
Keysight E5071C ENA Series RF Network Analyzers

This is the Installation Guide for E5071C Network Analyzer.

Notices

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CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

WARNING

A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

Installation Guide

Safety Summary

The following general safety precautions must be observed during all phases of operation, service, and repair of this instrument. Failure to comply with these precautions or with specific WARNINGS elsewhere in this manual may impair the protection provided by the equipment. Such noncompliance would also violate safety standards of design, manufacture, and intended use of the instrument. Keysight Technologies assumes no liability for the customer's failure to comply with these precautions.

NOTE

The E5071C complies with INSTALLATION CATEGORY II as well as POLLUTION DEGREE 2 in IEC61010-1. The E5071C is an INDOOR USE product.

NOTE

The LEDs in the E5071C are Class 1 in accordance with IEC60825-1, CLASS 1 LED PRODUCT.

- Ground the Instrument
To avoid electric shock, the instrument chassis and cabinet must be grounded with the supplied power cable's grounding prong.
- DO NOT Operate in an Explosive Atmosphere
Do not operate the instrument in the presence of inflammable gases or fumes. Operation of any electrical instrument in such an environment clearly constitutes a safety hazard.
- Keep Away from Live Circuits
Operators must not remove instrument covers. Component replacement and internal adjustments must be made by qualified maintenance personnel. Do not replace components with the power cable connected. Under certain conditions, dangerous voltage levels may remain even after the power cable has been disconnected. To avoid injuries, always disconnect the power and discharge circuits before touching them.
- DO NOT Service or Adjust the Instrument Alone
Do not attempt internal service or adjustment unless another person, capable of rendering first aid and resuscitation, is present.
- DO NOT Substitute Parts or Modify the Instrument

To avoid the danger of introducing additional hazards, do not install substitute parts or perform unauthorized modifications to the instrument. Return the instrument to a Keysight Technologies Sales and Service Office for service and repair to ensure that safety features are maintained in operational condition.

- Dangerous Procedure Warnings

Warnings, such as the example below, precede potentially dangerous procedures throughout this manual. Instructions contained in the warnings must be followed.

WARNING

Dangerous voltage levels, capable of causing death, are present in this instrument. Use extreme caution when handling, testing, and adjusting this instrument.

Safety Symbols

General definitions of safety symbols used on the instrument or in manuals are listed below.



Instruction Manual symbol: the product is marked with this symbol when it is necessary for the user to refer to the instrument manual.



Alternating current.



Direct current.



On (Supply).



Off (Supply).



In-position of push-button switch



Out-position of push-button switch



A chassis terminal; a connection to the instrument's chassis, which includes all exposed metal structure.



Standby.

Certification

Keysight Technologies certifies that this product met its published specifications at the time of shipment from the factory. Keysight Technologies further certifies that its calibration measurements are traceable to the United States National Institute of Standards and Technology, to the extent allowed by the Institution's calibration facility or by the calibration facilities of other International Standards Organization members.

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The remedies provided herein are Buyer's sole and exclusive remedies. Keysight Technologies shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal theory.

Safety Summary
Safety Symbols

Assistance

Product maintenance agreements and other customer assistance agreements are available for Keysight Technologies products.

For any assistance, contact your nearest Keysight Technologies Sales and Service Office. Addresses are provided at the back of this manual.

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1 Introduction

This chapter introduces the documentation for Keysight E5071C and the overview of this manual to use this manual efficiently. See this manual first when you use the E5071C for the first time.

Manuals for E5071C

Keysight provides the following three manuals for E5071C. The latest version of all documentations can be downloaded from

<http://www.keysight.com/find/e5071c-manual>.

- o Installation Guide

The installation guide (this manual) provides start up setup information when you use the E5071C for the first time and troubleshooting information when the Windows cannot be boot up.

- o Online Help

The Online Help provides the information about the measurement operation, programming, built-in VBA, I/O interface This is pre-installed in the E5071C. Press [Help] hard key on the front panel to open.

- o Service Guide

The service manual provides information about the parts, troubleshooting, performance test, adjustment and service menu.

Contents of This Manual

The following shows the contents of this manual.

- o **Chapter 1, “Introduction.”**

This chapter introduces the documentation for Keysight E5071C and the overview of this manual to use this manual efficiently. See this manual first when you use the E5071C for the first time.

- o **Chapter 2, “Installation.”**

This chapter provides information about how to set up the Keysight E5071C.

- o **Chapter 3, “Troubleshooting.”**

This chapter describes the troubleshooting during start up and the procedure of the operating system (OS) recovery when the Windows OS has been damaged.

2 Installation

This chapter provides information about how to set up the Keysight E5071C.

Contents of this Chapter

- o **“Checking the Shipment” on page 12**
After you receive the analyzer, check all the items in the packing container.
- o **“Environmental Requirements” on page 13**
Describes the system requirements needed to install the E5071C and how to secure space for heat radiation.
- o **“Installing Front Handles/Rack Mounting Flanges” on page 16**
Shows how to mount the front handles used to transport the E5071C and how to install the flanges needed to install it in a rack.
- o **“Connecting the Accessories” on page 19**
Provides information for connecting the mouse, keyboard, BNC adaptor to the E5071C.
- o **“Power Supply” on page 20**
Shows how to check the power supply as well as check and connect the power cable.
- o **“Starting the E5071C” on page 22**
Describes turning on/off of the Power switch and cutting off the power supply.
- o **“Initial Registration of E5071C” on page 26**
Provides the procedure of initial registration for the Windows XP operating system of the E5071C.

Checking the Shipment

After you receive the analyzer, carry out checks during unpacking according to the following procedure.

WARNING

When unpacking the analyzer, if the external face of the analyzer (such as the cover, front/rear panel, LCD screen, power switch, and port connectors) appear to be damaged during transport, do not turn on the power switch. Otherwise, you may get an electric shock.

Step 1. Check that the packing box or shock-absorbing material used to package the analyzer has not been damaged.

NOTE

If the packing box or shock-absorbing material has been damaged, leave the packing box and shock-absorbing material as is until other inspection items are checked as follows:

Step 2. Check the packaged items supplied with the analyzer for any damage or defects.

Step 3. By referring to the furnished contents list, check that all packaged items supplied with the analyzer have been provided as per the specified options.

Step 4. After checking, if one of the following applies, contact your nearest Keysight Technologies sales and service office.

1. The packing box or shock-absorbing material used to package the analyzer has been damaged or the shock-absorbing material has traces where extreme force has been applied.
2. A packaged item supplied with the analyzer has mechanical damage or defects.
3. A packaged item supplied with the analyzer is missing.
4. A fault has been detected in the subsequent operation check of the analyzer.

If an abnormality is detected in step 1, contact the company that transported the analyzer as well as your nearest Keysight Technologies sales and service office. For inspection by the transport company, save the packing box, shock-absorbing material, and packaged items as you received them.

Environmental Requirements

Set up the E5071C where the following environmental requirements are met.

Operating Environments

Ensure that the operating environment meets the following requirements.

Temperature	5°C to 40°C
Temperature range at the error-correction	23°C ± 5°C (< 1°C deviation from the temperature when performing the error-correction)
Humidity	20% to 80% at wet bulb temperature < +29°C (non-condensation)
Altitude	0 to 2,000 m (0 to 6,561 feet)
Vibration	0.21 G maximum, 5 Hz to 500 Hz

NOTE

Above environmental requirements are NOT for the specifications and measurement accuracy of the analyzer, but for the operating environment of the analyzer.

