .

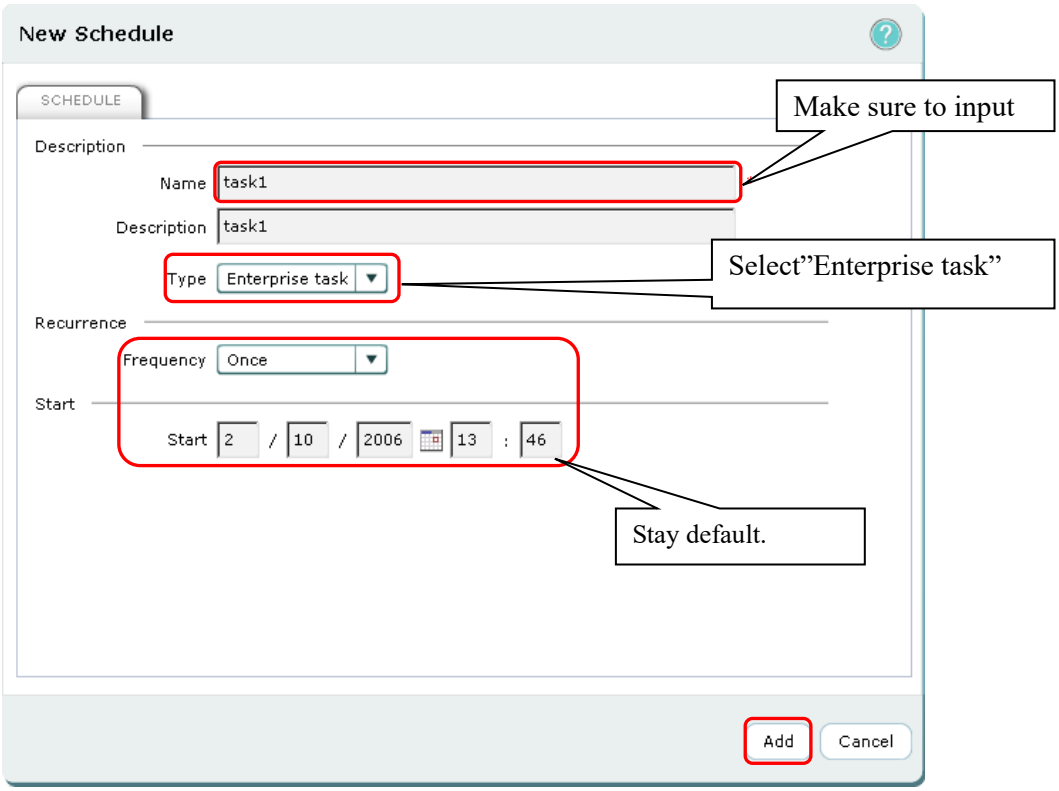



3 “New Schedule” screen is displayed.

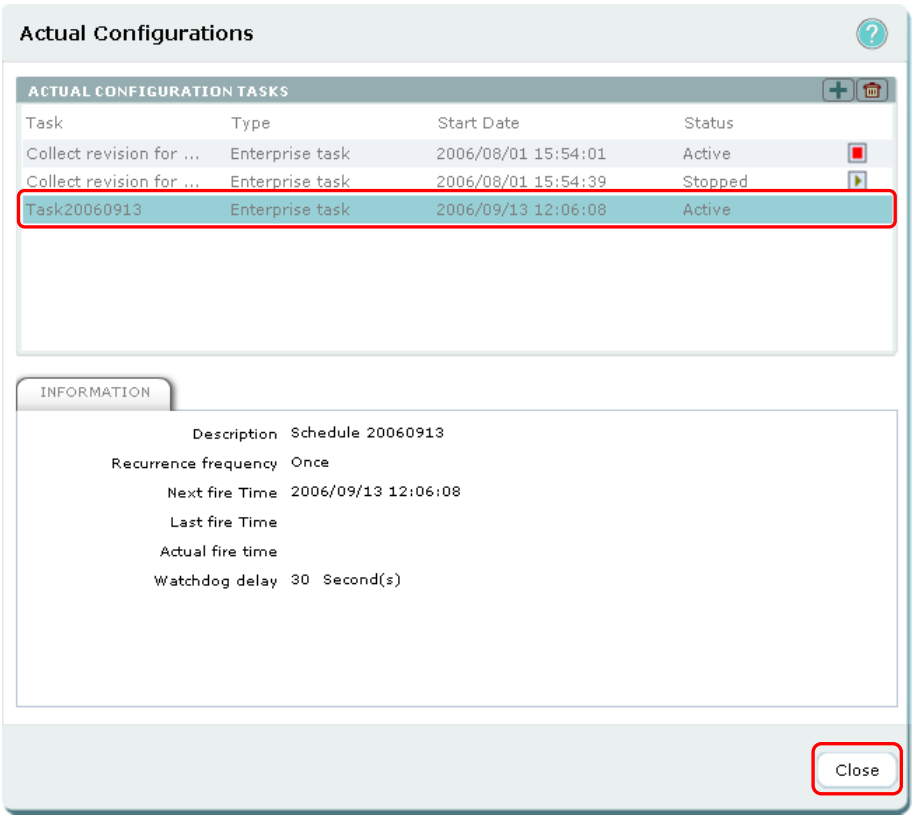


4 Fill in [Name], choose [Type] and click [Add].

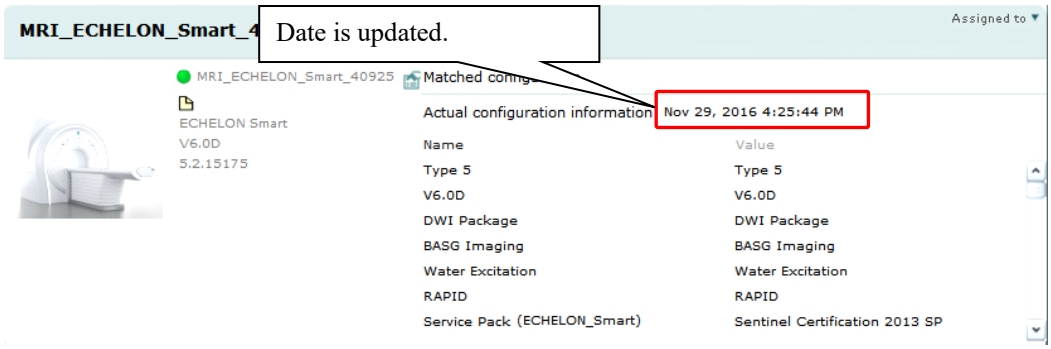
**NOTE** Description omission is acceptable.




5 Make sure task has been added and then click [Close].



6 Take a minute to update and the latest "Installed Software" information is indicated.

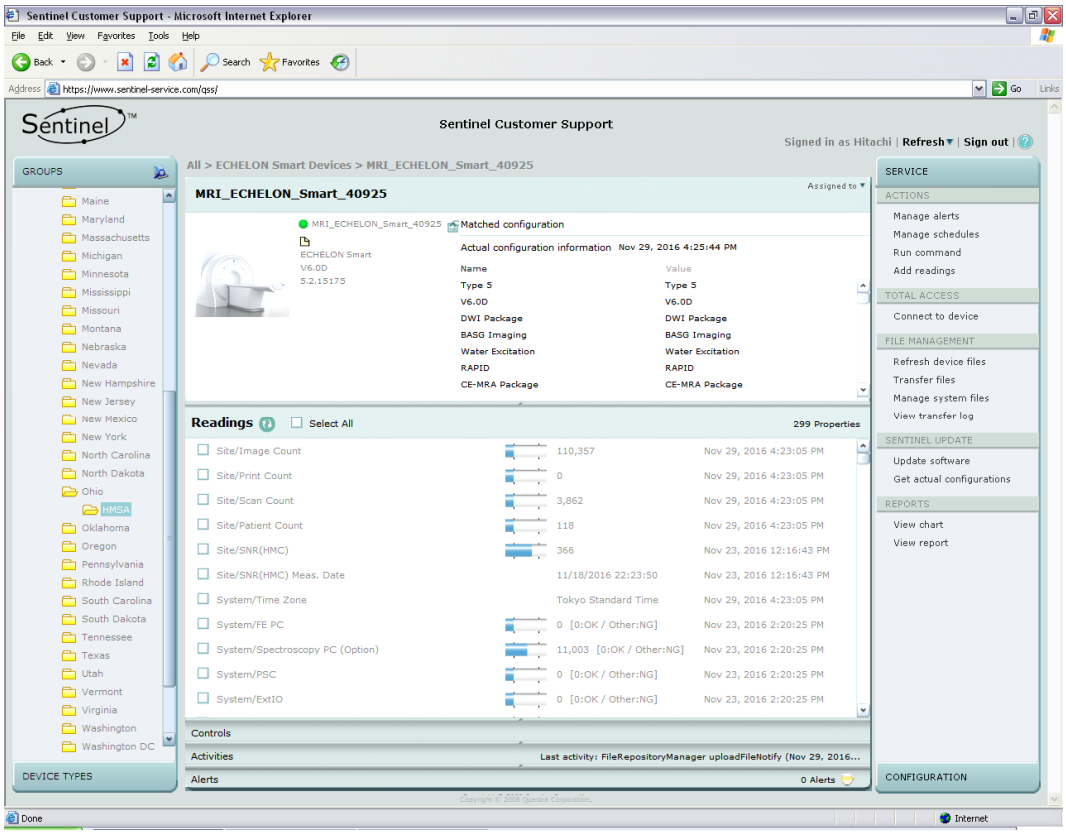


# 7.10 View chart

By using [SERVICE] - [REPORTS] - [View chart], acquired data can be listed and graphed on screen.

The following is the procedure up to View chart usage.

## 1 Select device.



2 Click [SERVICE] - [REPORTS] - [View chart].

3 Select [SERVICE] - [REPORTS]-[View chart] and the following screen is displayed.

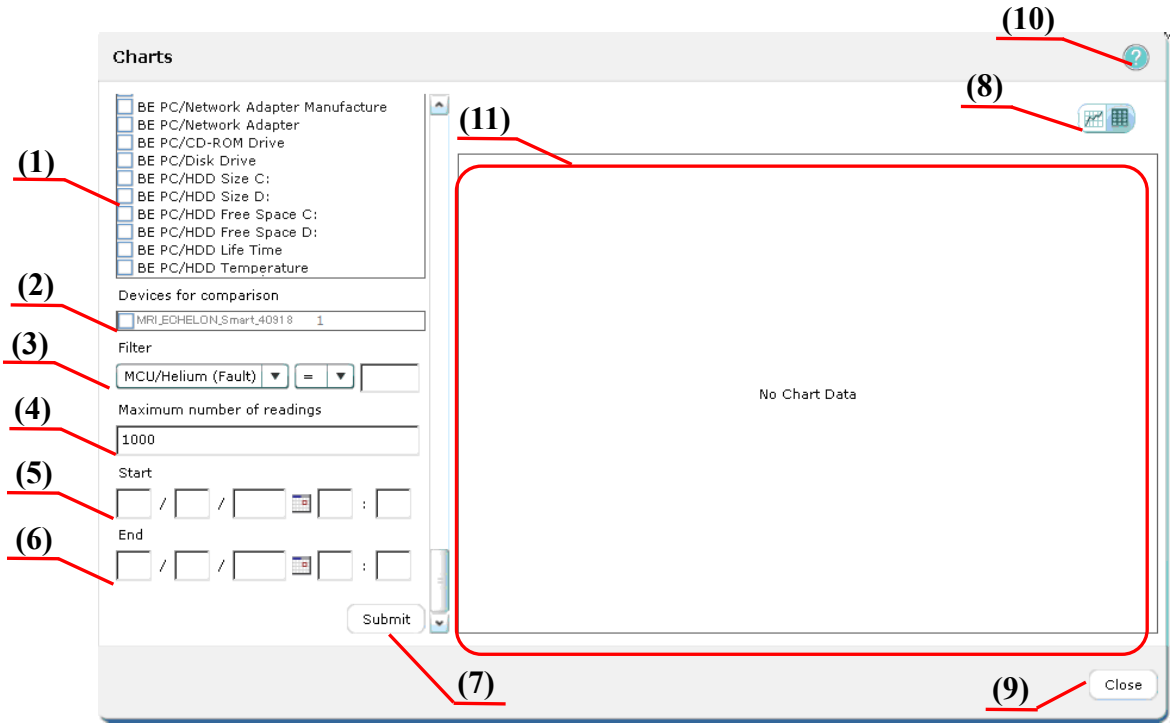



Figure7-75 View chart

(1) Properties

Select the property to indicate. (Selection is mandatory. Multiple selections are possible. Selecting up tp 6 items is possible.)

(2) Devices for comparison

Select comparing devices. (Selection is mandatory. Multiple selections are possible. Selecting up tp 6 items is possible.)

(3) Filter

Filtered and displayed value can be set.

(4) Maximum number of readings

Displayed maximum number is entered. (Default is 1000)

(5) Start

Start date is specified.

(6) End

End date is specified.

(7) Submit

By clicking Submit, chart or table is displayed.

(8) Display switch

By clicking , chart or table display is switched.

(9) Close

By clicking Close, this screen closes.

(10) Help

By clicking , on-line help is displayed.

(11) Display screen

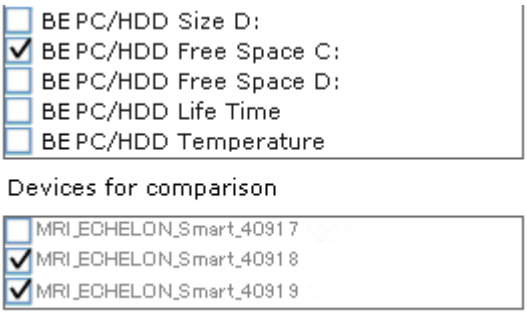
Chart or table is displayed here.

**NOTE** [Properties]×[Devices for comparison]≦6 is number of selectable items in [Properties] and [Devices for comparison].

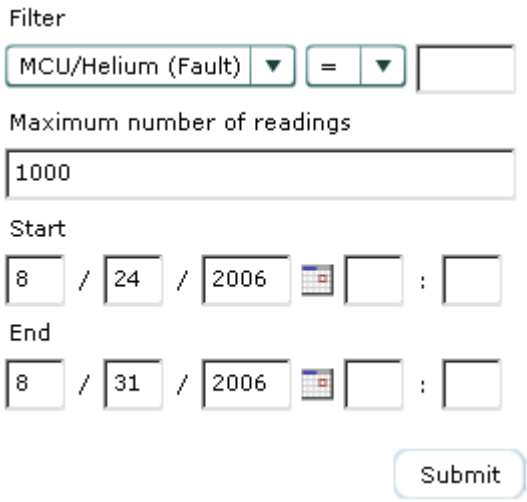
The following is View chart procedure.

1 Tick items to display in [Properties] and [Devices for comparison].

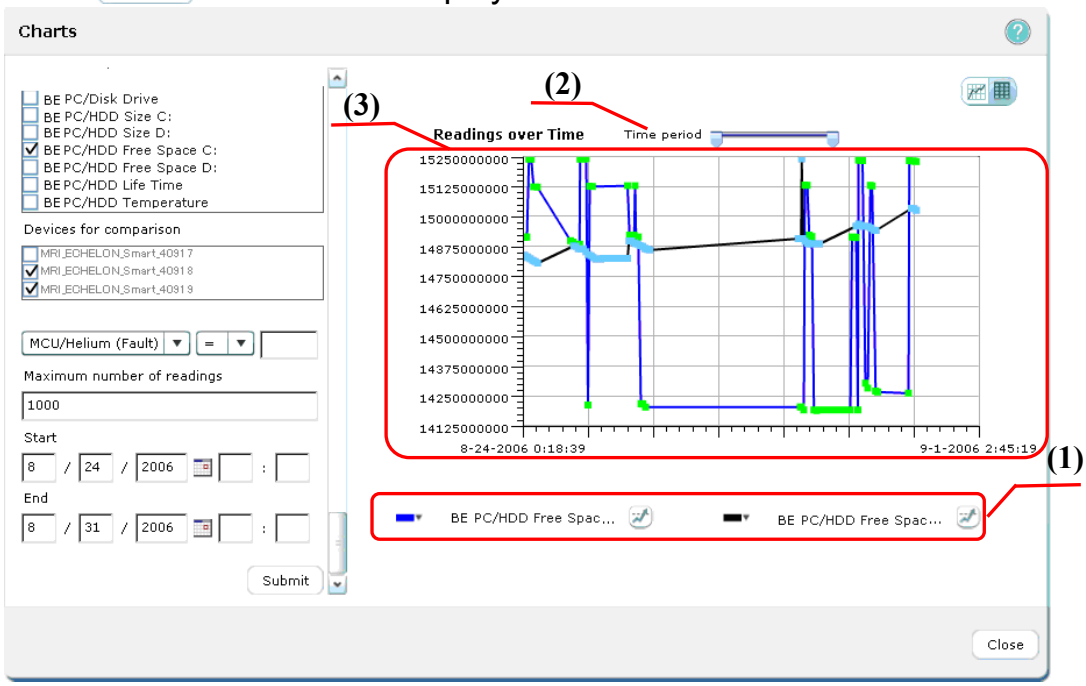
**NOTE** Select same unit properties if choosing two or more and displaying chart.