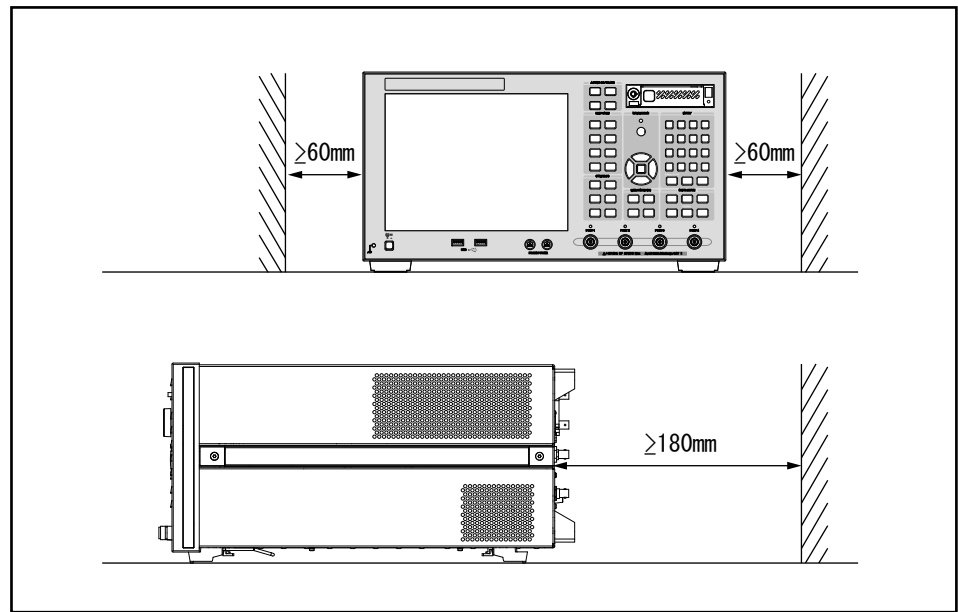
Ventilation Requirements

To ensure safety requirements, the specifications and measurement accuracy of the analyzer, you must keep environmental temperature within the specified range by providing appropriate cooling clearance around the analyzer or, for the rack-mount type, by forcefully air-cooling inside the rack housing. For more information on environmental temperature to satisfy the specifications and measurement accuracy of the analyzer, see the specification in the E5071C Online Help.

When the environmental temperature around the analyzer is kept within the temperature range of the operating environment specification (See Section **“Operating Environments” on page 13**), the analyzer conforms to the requirements of the safety standard. Furthermore, under that temperature requirement, the analyzer still conforms to the requirements of the safety standard even when placing the analyzer with cooling clearance as follows:

	Requirements
Back	≥ 180 mm
Sides	≥ 60 mm (both right and left)

Figure 2-1 Ventilation space at the installation



e5071cqe2001

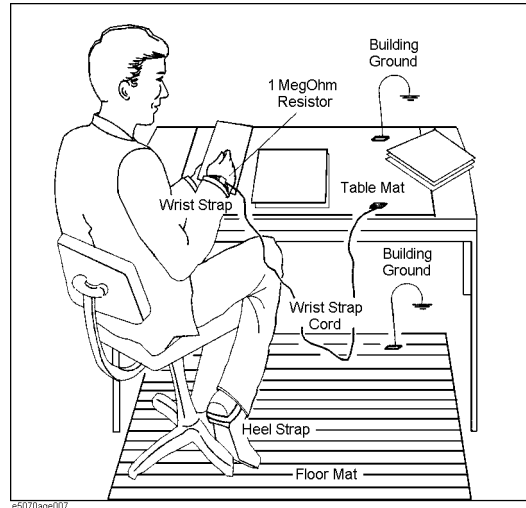
NOTE

Place the E5071C in a proper position as show in **Figure 2-1**.

Protection Against Electrostatic Discharge (ESD)

Set up a static-safe work-station to protect the electronic components from the damage by the electrostatic discharge (ESD) as shown in **Figure 2-2**.

Figure 2-2 Example of the static-safe work station



Ensuring Adequate Free Space around Analyzer for Immediate Disconnection of Power Cable in Case of Emergency

As described in **“Disconnection from Supply Source” on page 24**, the power supply is disconnected by removing the power cable’s connector plug from either the AC outlet or the E5071C unit. When installing the E5071C, ensure that there is sufficient free space around the unit to permit quick disconnection of the plug (from AC outlet or E5071C unit) in case of emergency.

Installing Front Handles/Rack Mounting Flanges

The E5071C can be installed on a workbench or in a rack. This section describes how to install the front handles (Option 1CN) used for moving or transporting the instrument, and how to install the analyzer in an equipment rack as part of a measurement system (Option 1CM: without the handles, Option 1CP: with the handles).

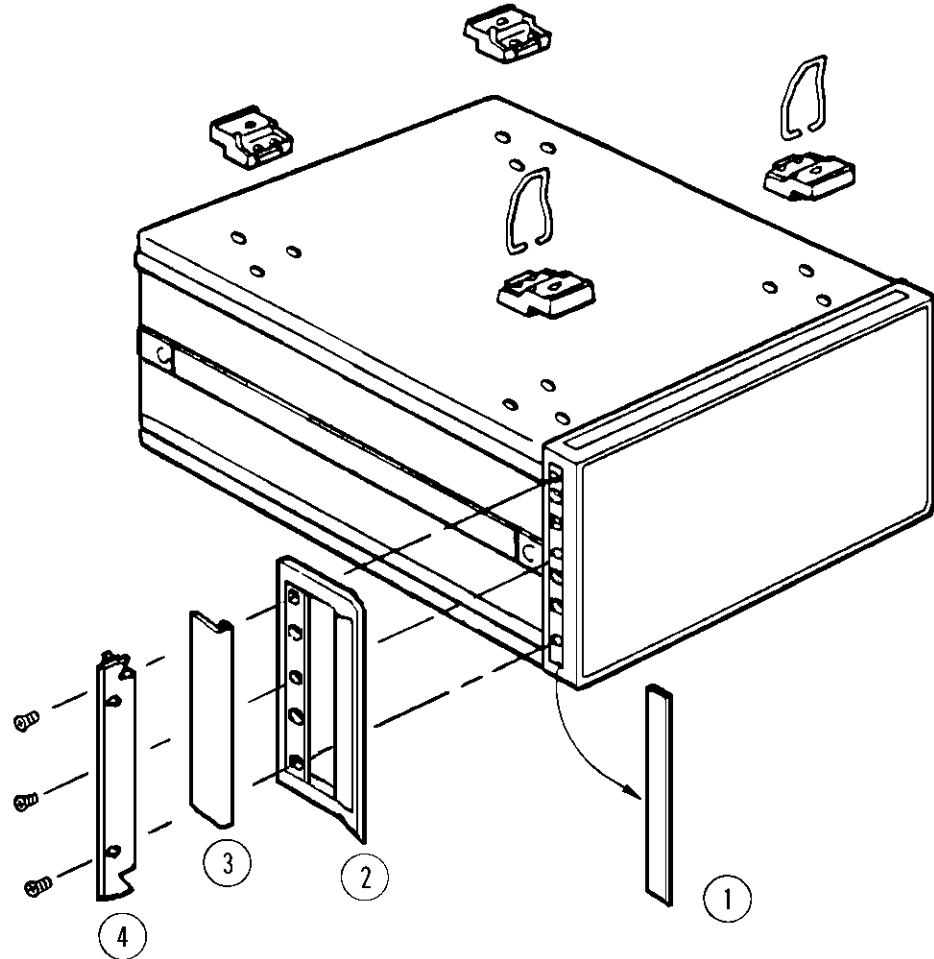
Table 2-1 Keysight E5071C handles/rack mounting options

Option	Name
1CN	Handle Kit
1CM	Rack-mount Kit
1CP	Rack-mount and Handle Kit

Table 2-2 Contents of each option

Option	Contents	Quantity
1CN	Front Handles	2
	Screws	6
	Trim Strips	2
1CM	Rack-mounting flanges (locking side plate)	2
	Screws	6
1CP	Rack-mounting flanges (locking side plate)	2
	Front Handles	2
	Screws	8

Figure 2-3 Installing front handle/rack-mount kits



e5070acj009

How to Install the Handle Kit (Option 1CN)

The handle kit is used for transport and relocation of the E5071C. While referring to **Figure 2-3**, install the handle kit by following these steps.

- Step 1.** Remove the adhesive-backed trim strip (1) from each side of the outer frame of the E5071C front panel.
- Step 2.** Use the provided screws to mount the front handles (2) on each side of the E5071C front panel frame.
- Step 3.** Attach the provided modified trim strip (3) to each front handle in order to cover the front panel locking screws.

WARNING

If the installed front handle becomes damaged, replace it with a new one immediately. A damaged handle can break while moving or lifting the instrument and cause personal injury or damage to the instrument.

How to Install the Rack-mount Kit (Option 1CM)

The rack-mount kit includes two flanges (locking side plates) for mounting the E5071C on a rack (482.6 mm/19 inches) conforming to the EIA Standard. While referring to **Figure 2-3**, install the rack-mount kit by following these steps.

- Step 1.** Remove the adhesive-backed trim strip (1) from each side of the outer frame of the E5071C front panel.
- Step 2.** Use the provided screws to mount a rack-mounting flange (4) on each side of the E5071C front panel frame.
- Step 3.** Remove the four bottom feet of the E5071C (lift the bar marked TAB on the inner side of the foot and slide the foot toward the bar).
- Step 4.** Mount the E5071C on the rack.

How to Install the Rack-mount and Handle Kit (Option 1CP)

The rack-mount and handle kit includes both the rack-mounting flanges (locking side plates) and front handles. While referring to **Figure 2-3**, install the rack-mount kit by following these steps.

- Step 1.** Remove the adhesive-backed trim strip (1) from each side of the outer frame of the E5071C front panel.
- Step 2.** Use the provided screws to mount a front handle (2) and rack-mounting flange (4) on each side of the E5071C front panel frame.

CAUTION

Use both a front handle and a rack-mounting flange in the same time certainly. Do not attempt to install flanges or handles separately with hardware provided. Serious electrical damage will occur to the instrument.

- Step 3.** Remove the four bottom feet of the E5071C (lift the bar marked TAB on the inner side of the foot and slide the foot toward the bar).
- Step 4.** Mount the E5071C on the rack.

Connecting the Accessories

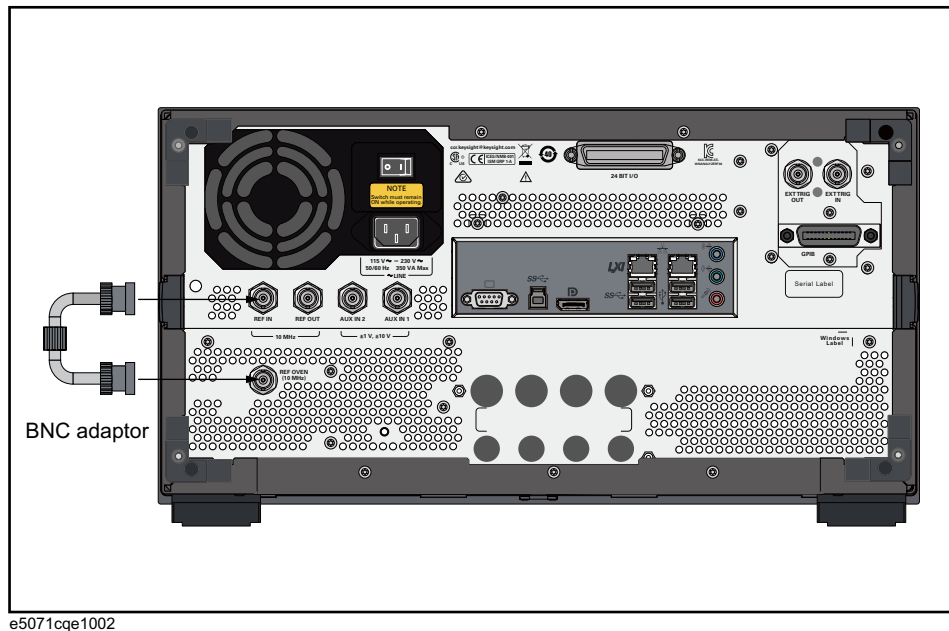
You need to connect some accessories before use.

Connecting the BNC Adaptor (Option 1E5)

When the E5071C is equipped with Option 1E5 (high-stability frequency standard), connect the BNC adaptor from the Ref Oven terminal to the Ref In terminal on the rear panel. The BNC adaptor is included in Option 1E5. When Option 1E5 is installed, the frequency accuracy and stability of the E5071C will further improve.

Figure 2-4

Connecting the BNC adaptor



Connecting Mouse and Keyboard

The E5071C allows you to connect Mouse and/or keyboard through USB. USB mouse and keyboard can be connected with the USB ports on the front or rear panels.

System Recovery of the E5071C requires the mouse and keyboard before turning on the power.

Power Supply

Before turning on the E5071C power, check the following.

Verification of the Power Supply

Confirm that the power supplied to the E5071C meets the following requirements:

	Requirements
Rated voltage	115 - 230 VAC
Voltage range	90 - 264 VAC
Rated frequency	50 / 60 Hz
Frequency range	47 - 63 Hz
Maximum power consumption	350 VA

Verification and Connection of Power Cable

The three-wire power cable attached to the E5071C has one wire serving as a ground. Using this power cable allows the E5071C to be grounded, thereby protecting you against electrical shock from the power outlet.

Step 1. Confirm that the power cable is not damaged.

WARNING

NEVER use a power cable showing any sign of damage. Faulty cables can cause electrical shock.

Step 2. Use the supplied cable to connect between the power cable receptacle (Figure 2-7 on page 24) on the rear panel of the E5071C and a three-wire power outlet with the grounding prong firmly connected in the ground slot.

WARNING

Use the supplied power cable with grounding wire to securely ground the E5071C.

Power cord information is available at
<http://www.keysight.com/find/powercords>.

Blown Fuses

If the fuse appears to have blown during operation, this instrument may be subject to failure and must be repaired. For any assistance, contact Keysight Technologies Customer contact center.

The product uses the following fuse type:

Option 230/235/240/245/280/285/430/435/440/445/480/485: UL/CSA Type, Slow-Blo, 6.3 A-250 Vac.

Option 2K5/4K5: UL/CSA Type, Slow-Blo, 10 A-250 Vac.

WARNING

DO NOT replace the fuse yourself; doing this may expose you to electrical shock.

Starting the E5071C

This section describes how to turn on/off the E5071C power and how to cut off the power supply in an emergency.

Turning the Power ON and OFF

Perform the following steps to turn the power ON or OFF.

To Check the Removable Hard Disk Drive

Procedure

When the power is turned on, it is required to confirm the notch geometry is set as follows.

NOTE

If the notch geometry is not set as follows, the error message “OS not found” will be shown when you turn on the power.

Figure 2-5 Removable Hard Disk Drive




Figure 2-6 Removable Hard Disk Drive for Option 017



Turning the Power ON

- Step 1.** Confirm if the Line Switch on the rear panel is on. The switch should always be turned on.
- Step 2.** If the standby switch (⏻) in the lower-left part of the front panel is in the depressed (⏻) position, press it to put it in the popped up position (⏻).

Step 3. Press the standby switch to put it in the depressed position ().




This operation turns ON the power, and the E5071C starts the self-test.

Step 4. Confirm that the self-test indicates normal operation.

Normal operation is confirmed by the self-test if no error message appears.


Turning the Power OFF

Step 1. Use either of the following methods to turn the power OFF.

- Press the standby switch () in the lower-left part of the front panel (now in the pressed down () position) to put it in the popped up () position.
- Click Turn off Computer from Windows Start menu

These operations will start the E5071C shutdown process (required software and hardware processes for turning the power off), and the power will turn OFF after a few seconds.