2 Enter and select [Filter], [Maximum number of readings], [Start] and [End] if necessary.



3 Click Submit and chart is displayed.




(1) Properties

Graph display selection is possible.

(2) Time period

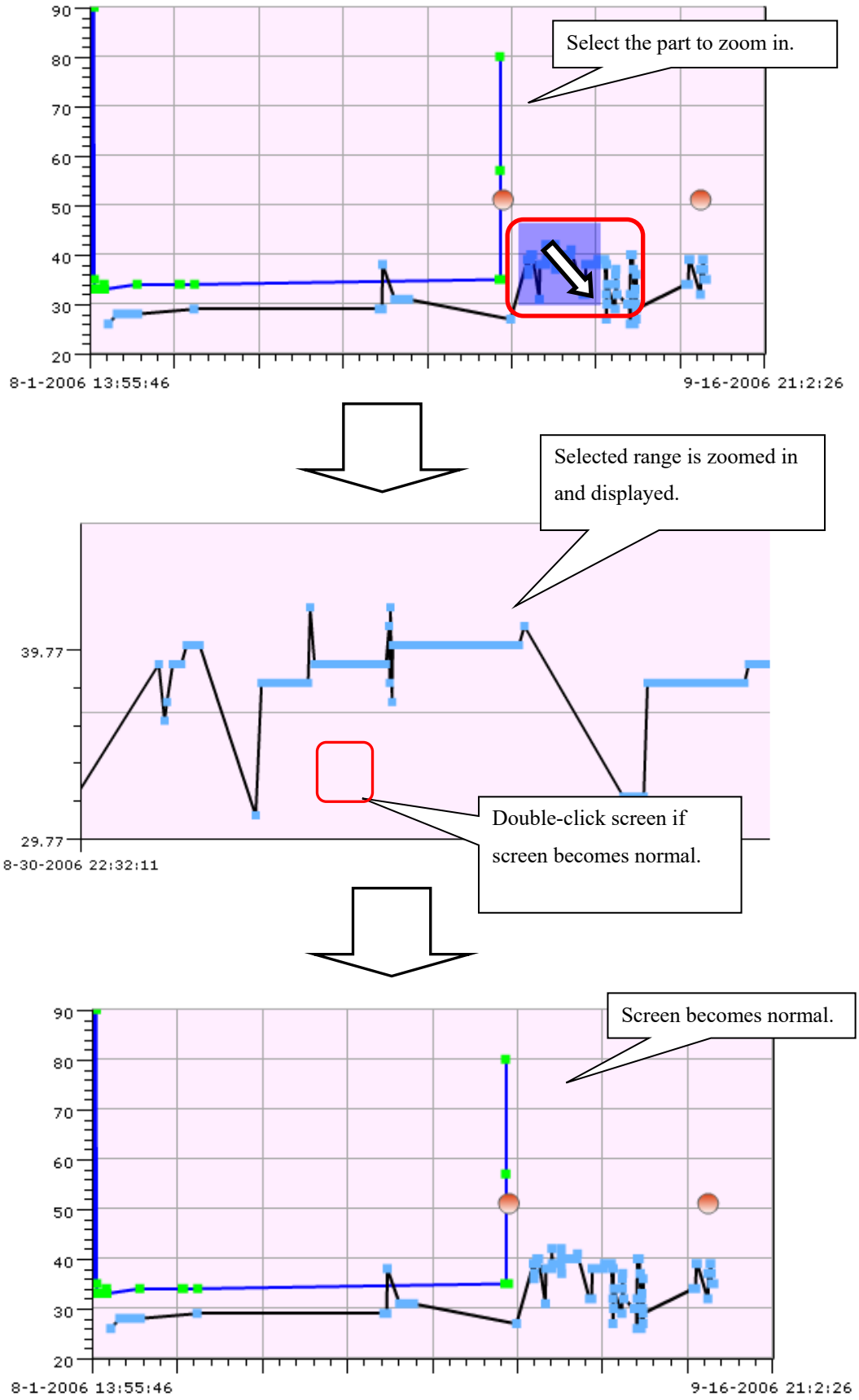
By moving the cursor, data range specification is possible.

(3) Graph display

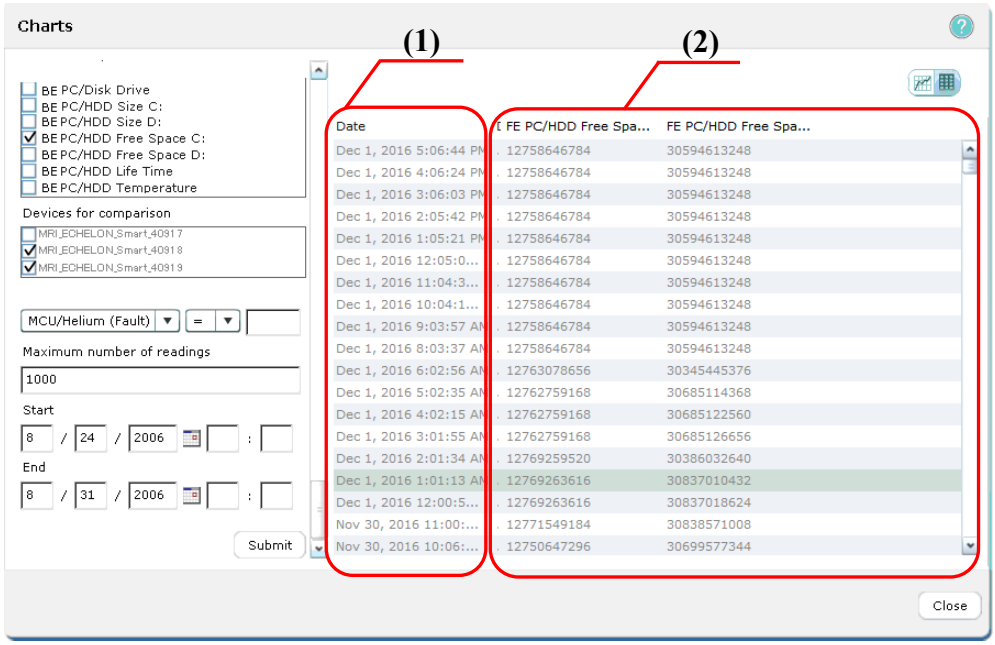
X axis period zoom in is possible within selected range. Besides, graph display becomes normal one by double-clicking graph screen.

is the latest Alert of the device chosen in “Devices for comparison”.

4 Screen can be zoomed in as follows.



5 Click and display is switched to table display.




(1) Date

Acquisition time is indicated.

(2) Value

Value is indicated.

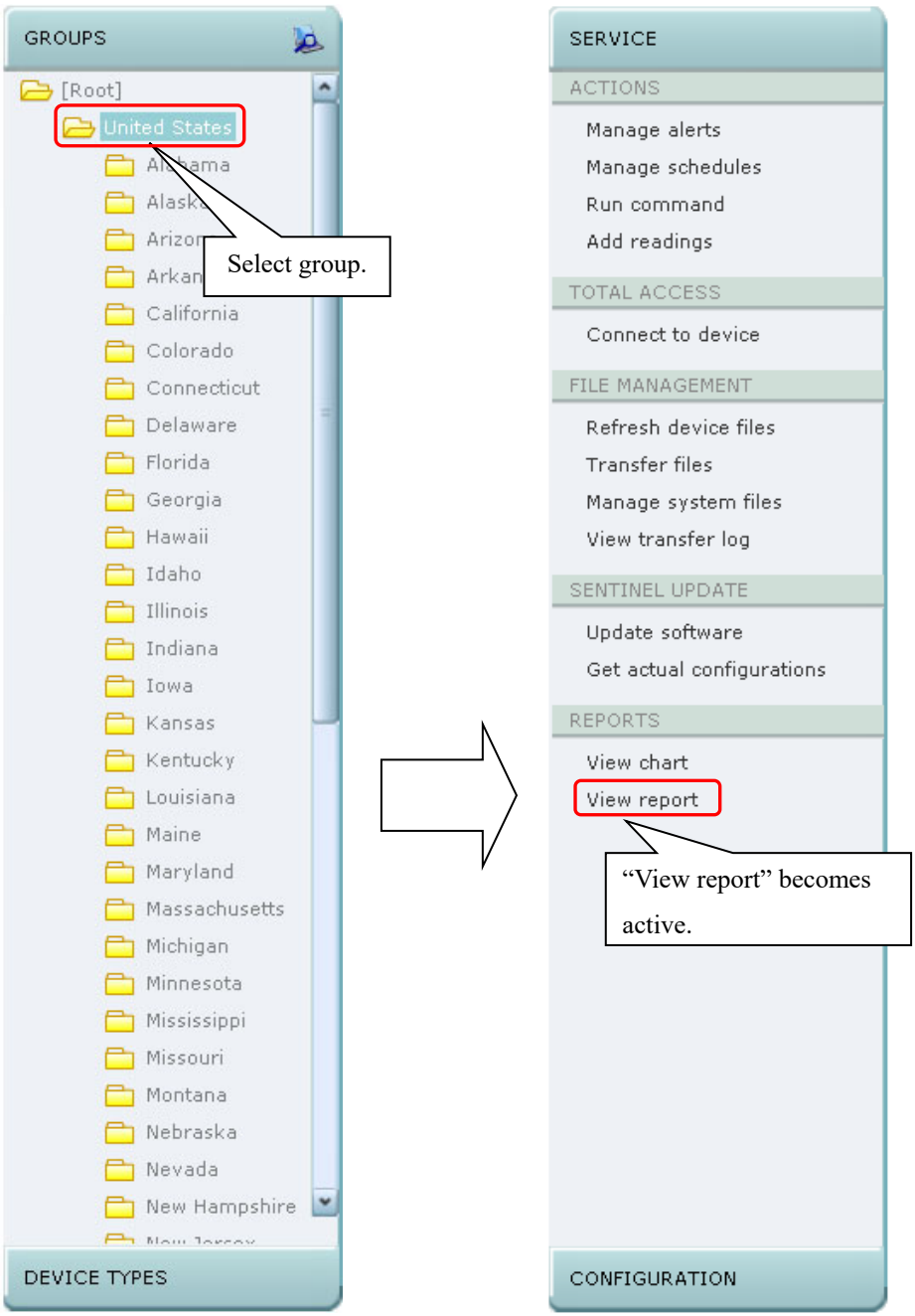
Indicating items increases at the time of multiple selections.

# 7.11 Report

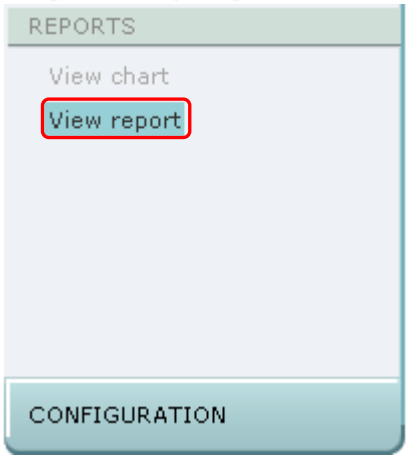
By acquired data, automatically generated report can be browses.

## 7.11.1 View report

1 If selecting any group, [SERVICE] – [REPORTS] - [View report] become active.



2 Click [View report].




3 Report menu is displayed.

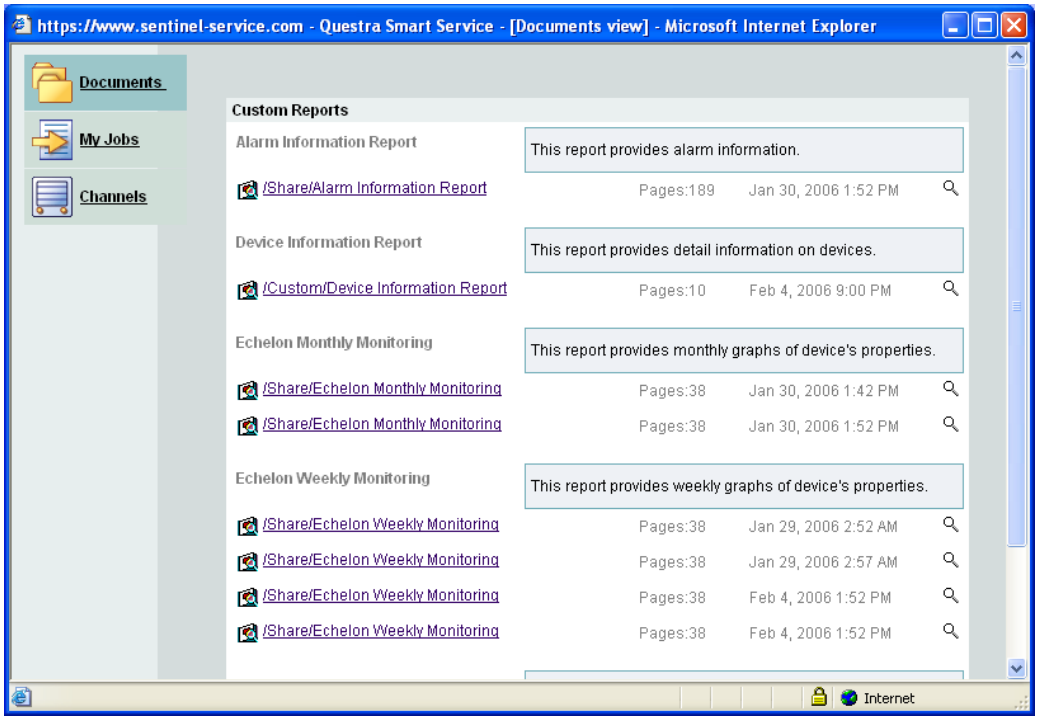
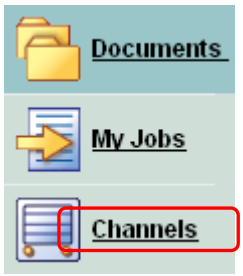
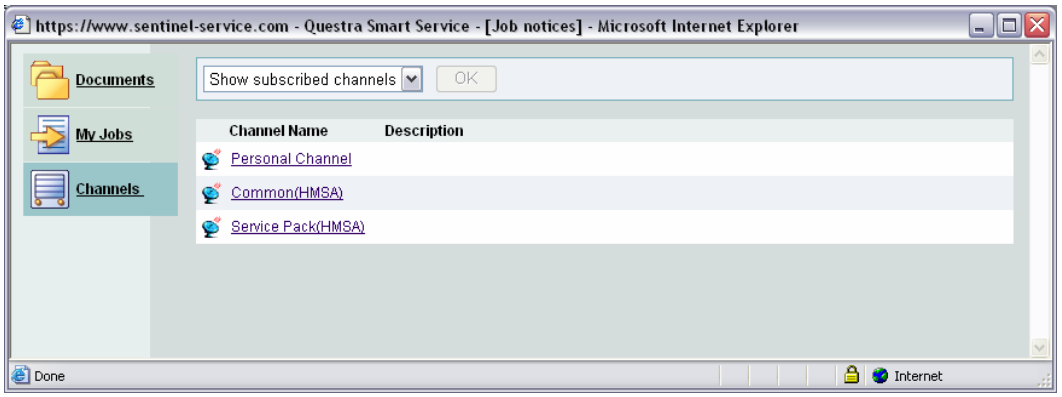