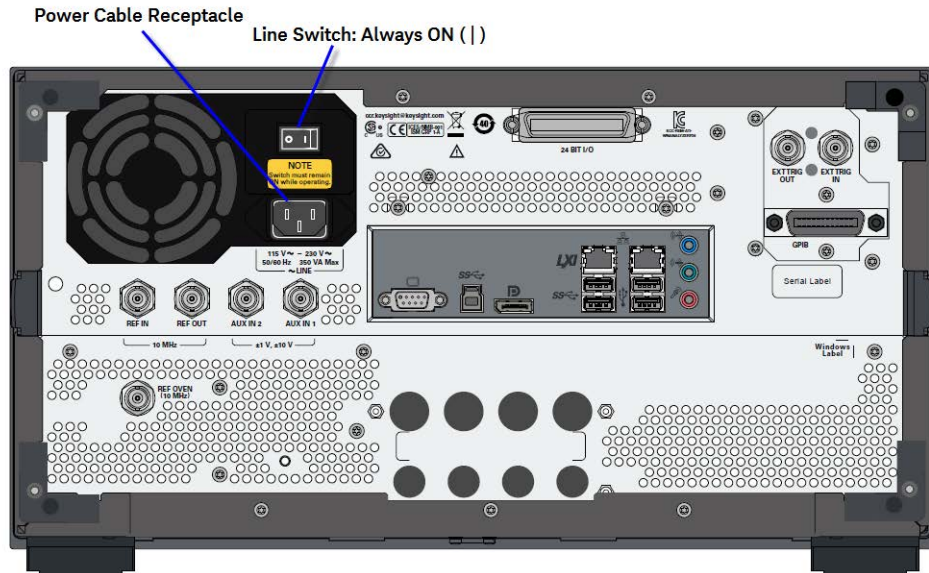
NOTE

Under normal circumstances, always press the standby switch (), or click Turn off Computer from Windows Start menu, to execute the E5071C shutdown process. **Never cut off the power supply directly by disconnecting the power cable plug from the rear panel of the unit.**

If the power supply is cut off directly by disconnecting the power cable plug from the instrument or the AC outlet, the shutdown process is not carried out and there is a risk of damage to the E5071C's software or hardware.

Figure 2-7

Line switch (Always ON) and power cable receptacle



Disconnection from Supply Source

The power supply of the E5071C is cut off by disconnecting the plug of the power cable (on either AC outlet side or E5071C side). When it is necessary to disconnect the power supply in order to avoid shock hazards, etc., pull out the power cable plug from either the AC outlet side or the E5071C side.

NOTE

To allow this operation to be performed smoothly, be sure to follow the guidelines in **“Ensuring Adequate Free Space around Analyzer for Immediate Disconnection of Power Cable in Case of Emergency”** on **page 15**. When turning the power OFF under normal circumstances, always follow the methods described in **“Turning the Power ON and OFF”** on **page 22**

Removing / Mounting Removable Hard Disk (For Option 017 User)

For details of removing / mounting removable hard disk, refer to the following website <https://rfmw.em.keysight.com/wireless/helpfiles/e5071c/index.htm>

Initial Registration of E5071C

When you start up the E5071C at the first time, you need to perform the initial registration of the Windows OS operating system of the E5071C.

There are three methods of initial registration procedure depending on the windows licenses and HDD revisions of the E5071C:

- Windows Vista Business (HDD Revision: CN925 or above)
- Windows Vista Business (HDD Revision: CN924 or below)
- Windows XP Pro for Embedded Systems (HDD Revision: CHxxx)
- Windows Embedded Standard 7 (SSD Revision: CTxxx)
- Windows Embedded Standard 10 (SSD Revision: CFxxx)

The license is shown at the Windows License label on the rear panel of the E5071C.

NOTE

It is not possible to check the HDD revision installed on your E5071C before Windows is booted. Therefore you should follow the procedures below.

NOTE

If you perform the following procedure incorrectly, a message asking you whether to return to the previous registration screen and perform the registration appears. In this case, follow the instruction to return to the previous registration screen.

CAUTION

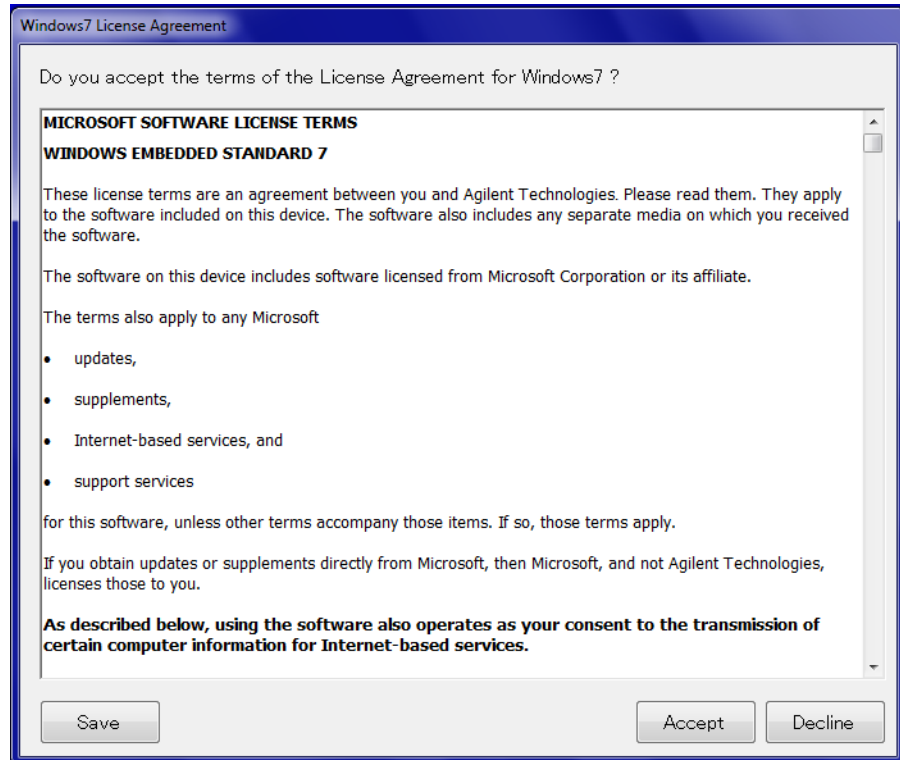
Failure to comply with the illustrated procedures may cause serious damage to the E5071C.

Windows Embedded Standard 7 / 10

Step 1. Turns on the E5071C.

Step 2. Wait for several minutes for initial registration procedure. (Windows may reboot a few times.) The license agreement dialog box as shown in **Figure 2-11** appears. Click “Accept” if you agree it.

Figure 2-8 License Agreement (Example for Windows 7)



Step 3. After a while, the E5071C measurement application starts automatically.

Windows XP Pro for Embedded Systems

NOTE

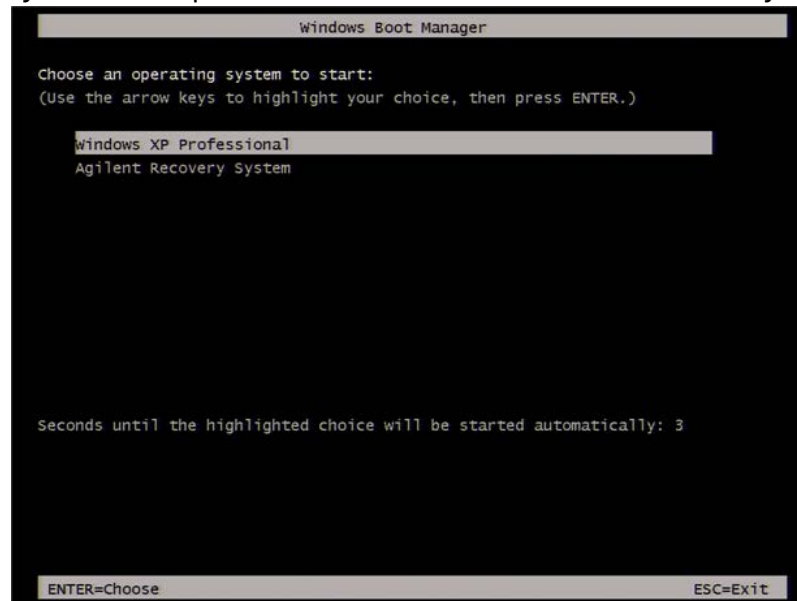
You cannot use the front panel keys during the initial registration of the E5071C therefore connect the mouse and the keyboard before turning on the power.

Step 1. Turns on the E5071C.

Step 2. The screen shown in [Figure 2-9](#) appears. Select Windows XP Professional and press Enter.

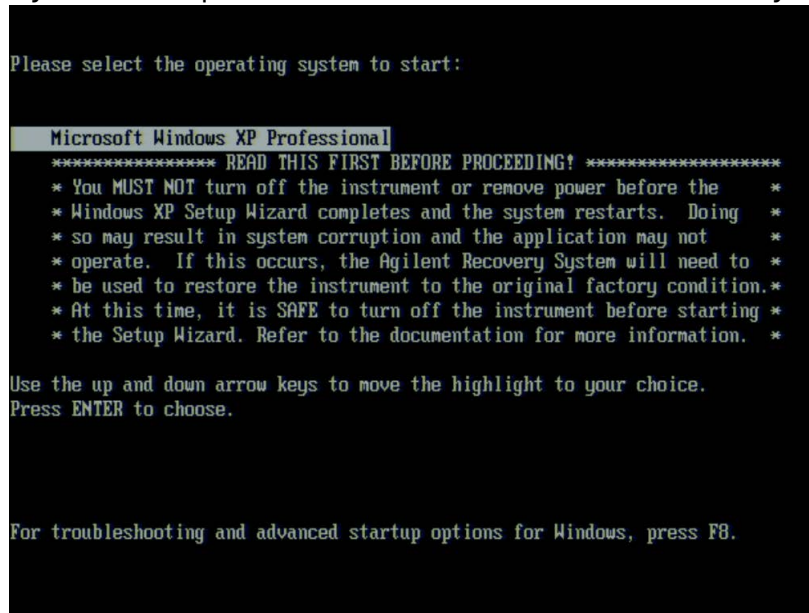
Figure 2-9

System start up screen in Windows XP Pro for Embedded Systems (1/2)



Step 3. The screen as shown in [Figure 2-10](#) appears. Press Enter.

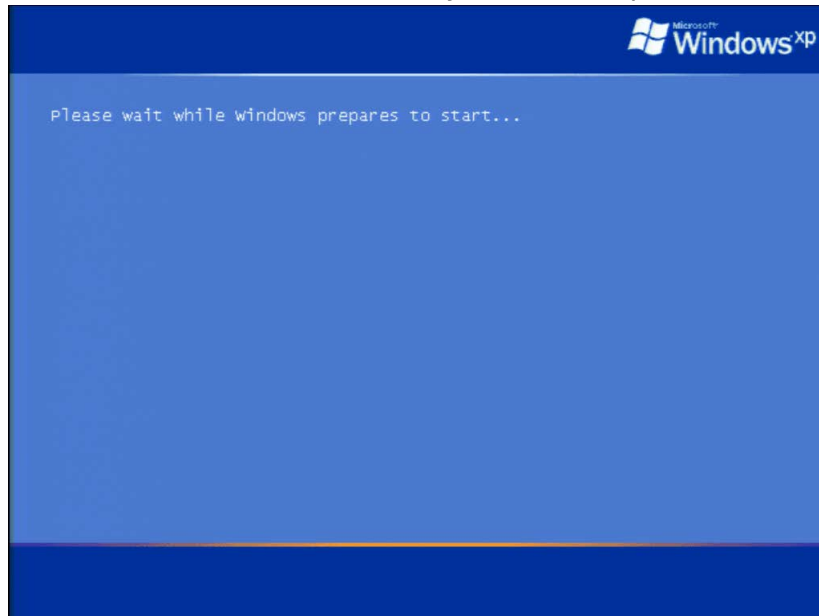
Figure 2-10 System start up screen in Windows XP Pro for Embedded Systems (2/2)



Step 4. The windows start up screen as shown in **Figure 2-11** appears.

Figure 2-11

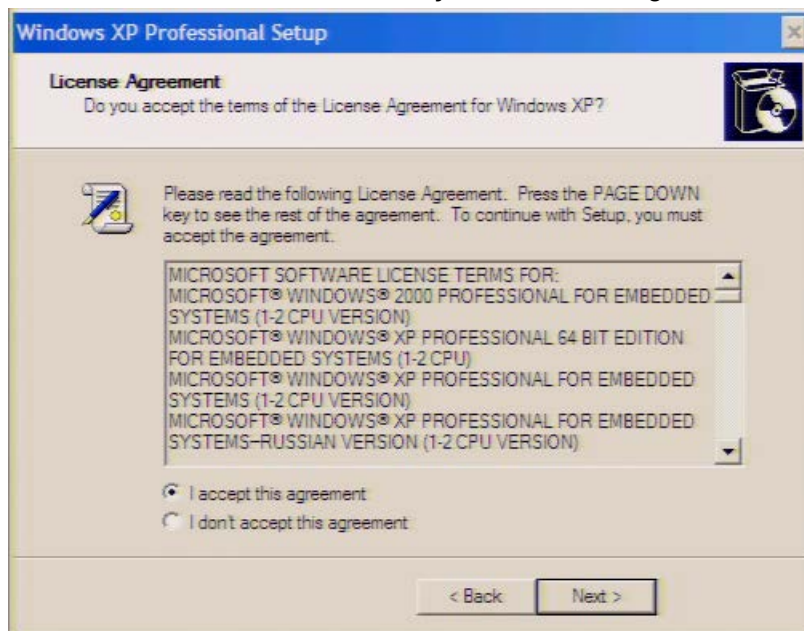
Windows XP Pro for Embedded Systems start up screen



Step 5. In the License agreement dialog box, select the **I accept this agreement** box and click the **Next >** button. **Figure 2-12** shows the license agreement dialog box in Windows XP Pro for Embedded Systems.

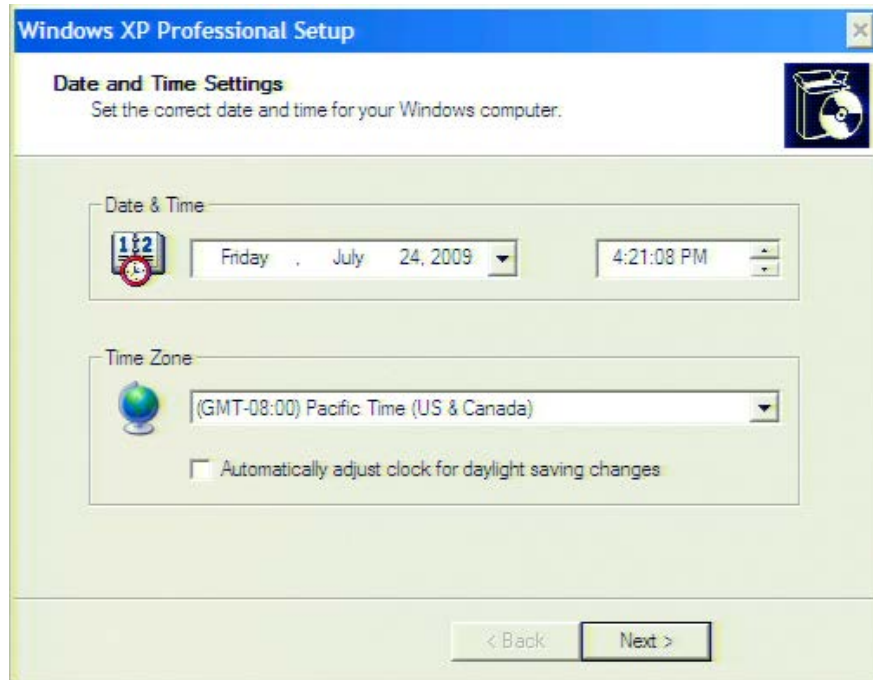
Figure 2-12

Windows XP Pro for Embedded Systems license agreement dialog box



Step 6. In the next dialog box, set the date and time for your Windows. Then, click the **Next >** button as show in **Figure 2-13**.

Figure 2-13 Date and Time Setting dialog box



Step 7. After a while, the E5071C restarts automatically.

Windows Vista Business (HDD Revision: CN925 or above)

NOTE

You cannot use the front panel keys during the initial registration of the E5071C therefore connect the mouse and the keyboard before turning on the power.

Step 1. Turns on the E5071C.

Step 2. The Windows XP Professional Setup wizard appears. Click the **Next >** button (Figure 2-14).