Figure7-76 Report menu screen

4 Click “Channels” of the menu on the upper left of the screen and display channel list.




5 Select any channel from channel list.

**NOTE** “Personal Channel” is not available.

6 Channel inside displays the report list automatically generated and available for browse.

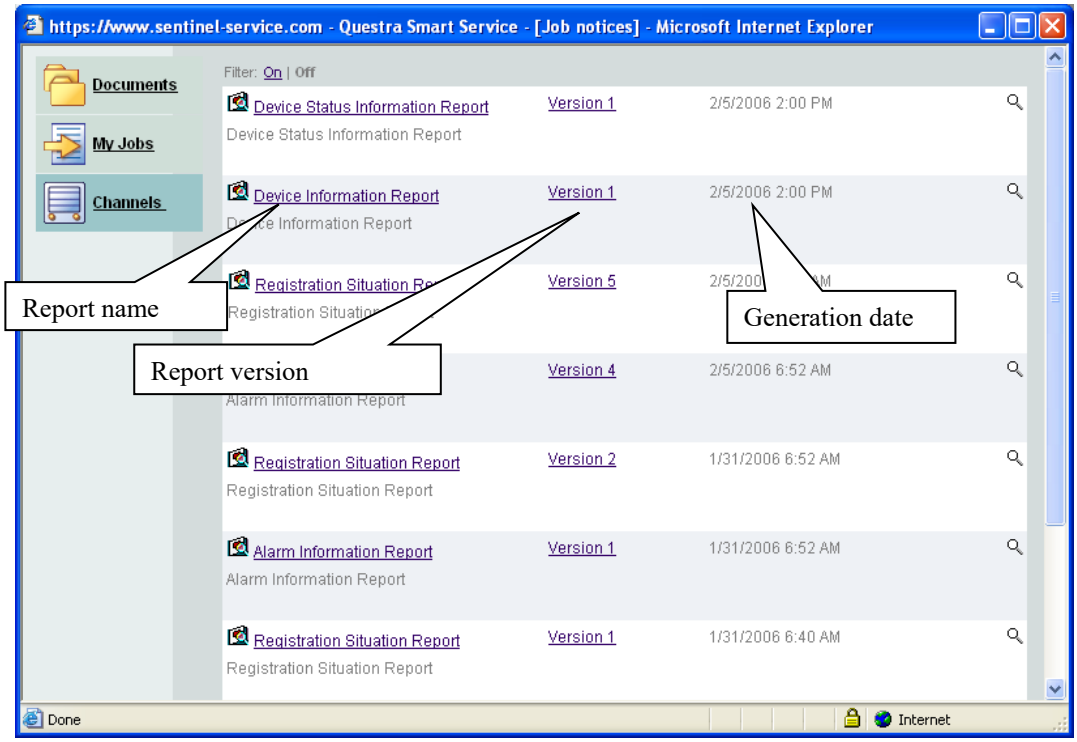



Figure7-77 Channels

7 Click name of report to browse and the report is displayed.

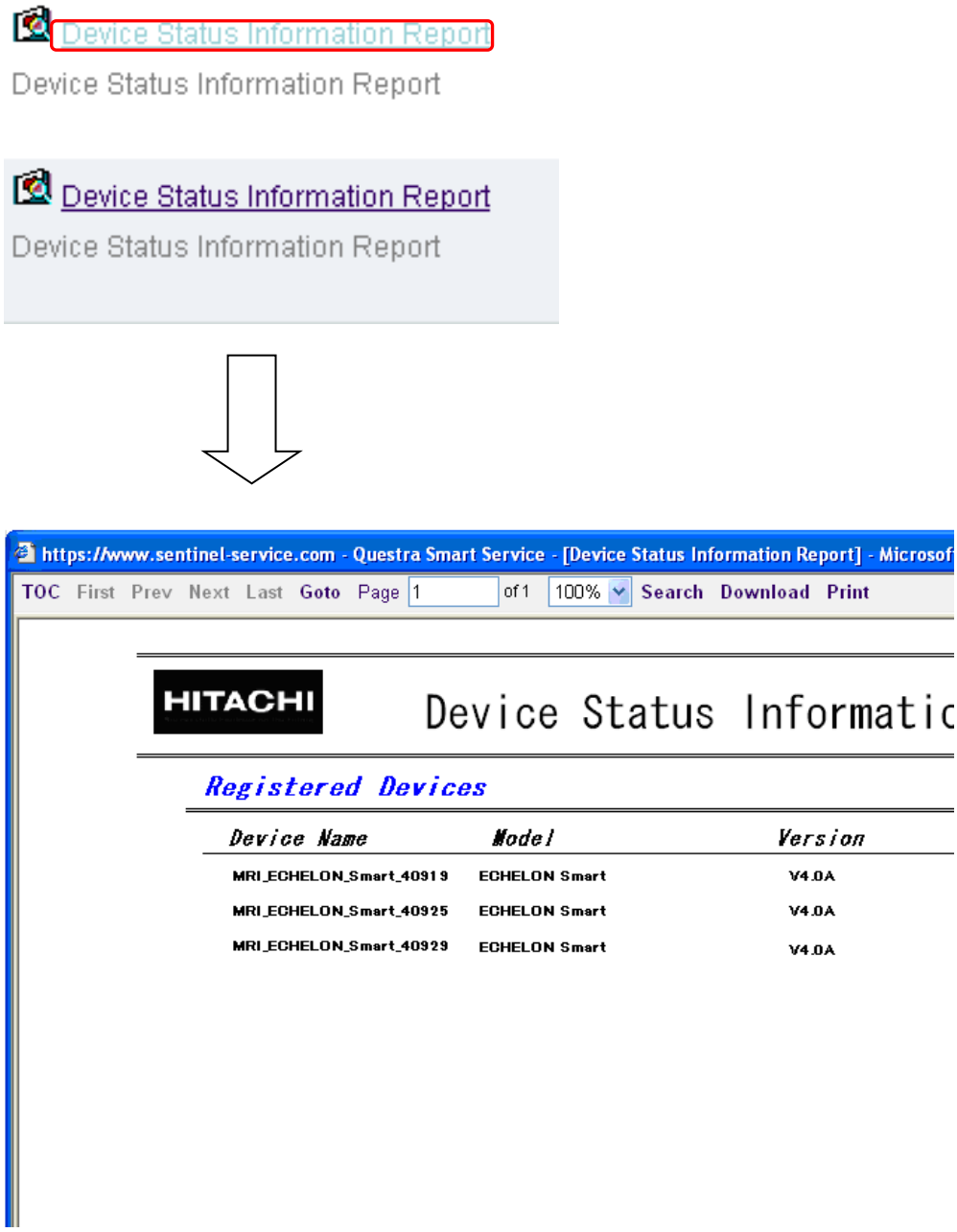
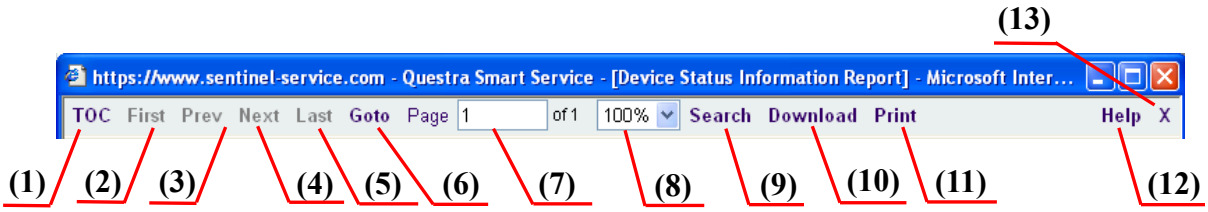



Figure7-78 Report browse screen

Report operation is possible from the menu at the top of report browse.




(1) TOC

Report content opens.

(2) First

Page can turn back to first page.

(3) Prev

Page can turn back to previous page.

(4) Next

Next page opens.

(5) Last

Last page opens.

(6) Goto

Page entered in page opens.

(7) Page

“Current page/Total page” is displayed.

(8) Screen size

Screen size can be changed.

(9) Search

Search bar is displayed.

(10) Download

Report can be saved.

(11) Print

Report is printed.

(12) Help

On-line help is displayed.

**NOTE** Not available now.

(13) Close

Report closes.

## 7.11.2 Using content .....

1 According to above procedure, display the report to browse.

2 Click “TOC” from the menu at the top of the report browsing screen and display content.

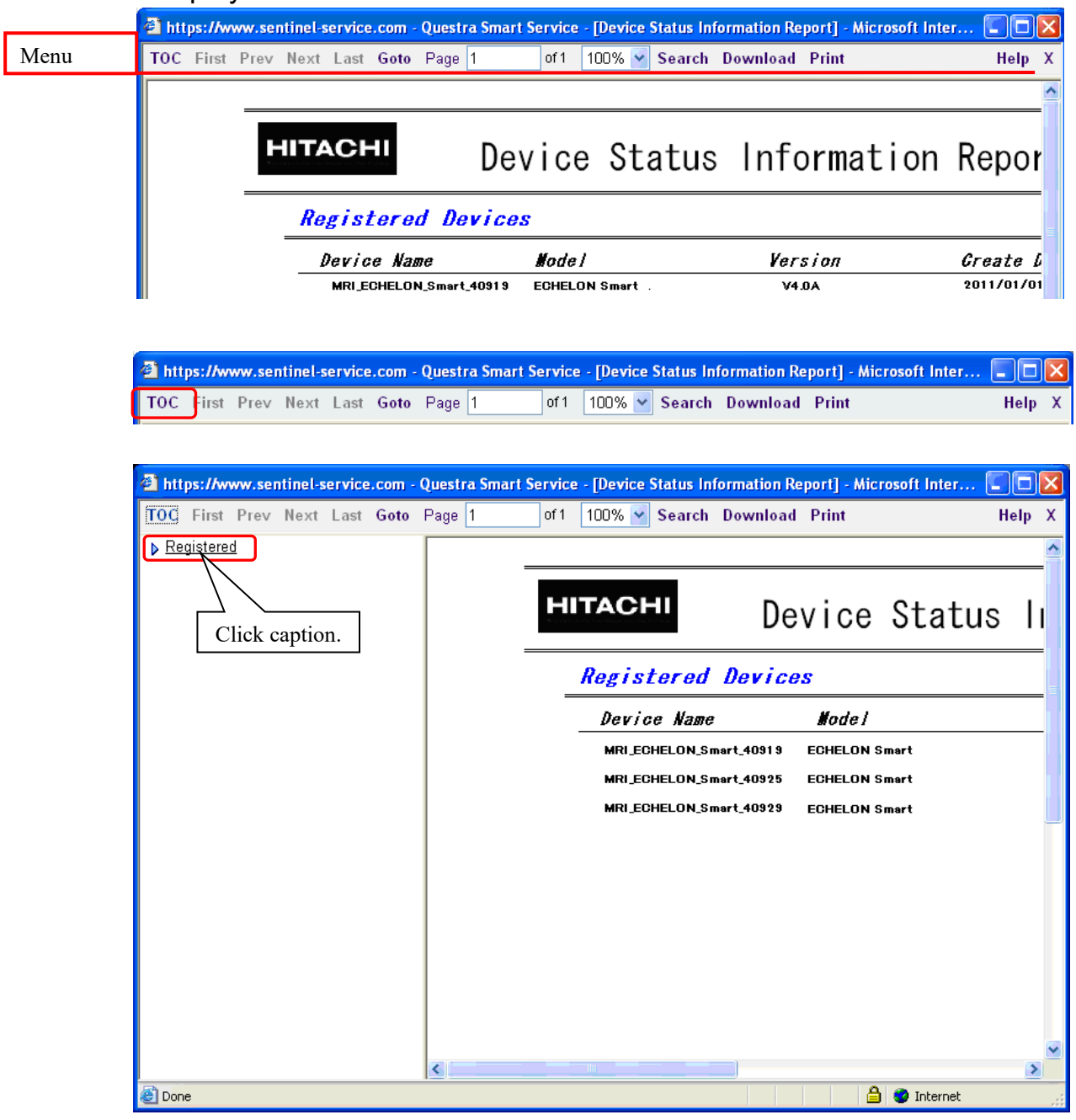


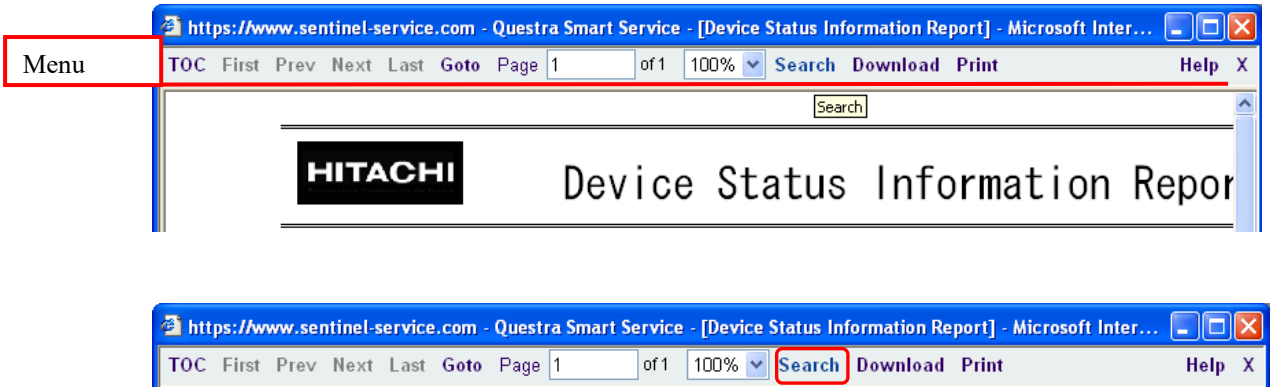

Figure7-79 Content display

3 Click the caption indicated on the left and its caption page can be displayed.

## 7.11.3 Using search function .....

1 According to above procedure, display the report to browse.

2 Click “Search” from the menu at the top of screen browsing report.







3 Screen left side displays search menu.

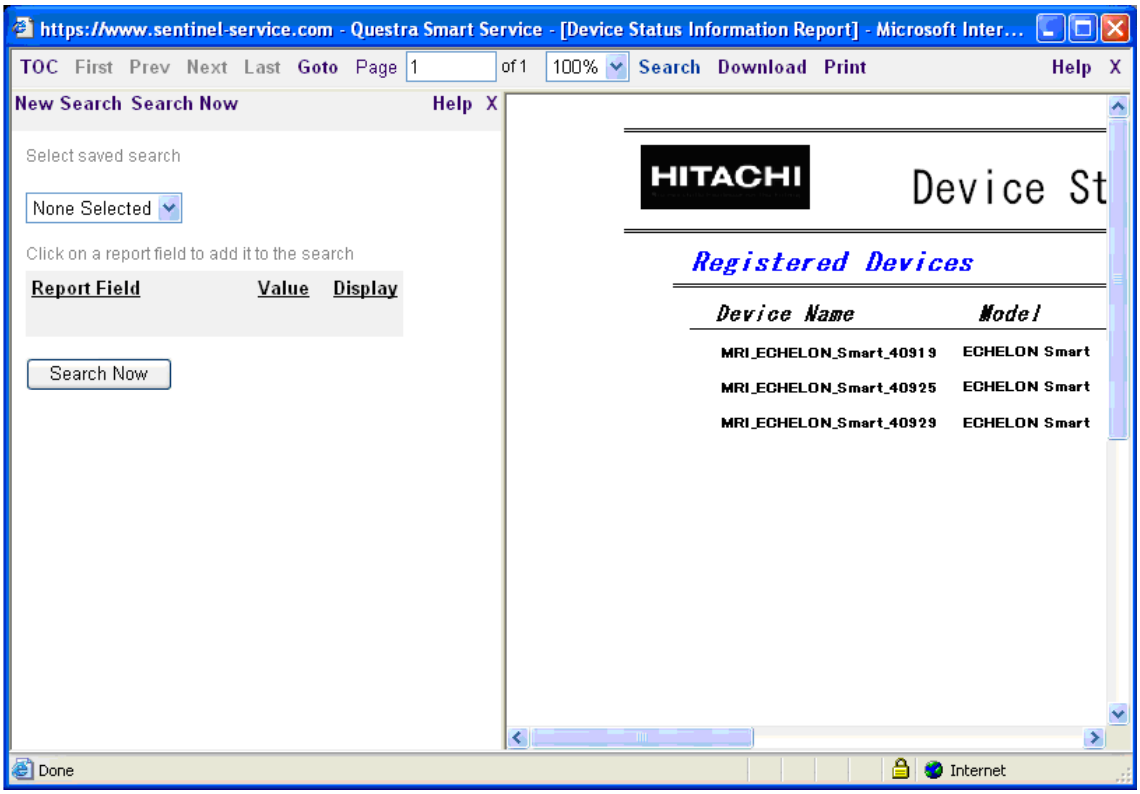
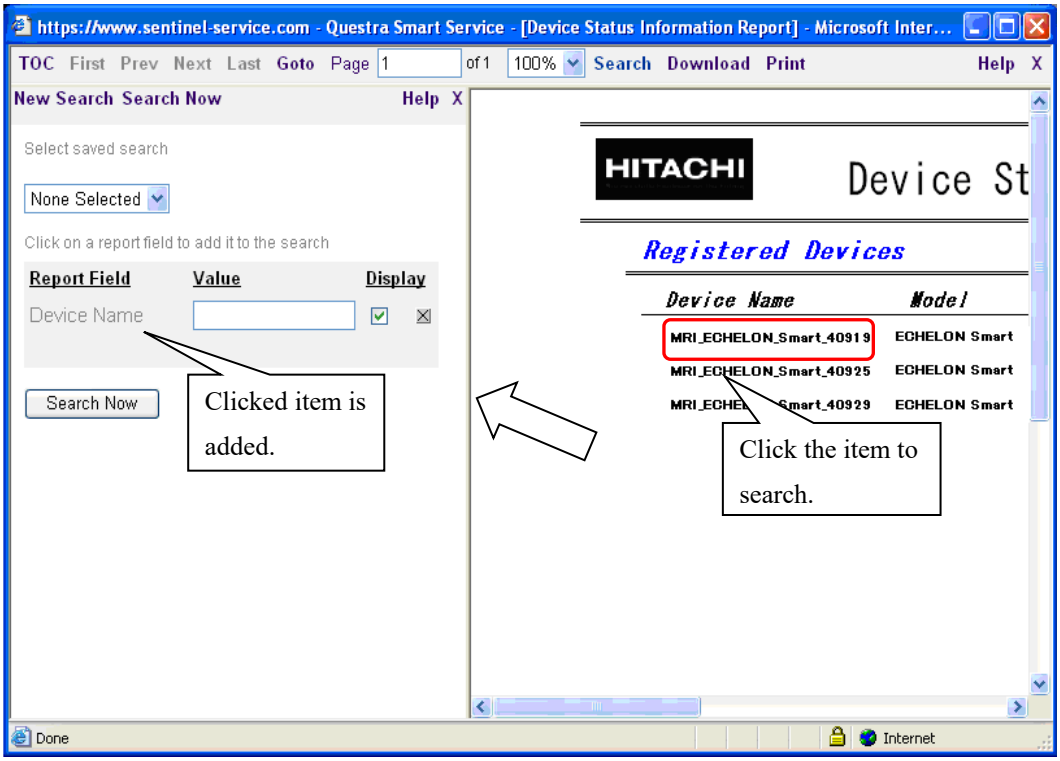
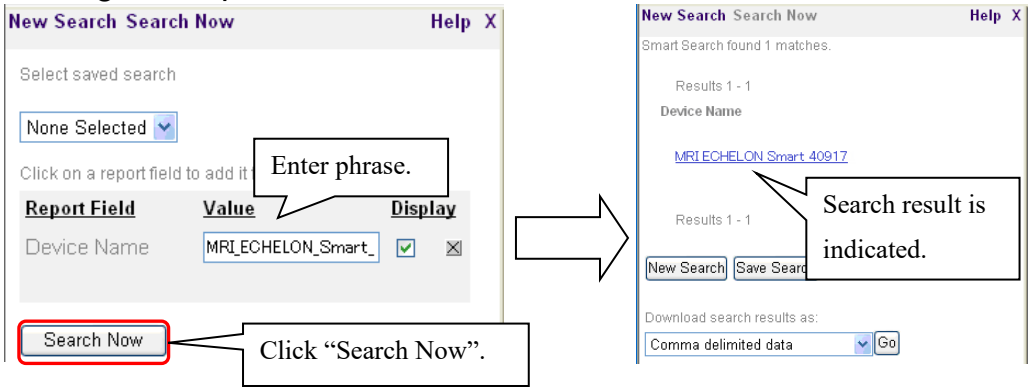