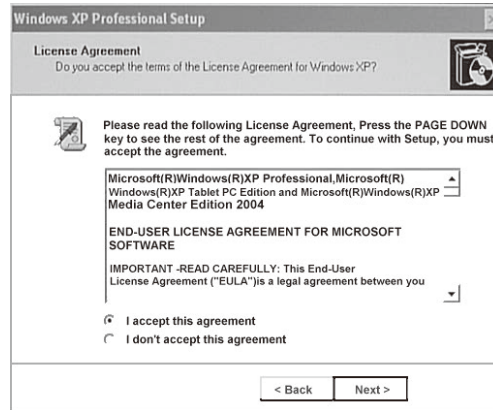
Figure 2-14 Windows XP Professional Setup wizard



e5071cse1073

- Step 3.** In the Windows XP Professional Setup dialog box, read the license agreement, then select the **I accept this agreement** box and click the **Next >** button (Figure 2-15).

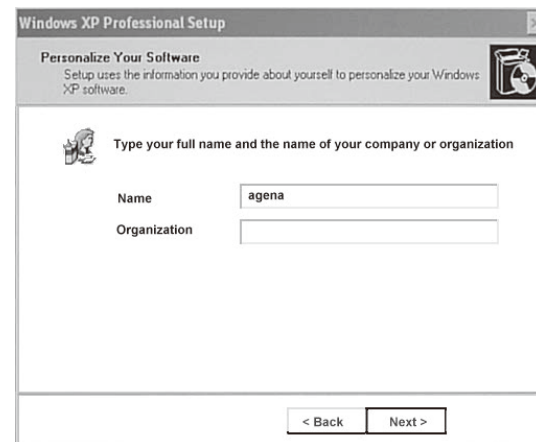
Figure 2-15 Windows XP Professional Setup dialog box (1/2)



e5071cse1074

- Step 4.** In the next dialog box, input **agena** in the **Name** box. Then, click the **Next>** button (Figure 2-16).

Figure 2-16 Windows XP Professional Setup dialog box (2/2)



e5071cse1075

- Step 5.** The E5071C restart automatically.
- Step 6.** The Keysight Recovery Image Setup screen (Figure 2-17) appears. Click OK to proceed.

Figure 2-17 Keysight Recovery Image Setup Screen(1/1)



Step 7. A progress bar appears (Figure 2-18) indicating the progress of the Recovery Image setup. The complete process takes less than 5 minutes to finish.

Figure 2-18 Keysight Recovery Image Setup Screen(1/2)



Step 8. A message dialog box appears after the completion of the Recovery Image Setup procedure. The dialog box disappears automatically after a few seconds.

Step 9. E5071C firmware is executed, then the measurement display appears.

NOTE

If the touch screen does not work after Initial Registration, refer to [“Reconfiguring Touch Panel Settings” on page 34](#).

Reconfiguring Touch Panel Settings

Step 1. In E5071C, right click My Computer.

Step 2. Select Properties. The System Properties dialog box appears.

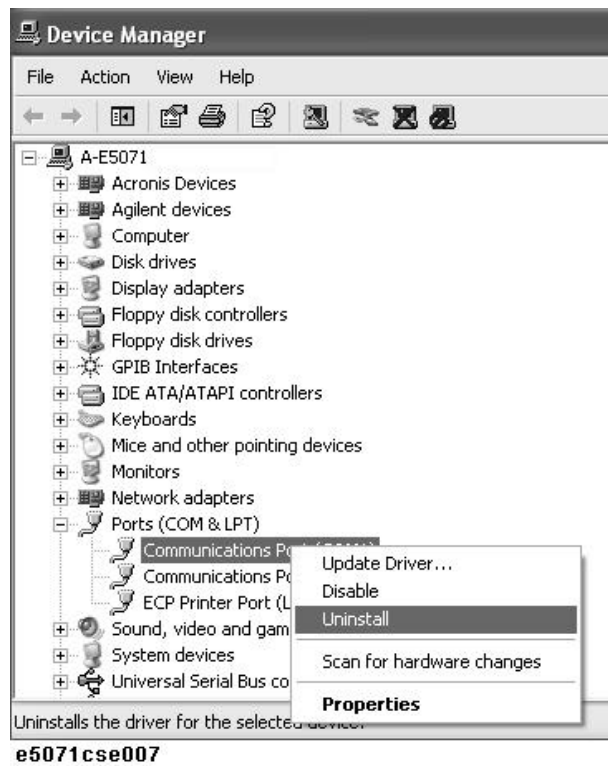
Step 3. Select Hardware tab.

Step 4. Click **Device Manager**. The Device Manager dialog box appears.

Step 5. Select Ports (COM & LPT).

Step 6. Check if two Communication Port (COM1) are displayed.

Step 7. Right click and select Uninstall for both the COM1 ports.



Step 8. The Confirm Device Removal message box appears. Click **OK**.

Step 9. Reboot the instrument.

Windows Vista Business (HDD Revision: CN924 or below)

NOTE

You cannot use the front panel keys during the initial registration of the E5071C therefore connect the mouse and the keyboard before turning on the power.

Step 1. Turns on the E5071C.

Step 2. The Windows XP Professional Setup wizard appears. Click the **Next >** button (Figure 2-14).

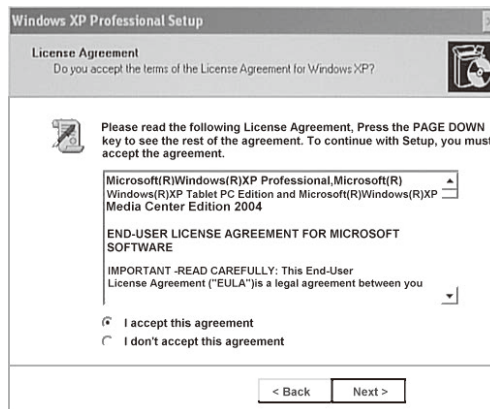
Figure 2-19 Windows XP Professional Setup wizard



e5071cse1073

Step 3. In the Windows XP Professional Setup dialog box, select the **I accept this agreement** box and click the **Next >** button (Figure 2-15).

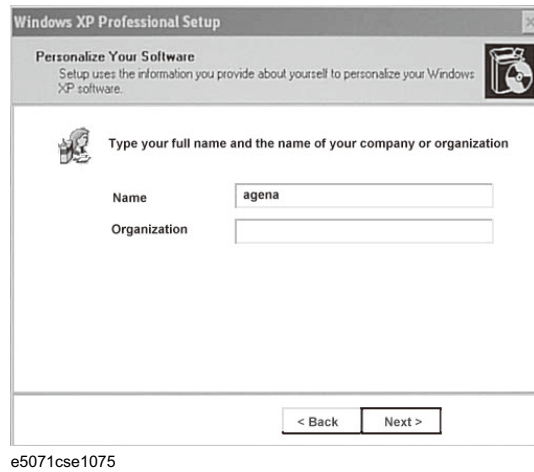
Figure 2-20 Windows XP Professional Setup dialog box (1/2)



e5071cse1074

Step 4. In the next dialog box, input **agena** in the **Name** box. Then, click the **Next>** button (Figure 2-16).