Figure7-80 Search menu display

4 Click the items to search from report body. In the following case, to search with device name, “MRI_ECHELON_Smart_40919” indicated at the top of Device Name items is clicked. By clicking an item, it is added to search menu on the left.

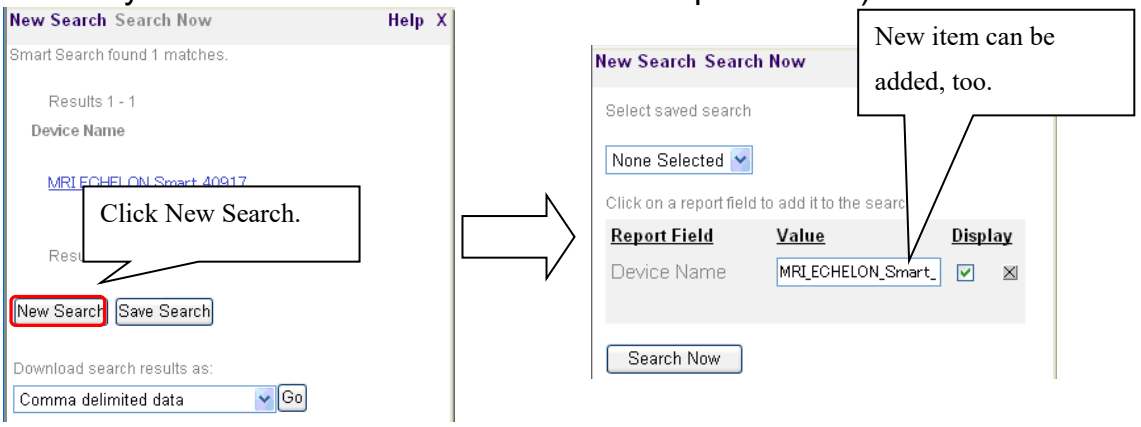



5 If entering any phrase and clicking [Search Now], report search starts according to the phrase.



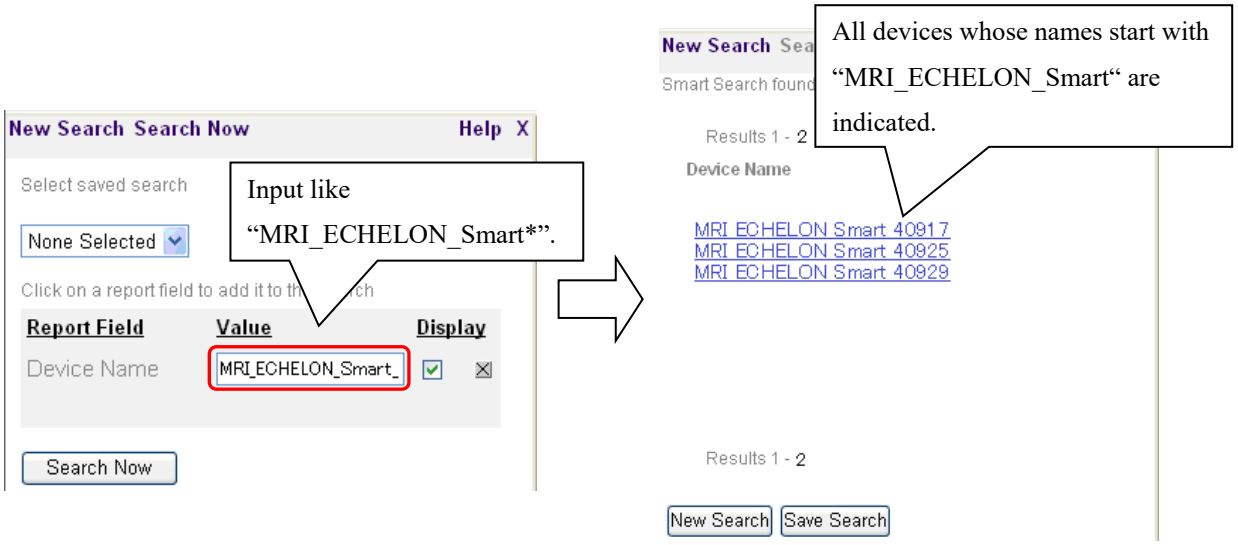

6 By clicking indicated search result, jumping to the page including its phrase is possible.

7 Click [New Search] if searching with other phrase again. Screen returns to the entry screen by clicking. New item can be added here, too. (Its way is the same as above item addition procedure.)




8 Only administrator user can use [Save Search] button next to [New Search].

9 By marking "*" to search phrase, all including phrase before * is indicated as search result. In the following case, to search device name, all devices whose name are same and whose serial numbers are different are searched.

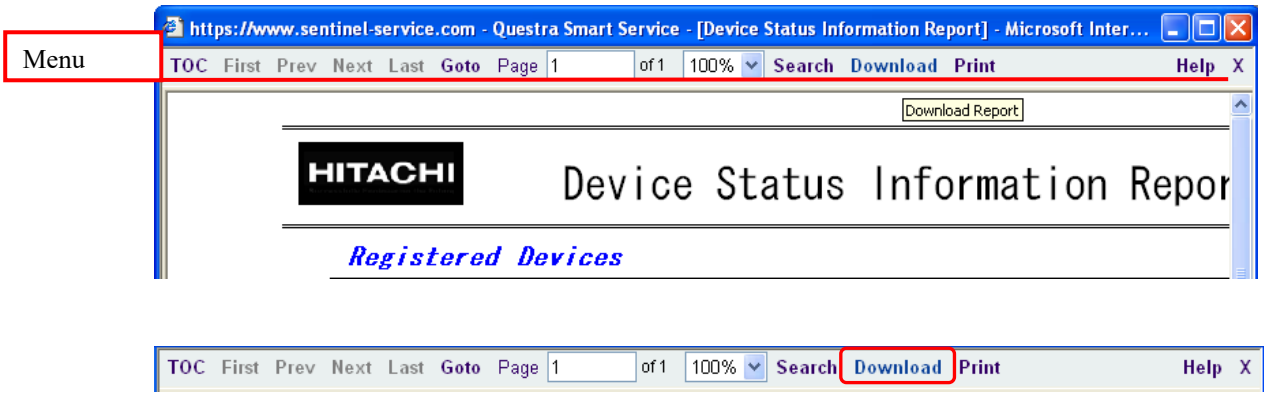


## 7.11.4 Report save

Displayed report can be saved.

1 According to above procedure, display any report.

2 Click “Download” from the menu at the top of report browsing screen.







3 Download screen is displayed.

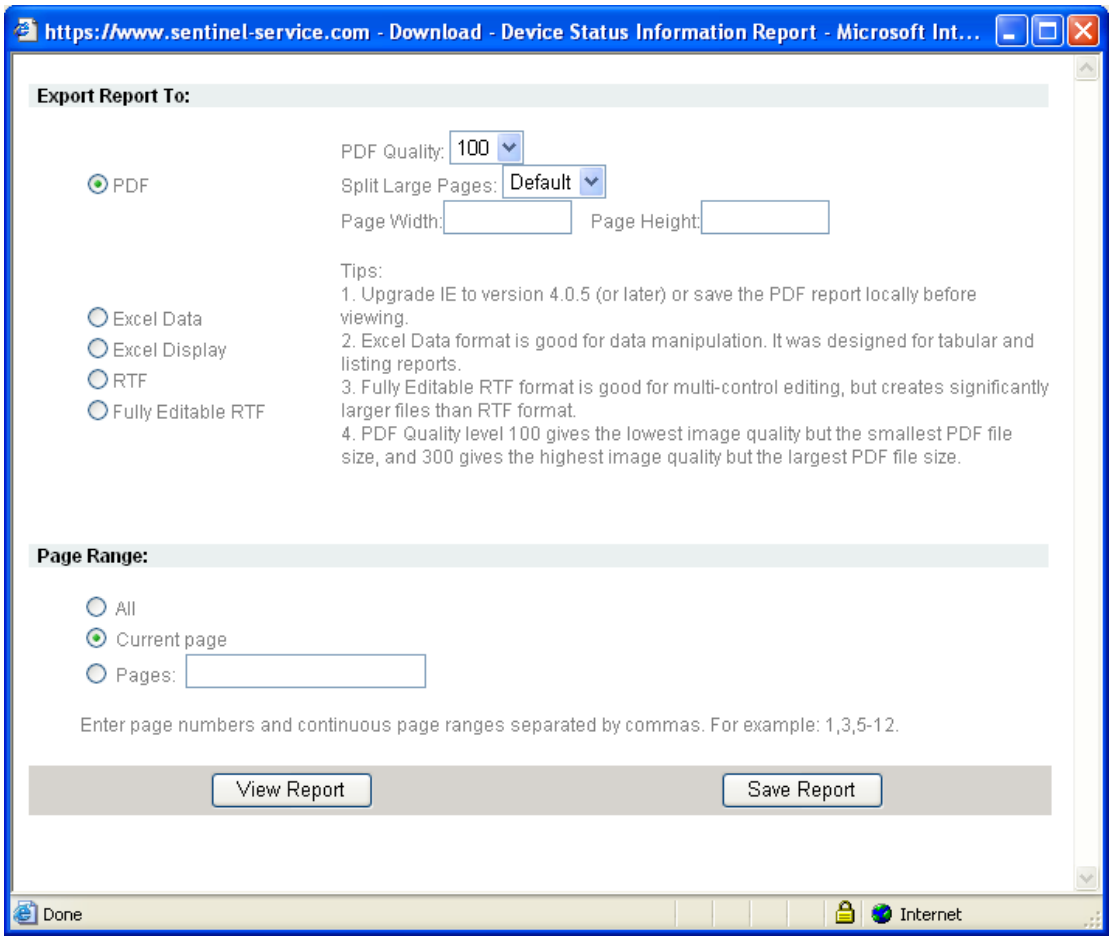
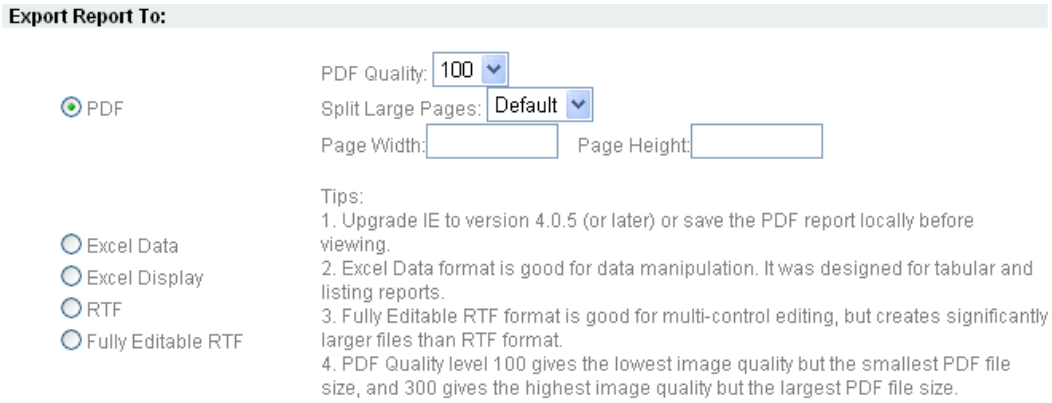



Figure7-81 Download screen

## 4 Saving format is selected.

5 type formats can be selected.




(1) PDF

If selecting PDF, it is additionally possible to set up image quality, the process for the case where report does not fit into one page, page width and height. In addition, download is possible even without setting them up.

(2) Excel Data

Output file is Excel format, so its ruled line and so on sometimes looks a little bit different from real report.

(3) Excel Display

Output file is Excel format, but its ruled line and so on is the same as real report.

(4) RTF, Fully Editable RTF

If selecting RTF, rich text format file is output. It can be opened with Microsoft Word.

**NOTE** If a report is saved in “Excel data” and “Excel Display”, number of pages to download need to be 50 pages or less. If more than 50 pages are downloaded, “Warning: Excel converter page limit of 50 exceeded.” is indicated after 50 pages.

## 5 Set up downloading page range.

As the following figure description, any page can be specified, too.

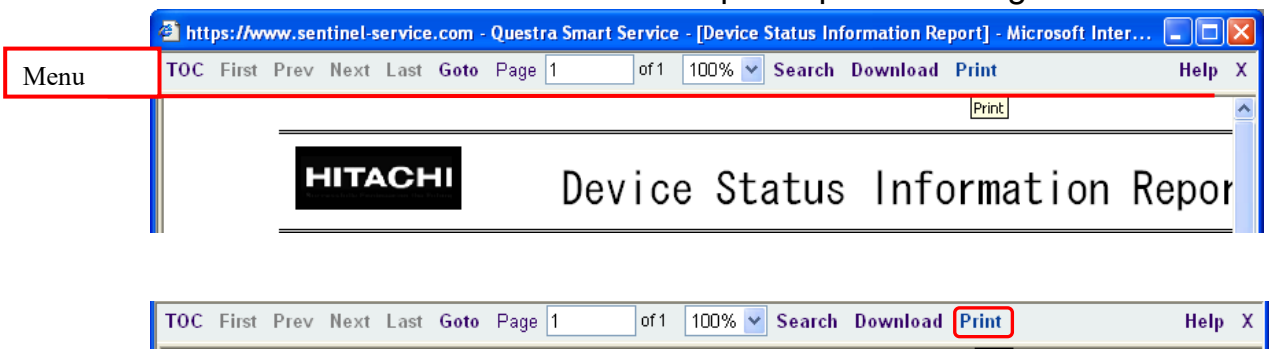
6 Click [View Report] or [Save Report]. If selecting [View Report], report immediately opens, but it is not saved. If selecting [Save Report], report does not open and is saved.

## 7.11.5 Report print

Displayed report can be printed.

1 According to above procedure, display any report.

2 Click “Print” from the menu at the top of report browsing screen.







3 Report is automatically converted to PDF format and print screen is displayed.

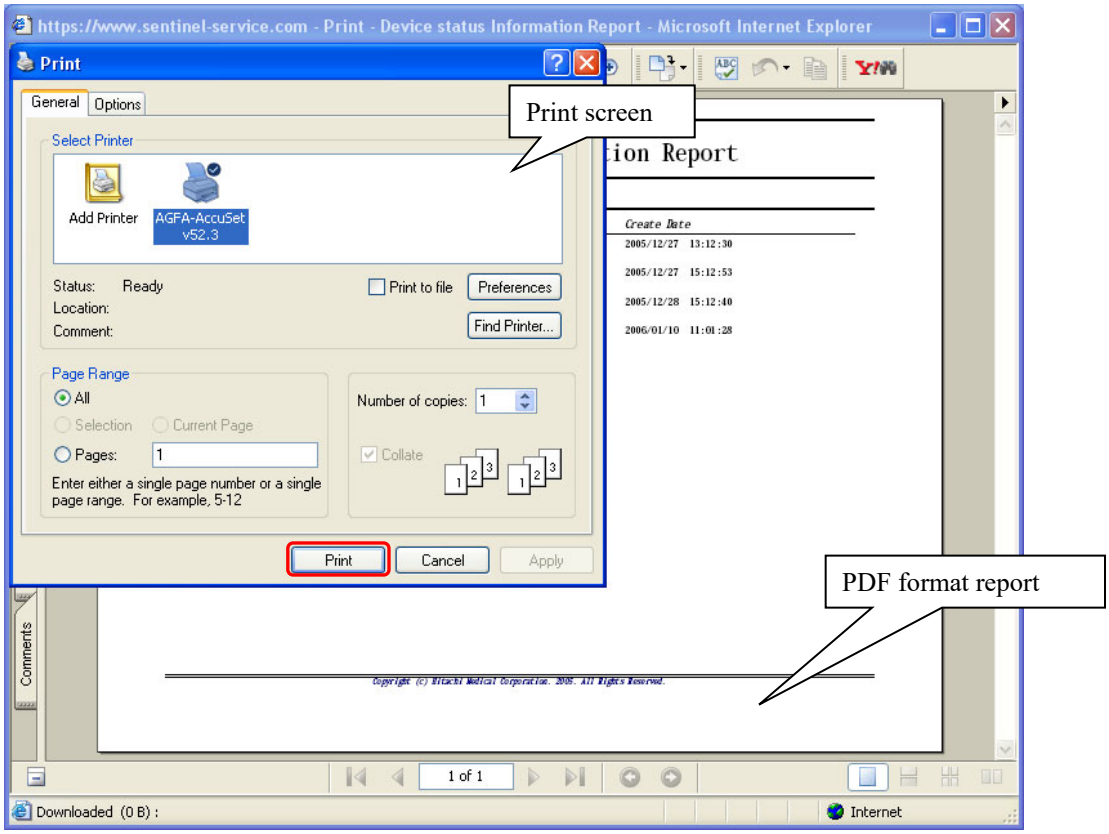
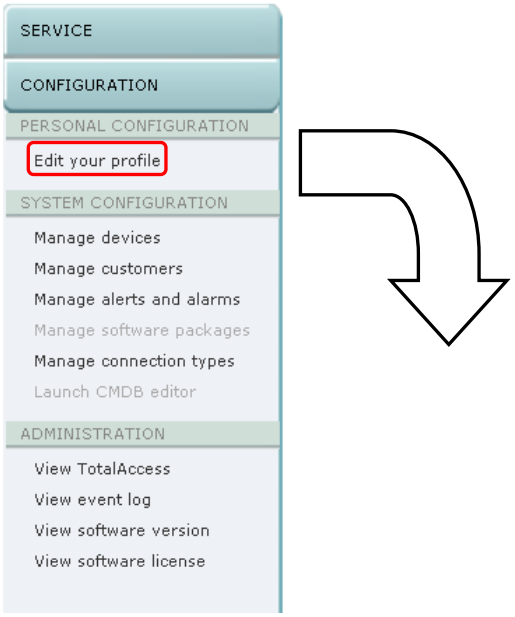



Figure7-82 PDF format report and print screen

4 Click [Print].

# 7.12 Personal Configuration

[Edit your profile] enables log-in user information display and change. Click [CONFIGURATION] - [PERSONAL CONFIGURATION] - [Edit your profile].



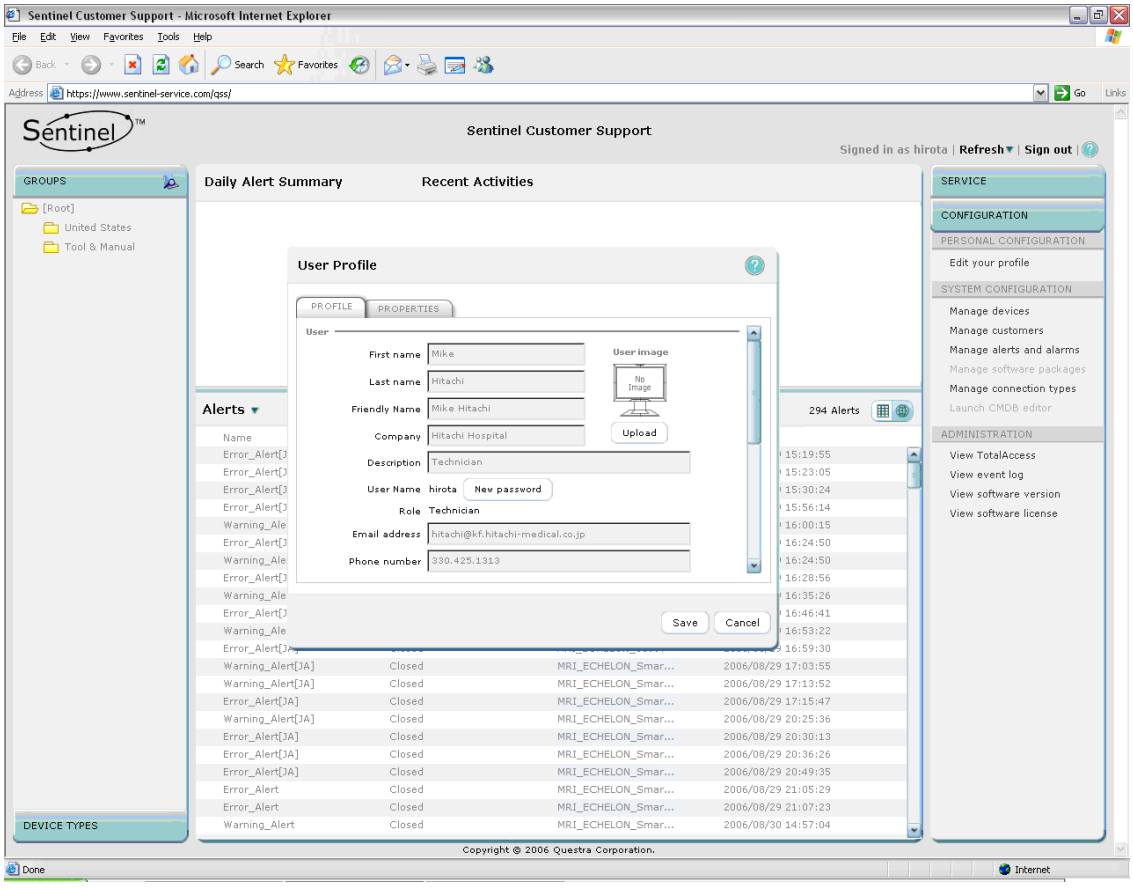




Figure7-83 Edit your profile

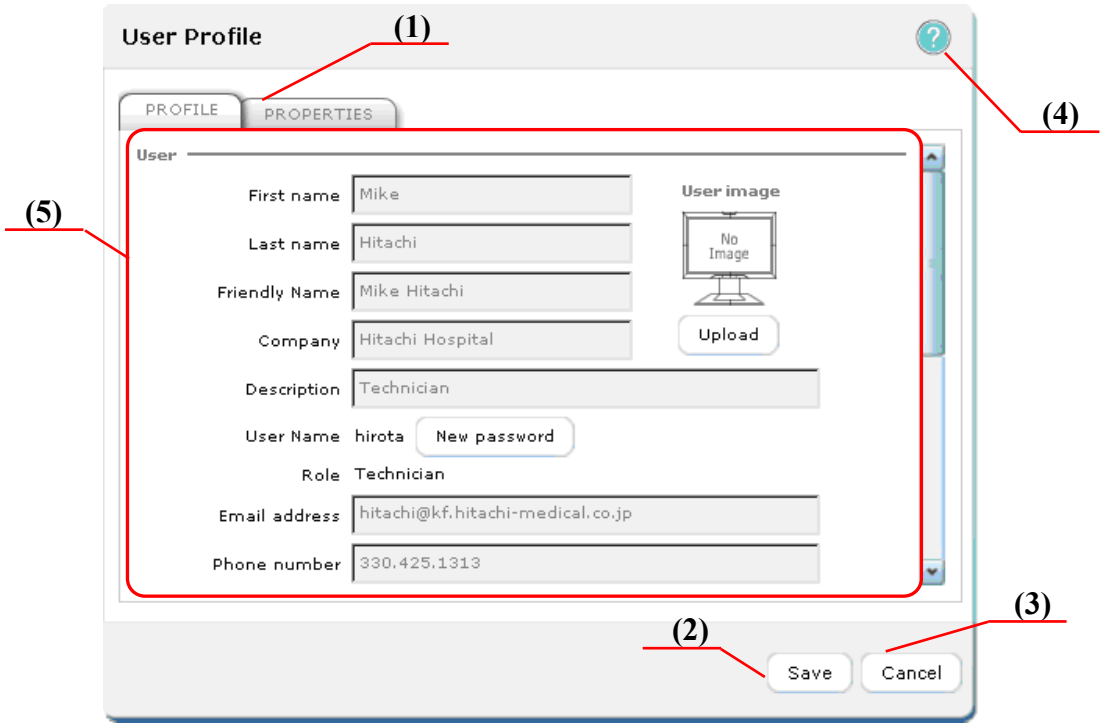



Figure7-84 User Profile

(1) Display switch

[PROFILE] and [PROPERTIES] display is switched.

(2) Save

Value changed setting is saved.

(3) Cancel

This operation stops and this screen closes.

(4) Help

By clicking , on-line help is displayed.

(5) Profile

Profile is displayed.

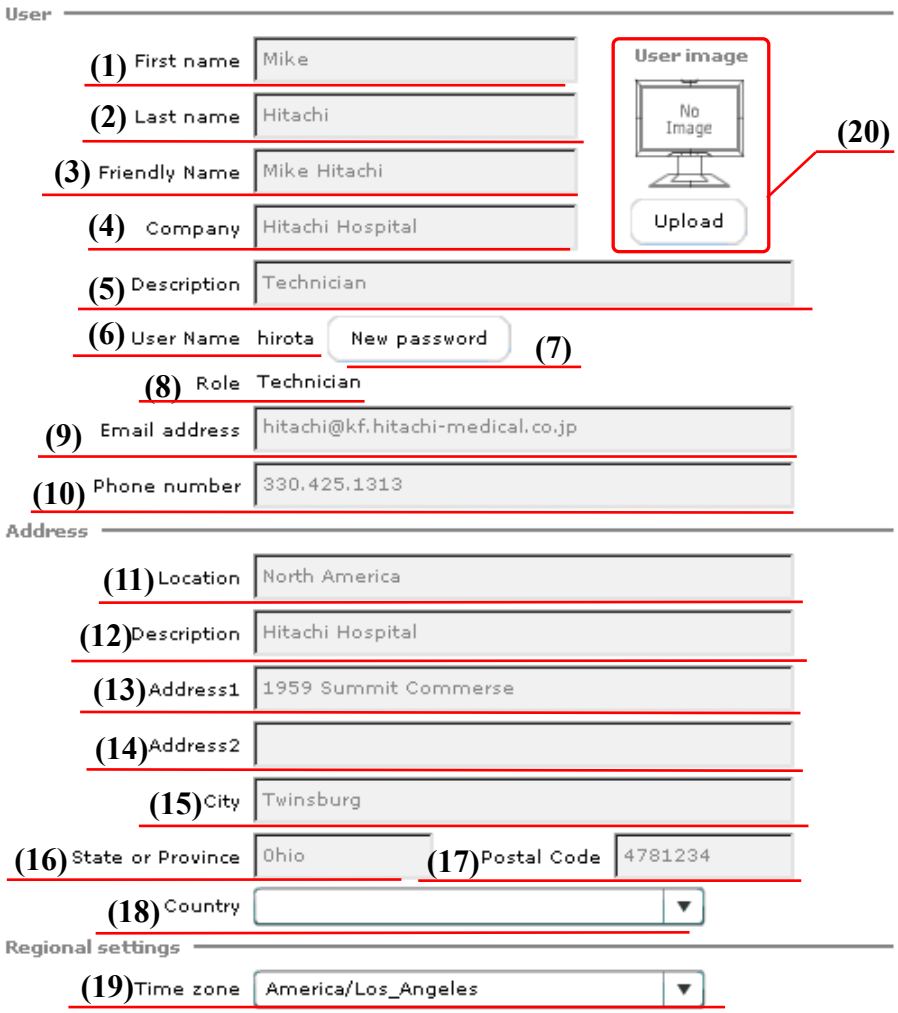



Figure7-85 Profile

(1) First name

First name is indicated.

(2) Last name

Last name is indicated.

(3) Friendly name

Friendly name is indicated.

(4) Company

Company is indicated.

(5) Description

Department is indicated.

(6) User Name

User Name is indicated. (**NOTE:** Administrator registers user.)

(7) New password
Password can be changed.

(8) Role
Role is indicated. (Administrator authority is required for Role setting change.)

(9) Email address
Registered Email address is indicated.

(10) Phone number
Registered phone number is indicated.

(11) Location
Location is indicated.

(12) Description
Registered address description is indicated.

(13) Address1
Address1 of registered address is indicated.

(14) Address2
Address2 of registered address is indicated.

(15) City
Registered address city is indicated.

(16) State or Province
Registered address state or province is indicated.

(17) Postal Code
Registered address postal code is indicated.

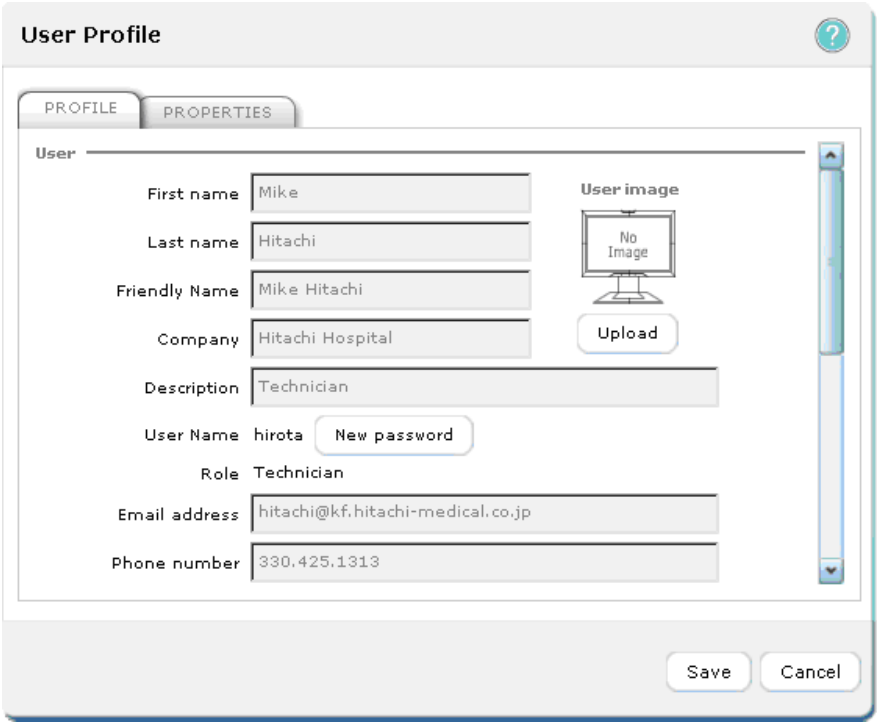
(18) Country
Registered address country is indicated.
**NOTE** Administrator user authority is required for setting change.

(19) Time zone
Time zone is indicated.