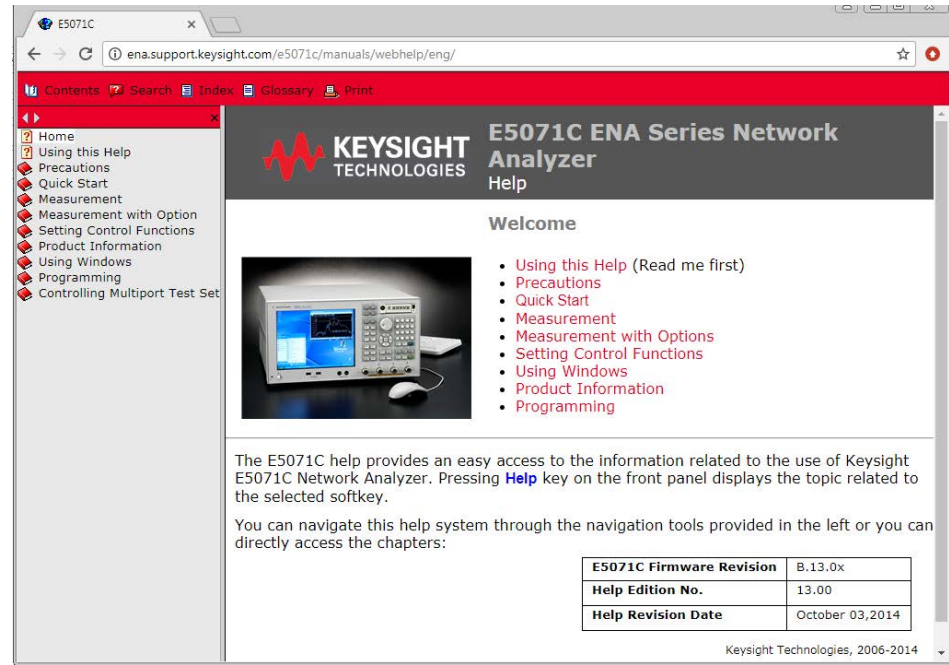
Figure 2-21 Windows XP Professional Setup dialog box (2/2)



Step 5. After a while, the E5071C restart automatically.

Online Help

The online help provides the information about the quick start, measurement operation, programming, built-in VBA, I/O interface. This is pre-installed in the E5071C. Press [Help] hard key on the front panel to open. Quick Start helps in understanding the E5071C operation quickly.



The latest version of online help is available at
<https://rfmw.em.keysight.com/wireless/helpfiles/e5071c/index.htm>.

3 Troubleshooting

This chapter describes the troubleshooting during start up and the procedure of the operating system (OS) recovery when the Windows OS has been damaged.

Troubleshooting during Startup

When you encounter the problem during start up, see **Table 3-1**. System recovery saves most of problems.

Table 3-1

Troubleshooting during startup

Symptom	Solution
Turning on (I) the standby switch does not start up the system.	Confirm that the power cable is properly plugged in. Confirm that the line switch on the rear panel is turned on
The system starts up, but it automatically shuts down immediately.	Execute the system recovery.
The system starts up, but it enters the service mode (The instrument status bar in the lower right part of the screen displays SVC in red).	
The measurement screen appears after startup, but the power-on test is failed, with Error Message 241 appearing against a red background in the instrument message/warning area in the lower left part of the screen.	

System Recovery

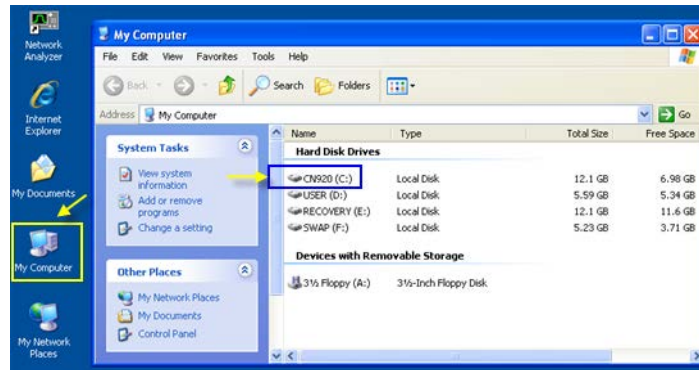
By executing system recovery, you can return the system of the E5071C (the Windows operating system) to the factory state (at the time of purchase¹).

NOTE

System recovery is a function of Windows and not a function of the E5071C Firmware.

The system recovery procedure is different in accordance with the Windows OS license and HDD revision. The Windows OS license and HDD revision can be confirmed using the following procedure:

- Step 1.** Check the Windows License label on the rear panel of the E5071C.
- Step 2.** In the E5071C, from Windows Start Menu, click on My Computer.
- Step 3.** The volume label for C: drive is displayed in Hard Disc Drive area.



CAUTION

Strictly follow the steps described below. If you do any operation other than the following steps, the system may not be recovered.

- 1. If the hard disk failed and has been replaced after purchase, the state when the replacement was performed is recovered.

Types of system recoveries

The following 2 types of system recoveries are available.

- o Factory recovery

Returns the contents of the C drive to the factory state.

Available for all Windows OS licenses.

- o User recovery (available only for Windows Vista Business with HDD revision CN924 or below)

Returns the contents of the C and D drives to a user-specified state.

To use this function, you must prepare for recovery in advance.

For information on the preparation, see **“Procedure to create the user backup image (only available when HDD Revision is CN924 or below)” on page 53** for information on the execution, see **“Procedure to execute the user recovery function (only available when HDD Revision is CN924 or below)” on page 60**.

Factory Recovery

Notes on executing factory recovery function

Executing the factory recovery function causes the following conditions:

- o In addition to the Windows operating system, the following settings of the E5071C are returned to the factory state.
 - Network setting
 - GPIB setting
 - Printer setting
- o The driver for the supported printer installed after purchase is deleted.
- o You need to execute initial registration again.
- o The firmware revision you installed remains even if you perform factory recovery.

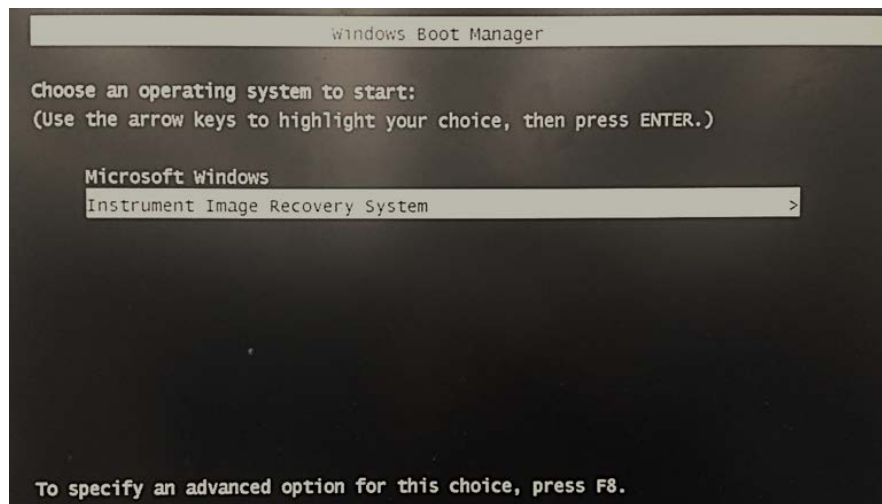
Files you created using the save function (files in the D drive) are not affected, but we recommend backing them up before executing system recovery for precautionary purposes. For more information on backup, refer to “Backing Up the Data” as described in E5071C Online Help.

Procedure for Windows 7 / 10

SDD Revision: CTxxx or CFxxx

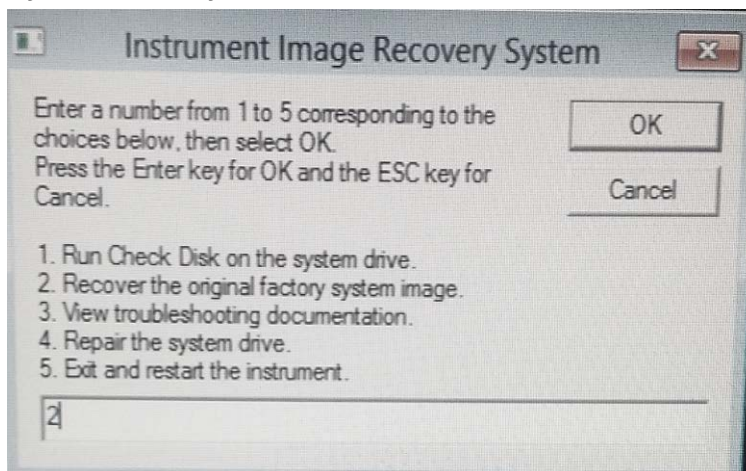
- Step 1.** Connect a keyboard if Windows 10.
- Step 2.** Press the standby switch of the E5071C to turn it on.
- Step 3.** When the screen as shown in the figure below appears, select **Instrument Image Recovery System** and press [Enter].