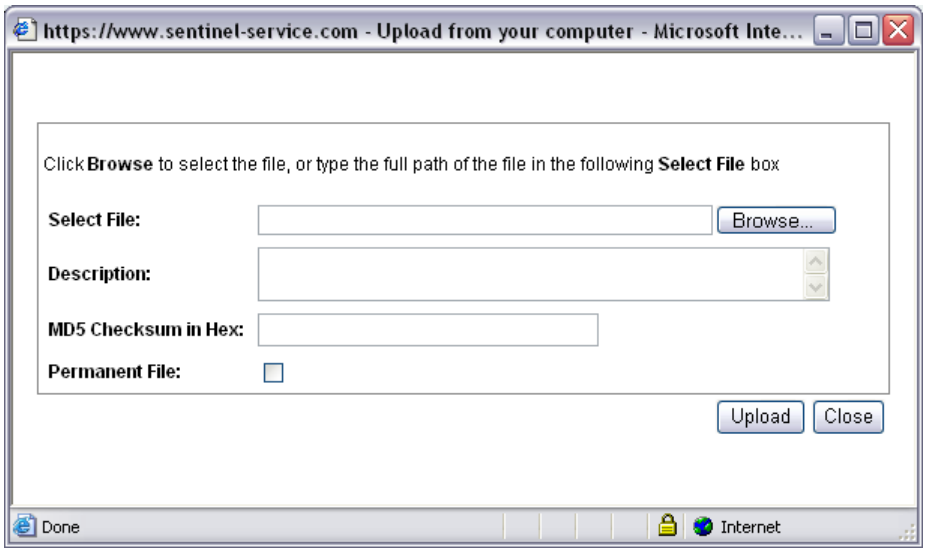
(20) User image
An image of one's face photograph and so on can be uploaded. (An image needs to be 120 pixels in width and 120 pixels in height, and its file format needs to be JPG.)

If clicking Upload, image of one's image can be uploaded. Follow the next procedure and upload it.

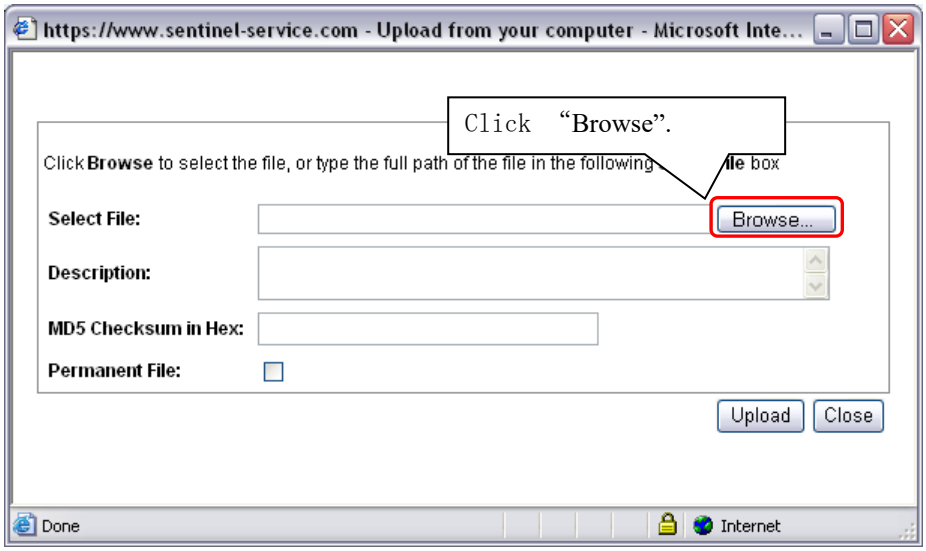
1 Click [CONFIGURATION] - [PERSONAL CONFIGURATION] - [Edit your profile].



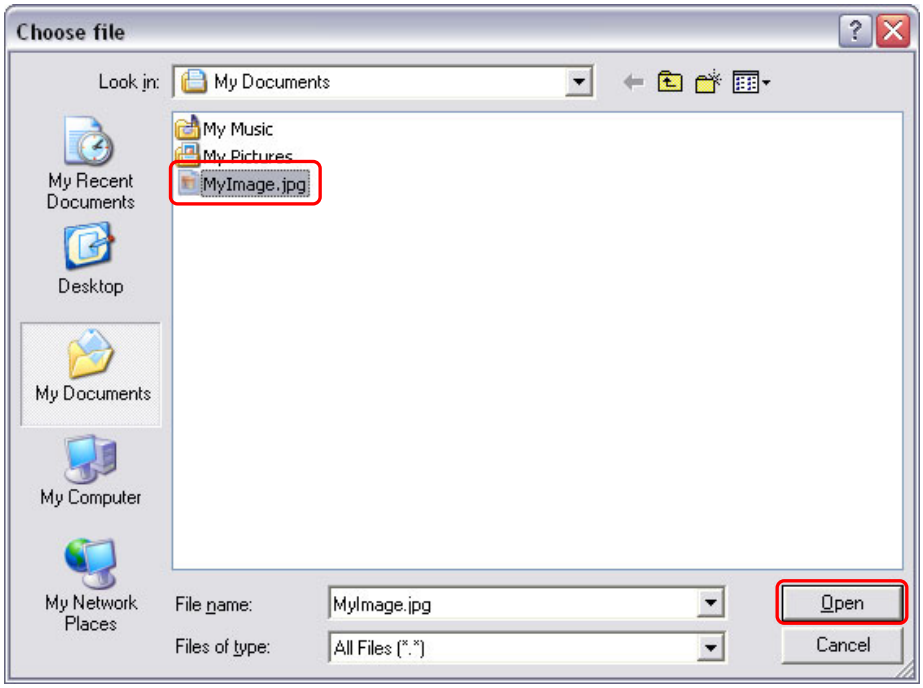

2 Click Upload.



3 Click Browse...

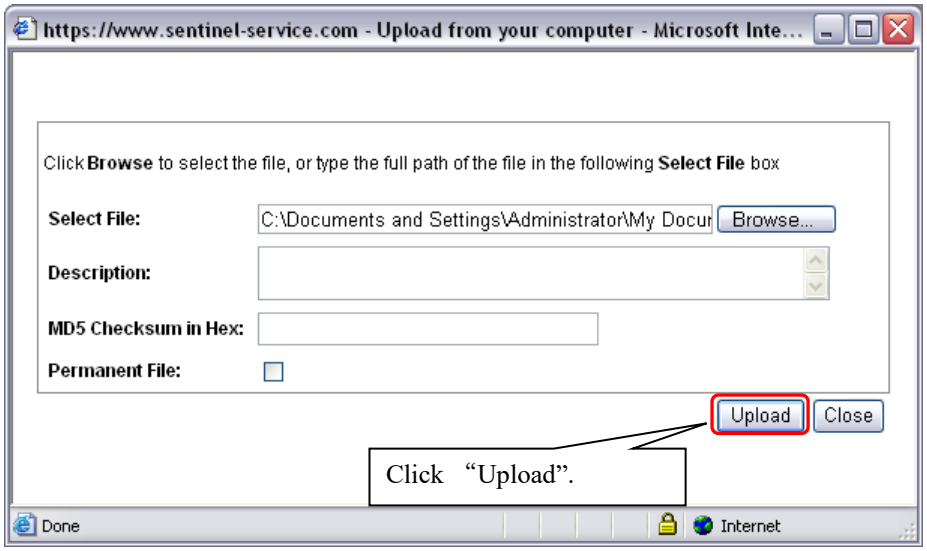



4 Choose a file.

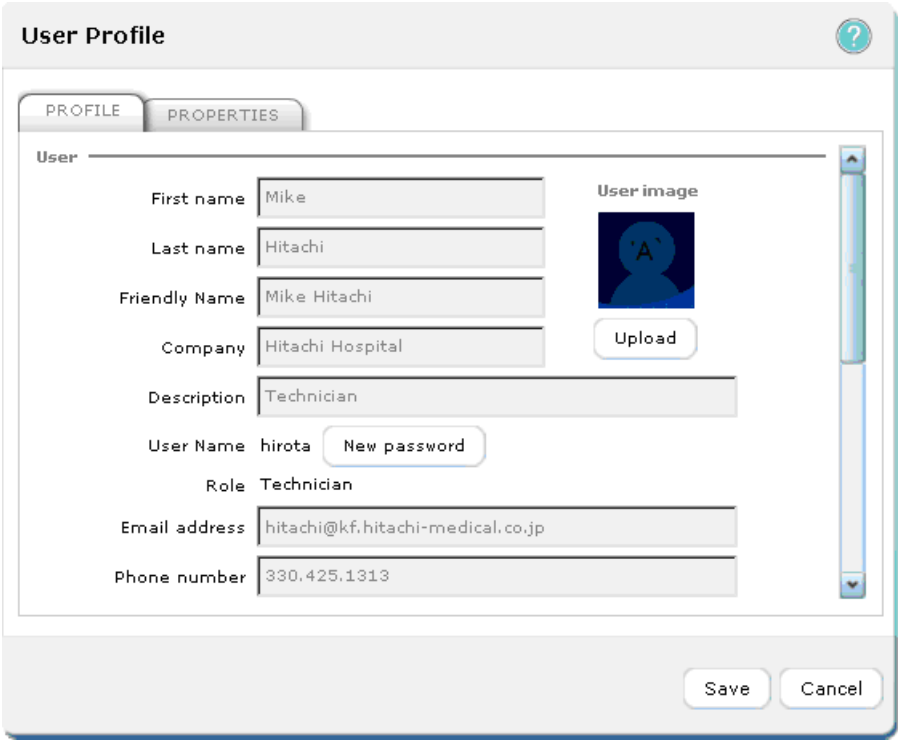



An image needs to be 120 pixels in width and 120 pixels in height, and its file format needs to be JPG.

5 Click Upload.




6 The image is uploaded.



Click New password to change password.

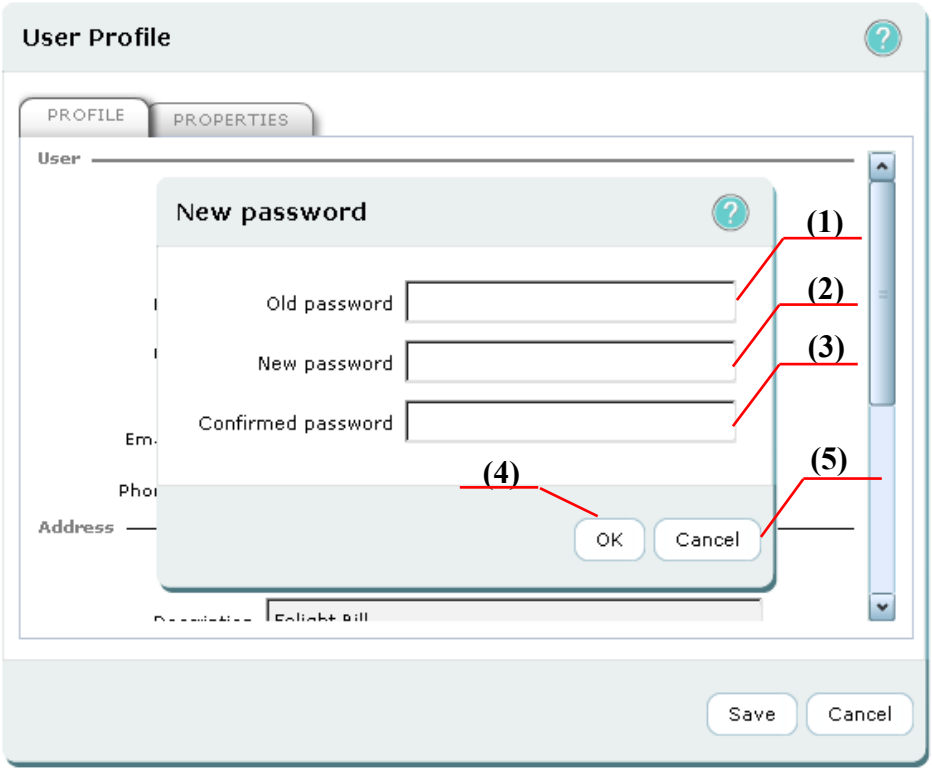



Figure7-86 New password

(1) Old password
Enter current password.

(2) New password
Enter new password. (Password must be more than 5 characters and less than or equal to 64 characters).

(3) Confirmed password
Enter input new password again.

(4) OK
Password can be changed.

(5) Cancel
This operation stops and this screen closes.

**NOTE** Errors occur if entry is wrong.

Property screen enables Extended Property setting.

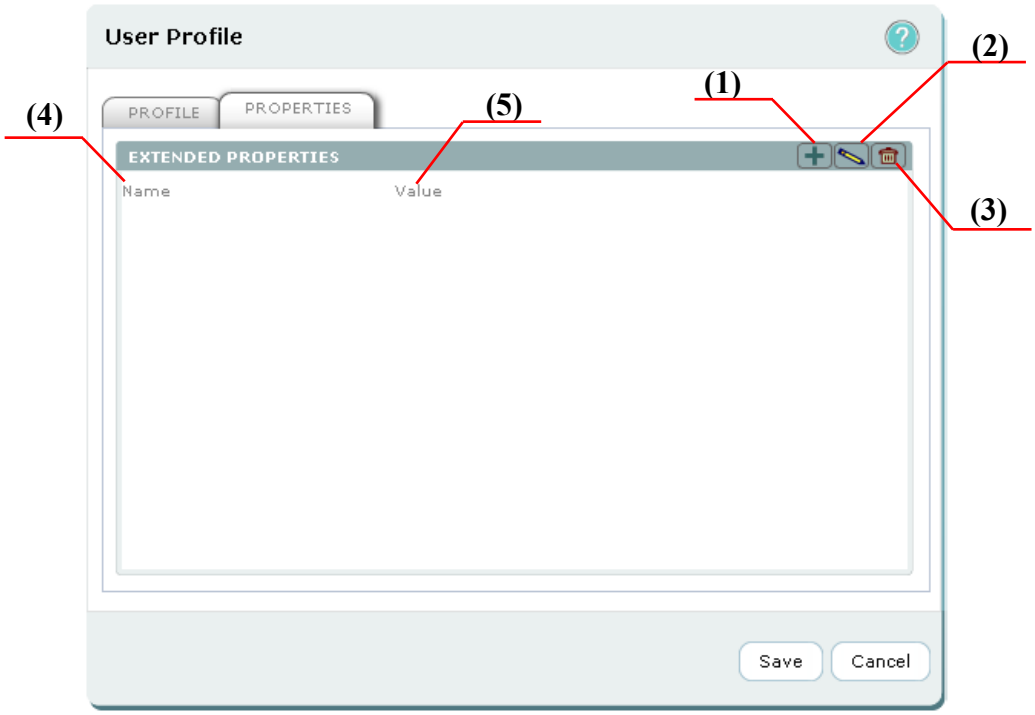



Figure7-87 PROPERTIES

(1) Add

By clicking , Extended Property can be added.

(2) Edit

By clicking , selected Extended Property can be edited.

(3) Delete

By clicking , selected Extended Property can be deleted.

(4) Name

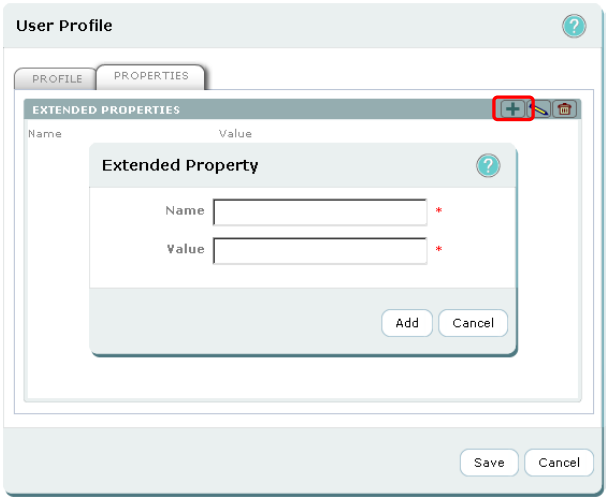
Extended Property name is indicated.

(5) Value

Extended Property value is indicated.

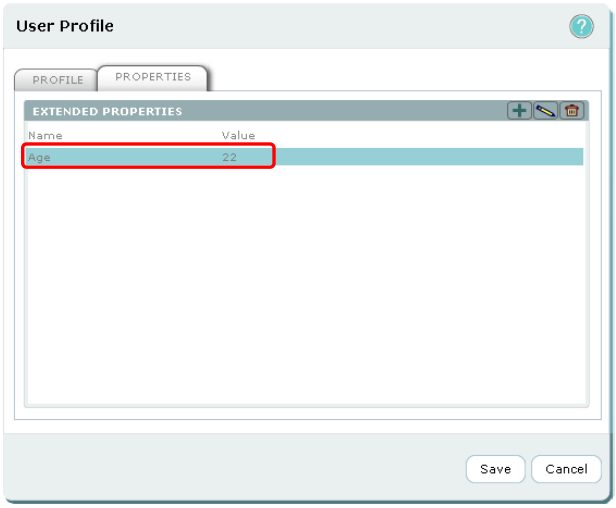
The following is Extended Property procedure.

1 Click and Extended Property screen is displayed.



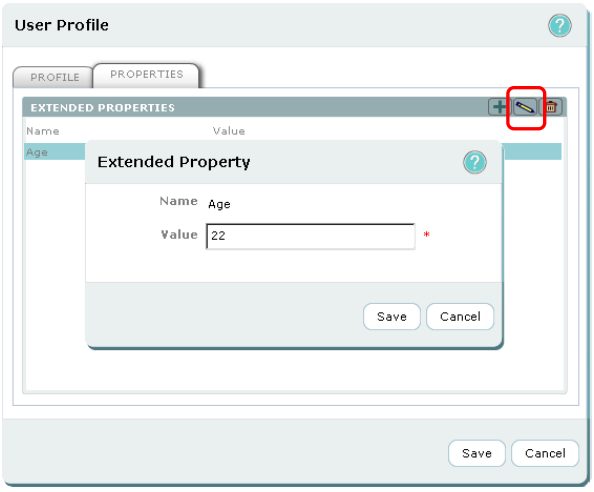

2 Enter Name and Value.

3 If clicking [Add], above entry is reflected into [User Profile] [PROPERTIES] screen.

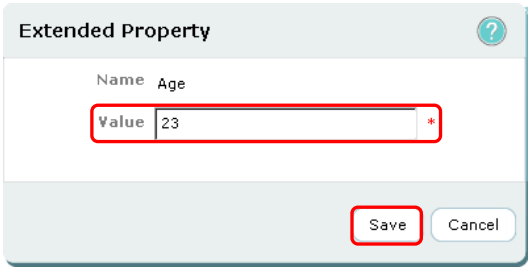


The following is Extended Property edit procedure.

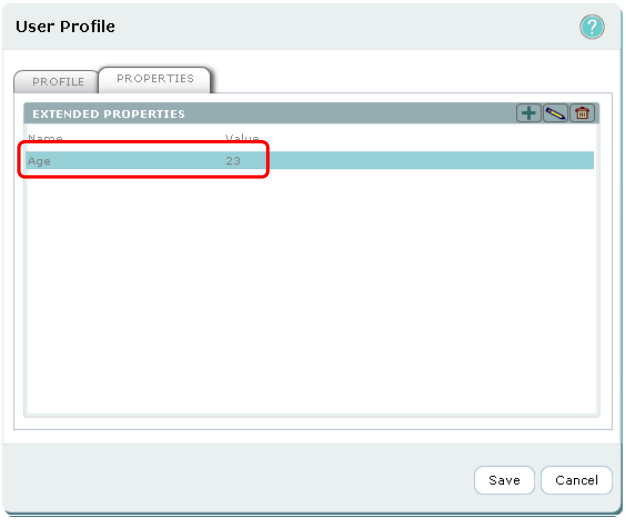
1 By clicking , selected Extended Property is displayed.




2 Enter Value.

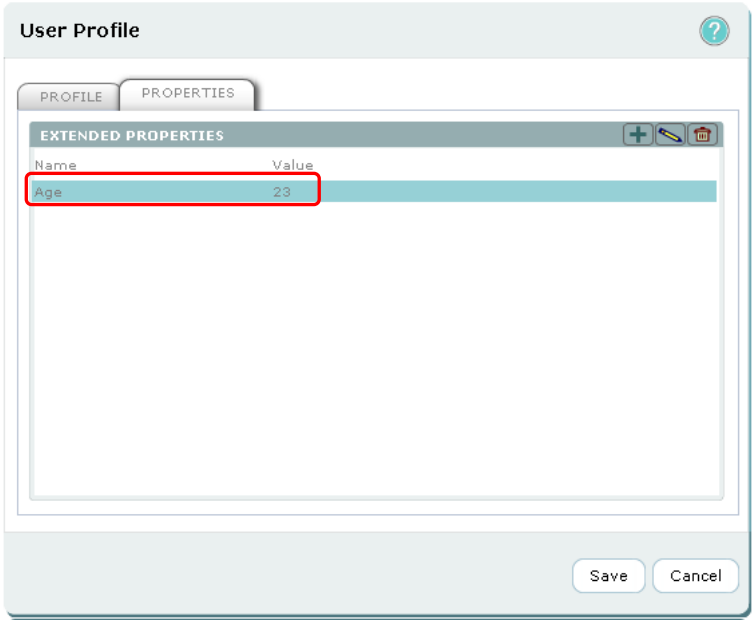



3 By clicking [Save], above entry is reflected into [User Profile] [PROPERTIES] screen.

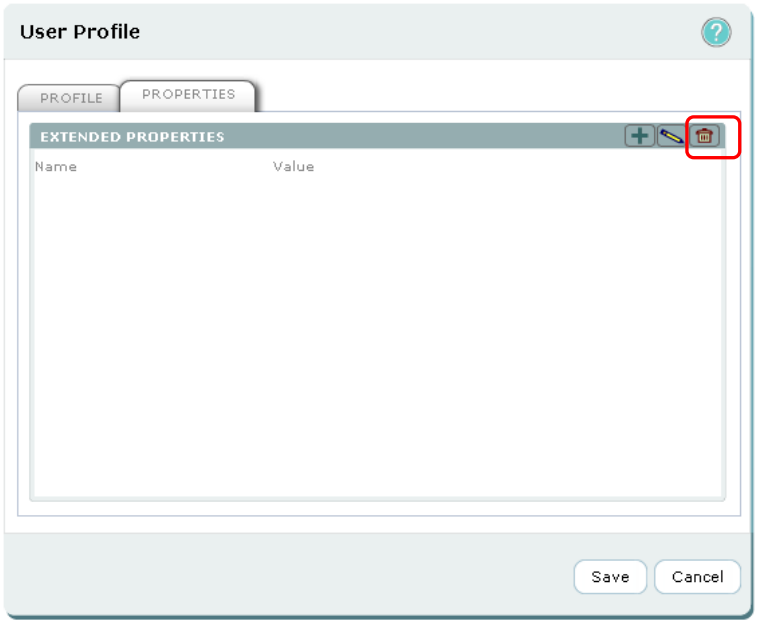


The following is Extended Property deletion procedure.

1 Select Extended Property to delete.

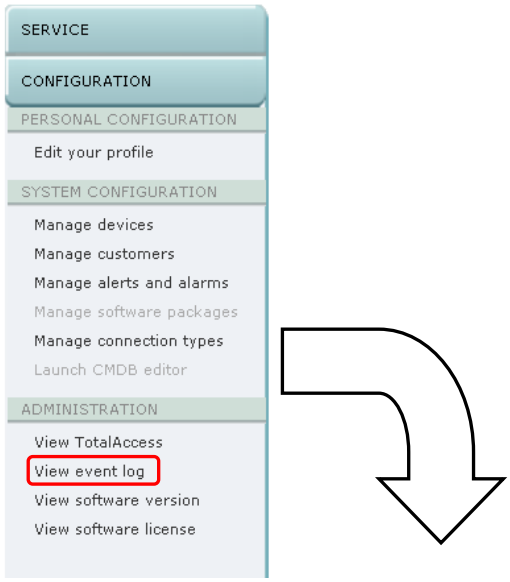



2 By clicking , selected Extended Property is deleted.



# 7.13 View event log (Only for administrator account)

Errors occurring in server, and so on can be referred. Click [CONFIGURATION] - [ADMINISTRATION] - [View event log]. Event log is displayed.



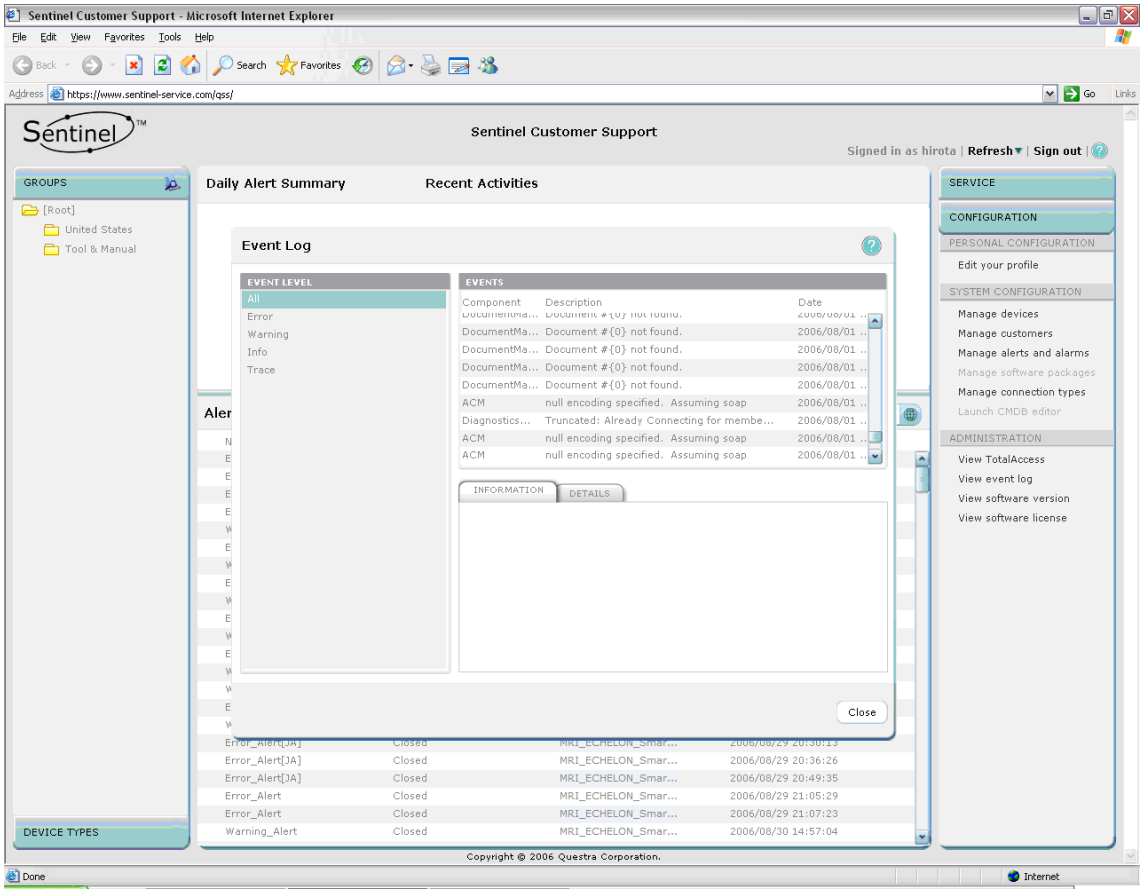




Figure7-88 View event log

Description is displayed by clicking Component.

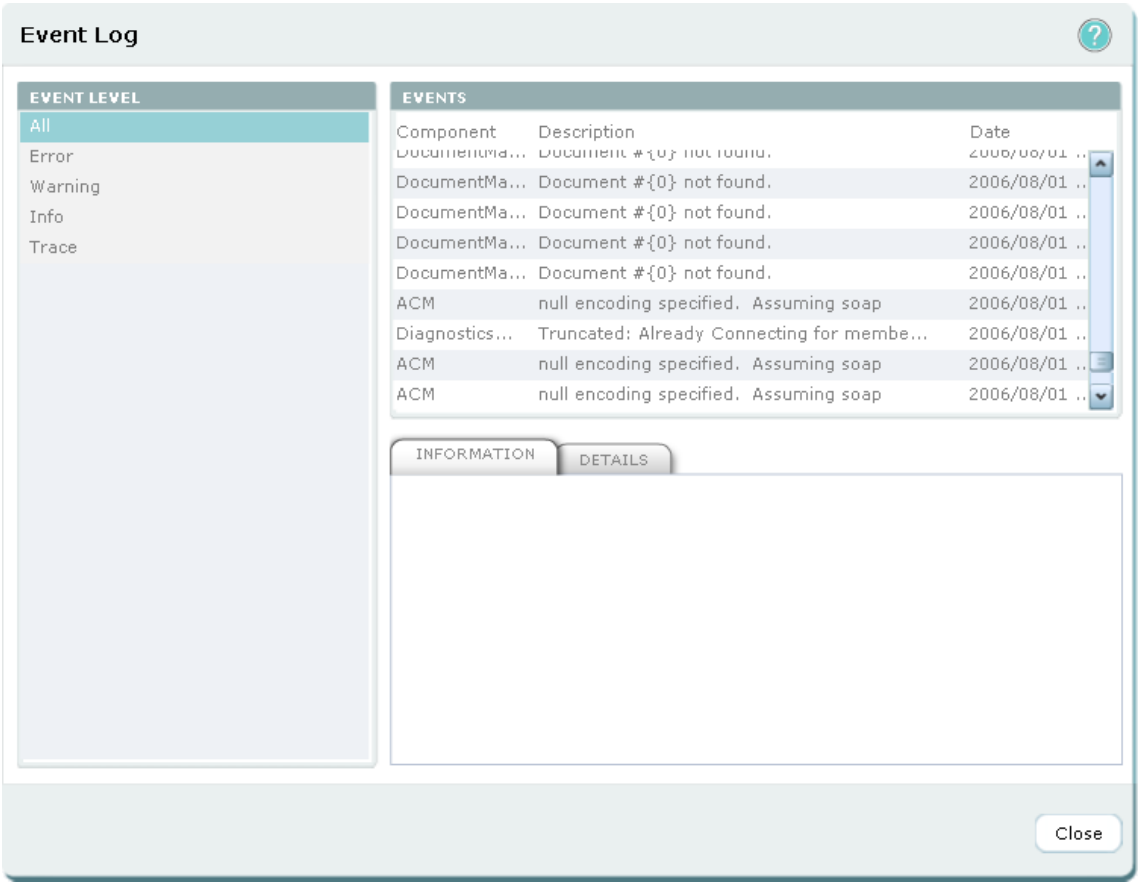


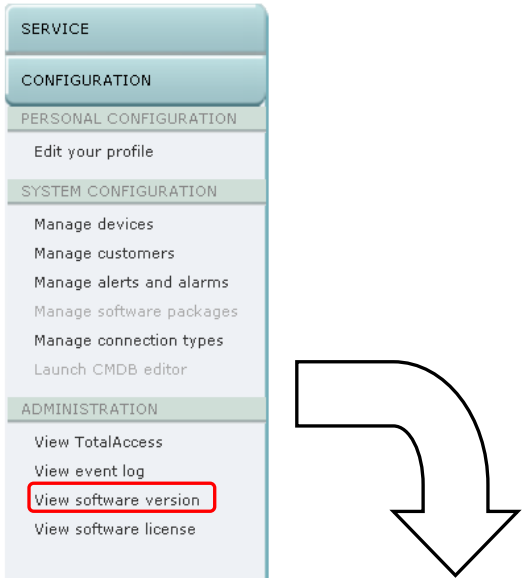

Figure7-89 View event log

# 7.14 View software version

Server software version is displayed.

Click [CONFIGURATION] - [ADMINISTRATION] - [View software version].

Version is indicated as the figure below.



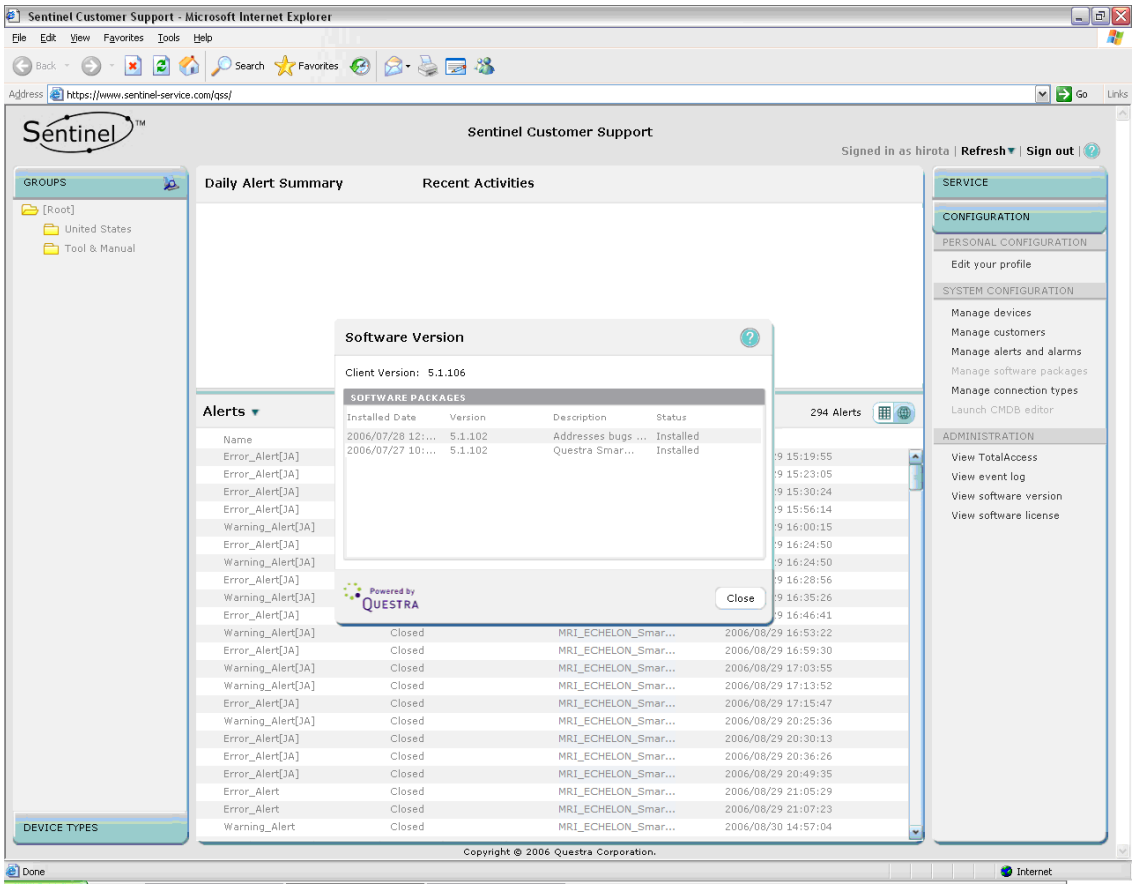




Figure7-90 View software version

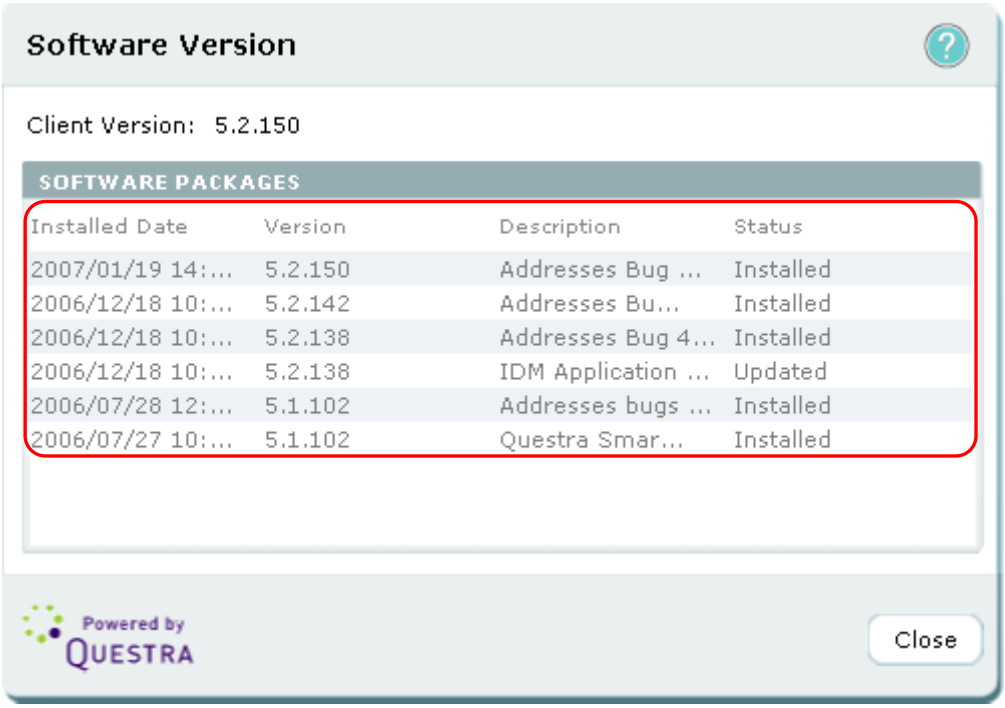
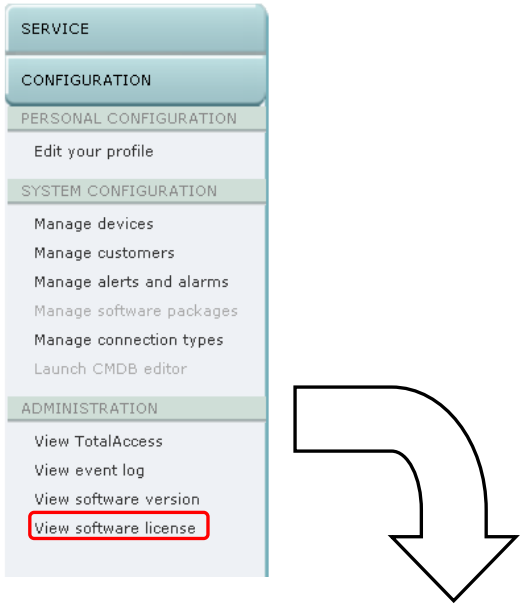



Figure7-91 View software version

# 7.15 View software license (Only for administrator account)

Server software license is indicated. Click [CONFIGURATION] - [ADMINISTRATION] - [View software license]. Software license is indicated as the figure below.



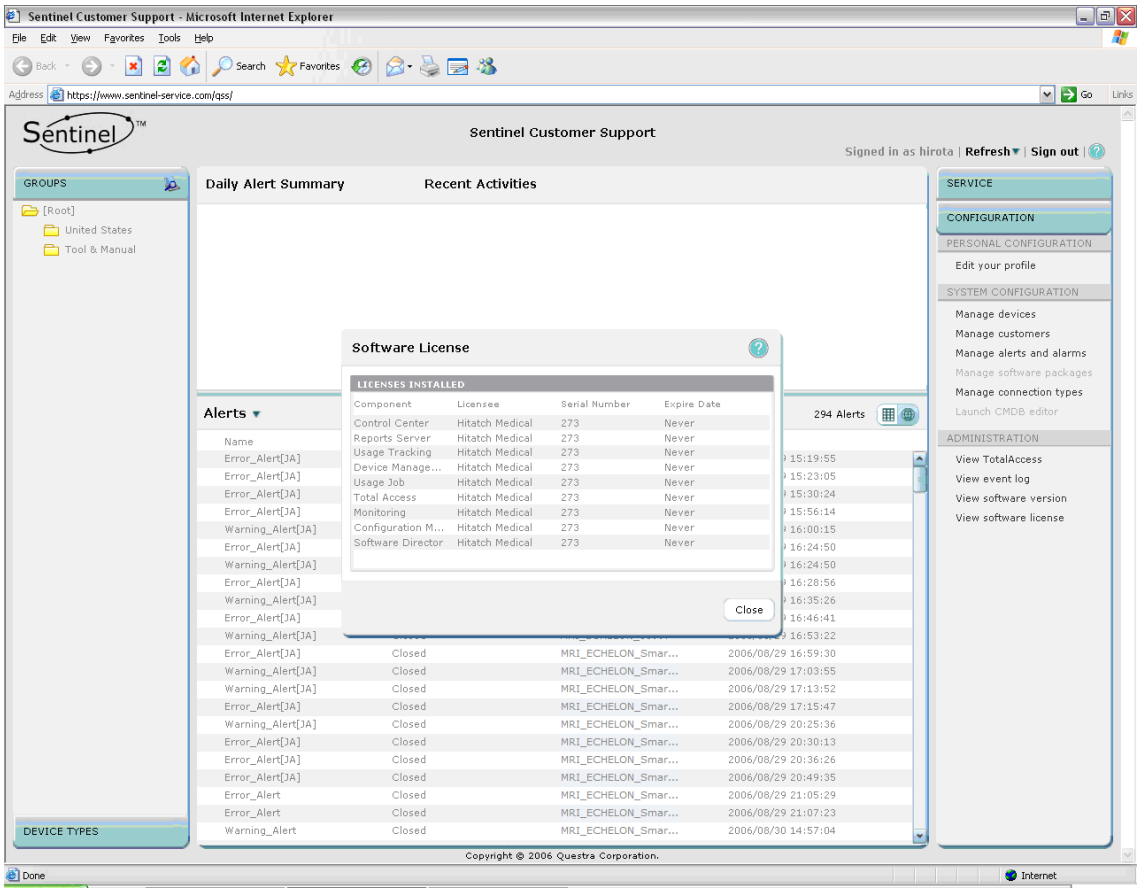




Figure7-92 View software license

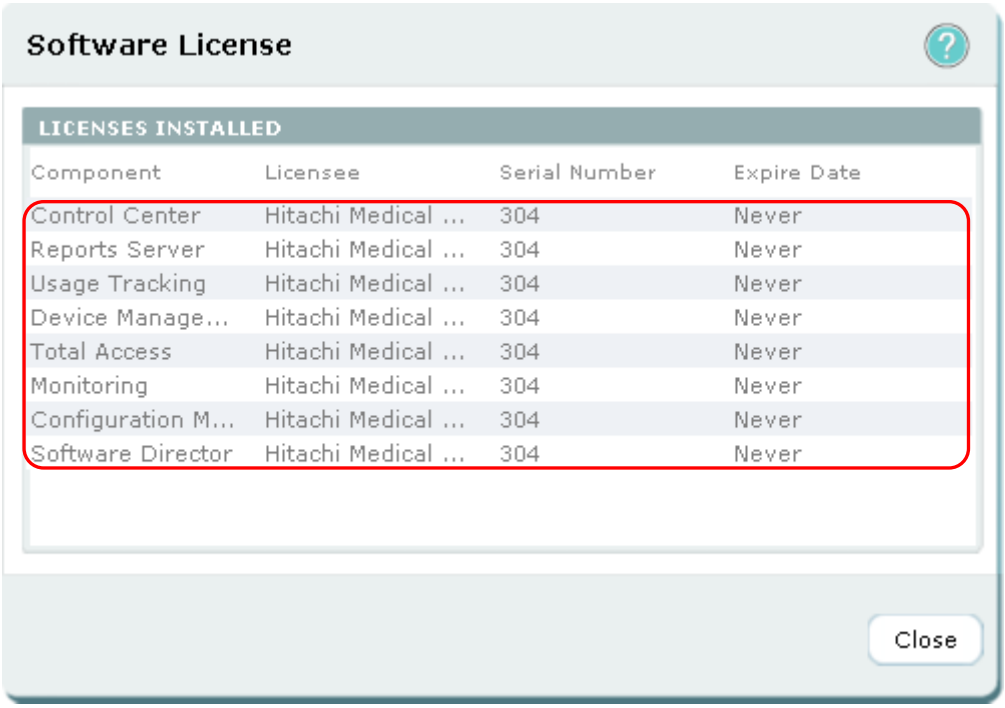
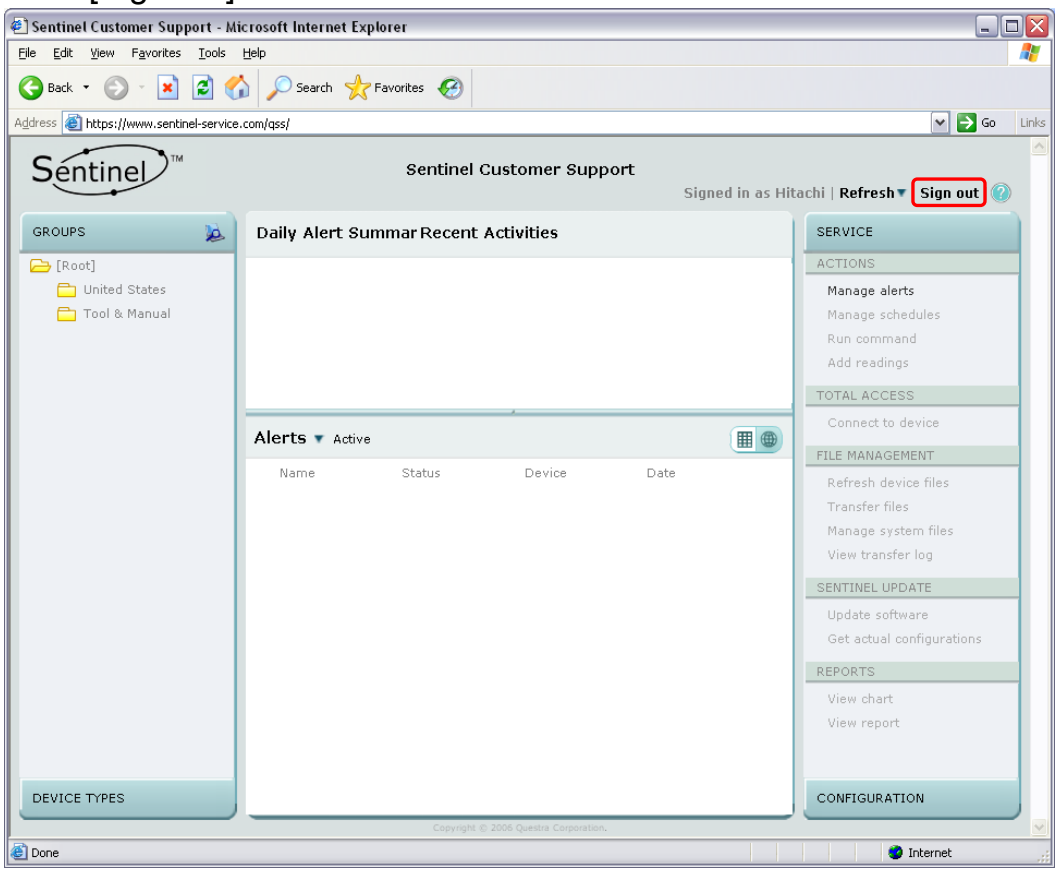


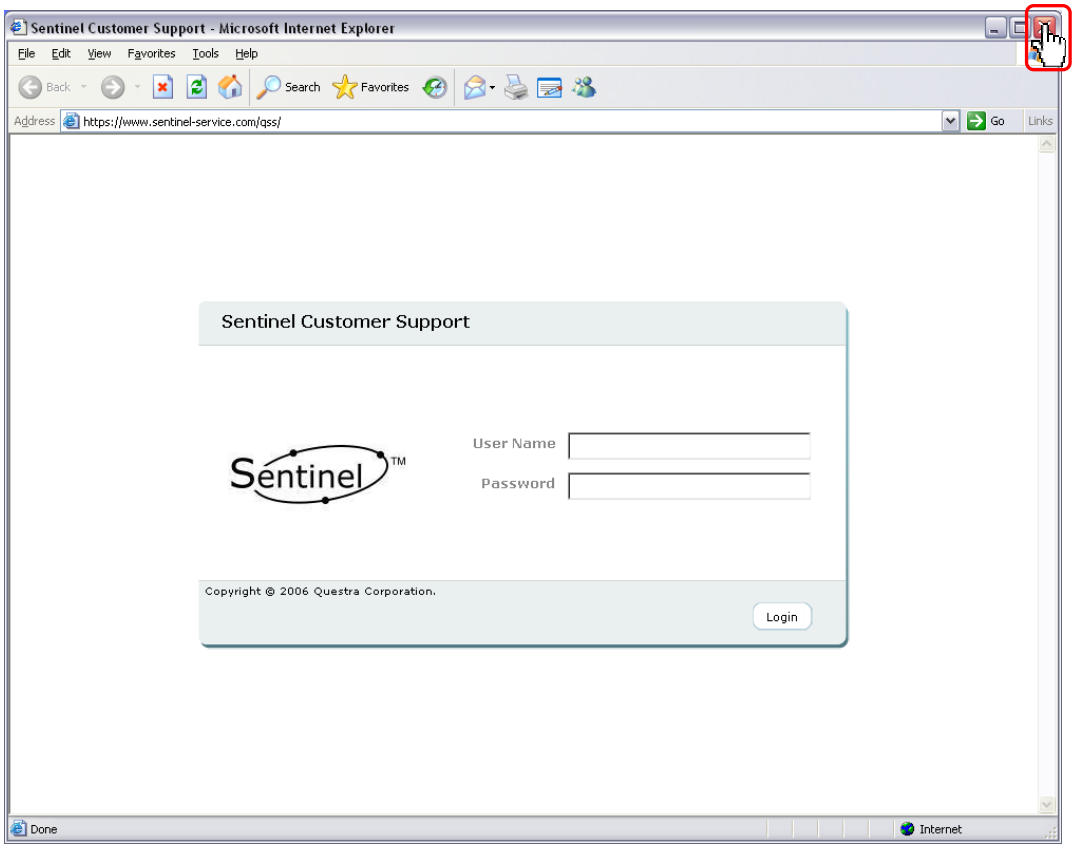

Figure7-93 View software license

# Chapter8 How to quit Sentinel Customer Support

1 Click [Sign out].



2 Click .


Sentinel Customer Support - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address https://www.sentinel-service.com/qss/
Go Links
Sentinel Customer Support
Sentinel
User Name
Password
Copyright © 2006 Questra Corporation.
Login
Done
Internet