Figure 3-1 Instrument Image Recovery System Selection Screen



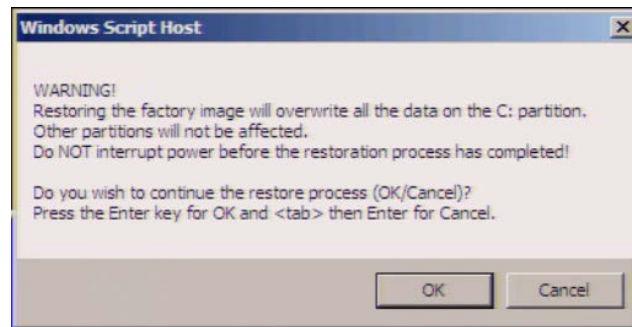
- Step 4.** In the Keysight Software End User License Agreement dialog box, select the **Agree** button.
- Step 5.** Type 2 to select Recover the original factory system image option and press [Enter].

Figure 3-2 System recovery selection screen



- Step 6.** A confirmation message appears. Click **OK** to confirm the process.

Figure 3-3 System recovery information screen



Step 7. The progress of the system configuration is displayed on the screen. The recovery takes a few minutes depending on the amount of data.

Figure 3-4 System configuration progress screen



Step 8. Once the recovery process is completed, completion message prompts. Click **OK**. The E5071C restarts automatically.

Figure 3-5 Recovery completion dialog box



- Step 9.** After the restart, execute initial registration. For information on the execution procedure, refer to [“Initial Registration of E5071C” on page 26.](#)

CAUTION

Never turn off the power during the system recovery because doing so may cause serious damage to the E5071C.

Procedure for Windows Vista Business

HDD Revision: CN925 or above

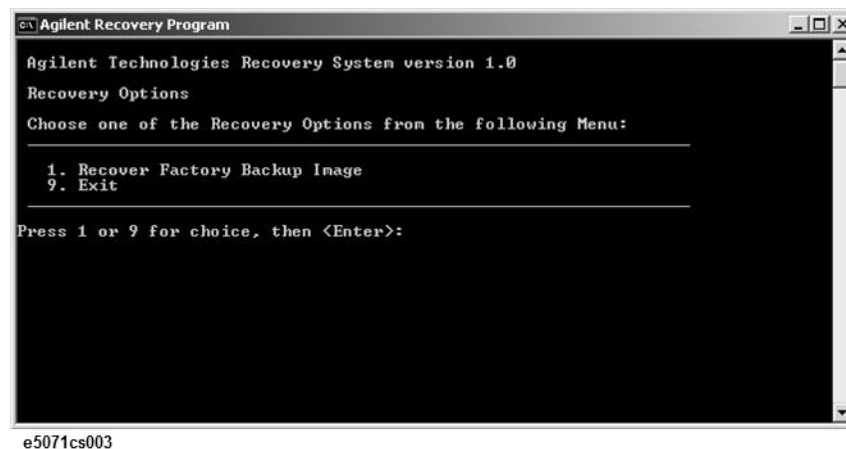
NOTE

The recovery function for Factory image is only loaded.
The User back up function is not available.

- Step 1.** Turn ON the E5071C.
- Step 2.** The boot option is displayed. Use the downward arrow key to select the “Keysight Recovery Solution” and press Enter
- Step 3.** Windows PE starts up and “Keysight Recovery Program” window is displayed. Press 1, and then press Enter.

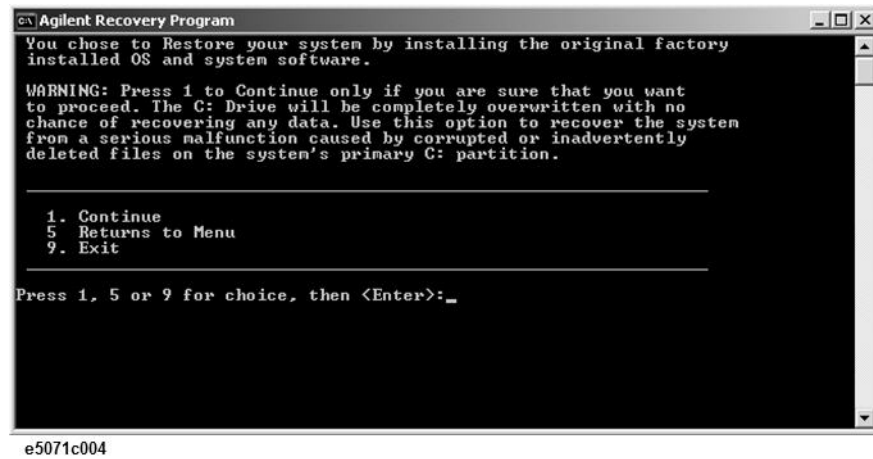
Figure 3-6

Keysight Recovery Program(1/1)



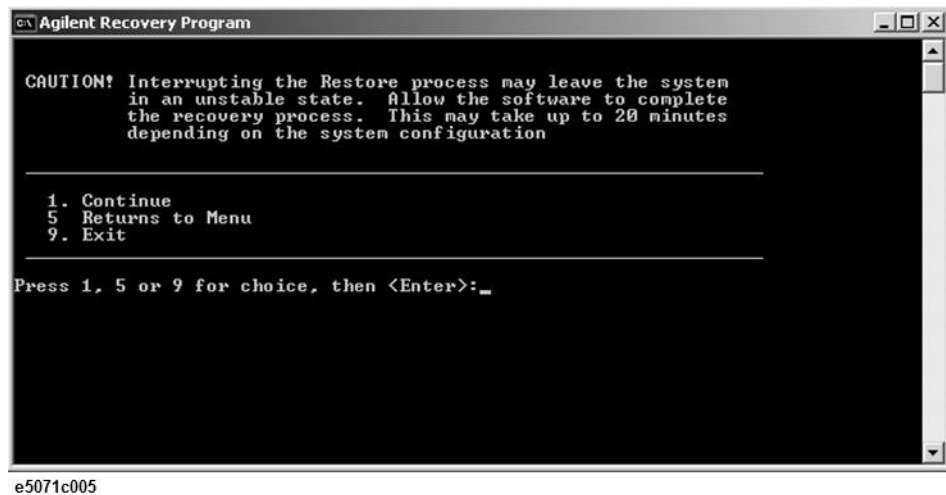
- Step 4.** A warning message is displayed. Press 1, and then press Enter.

Figure 3-7 Keysight Recovery Program(1/2)



Step 5. Caution is displayed. Press 1, and then press Enter.

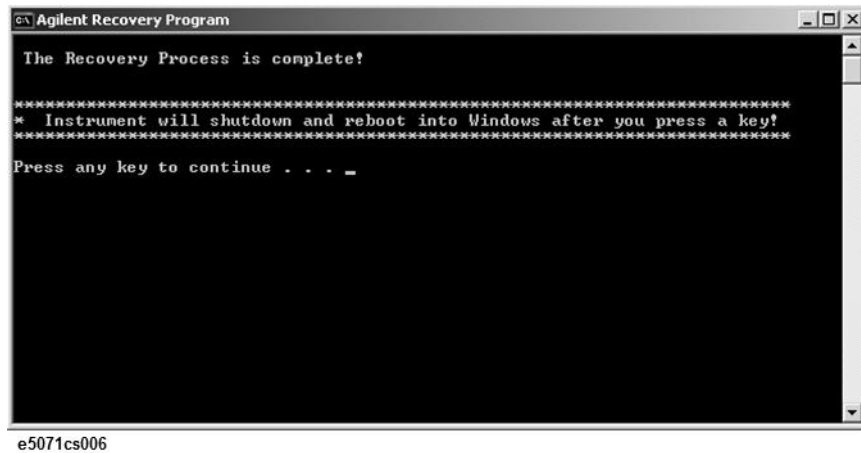
Figure 3-8 Keysight Recovery Program(1/3)



Step 6. Recovery function is performed.

Step 7. A message box appears after the completion of recovery process. Press any key to continue.

Figure 3-9 Keysight Recovery Program(1/4)



Step 8. When the recovery is finished, E5071C restarts.

Step 9. After restart, the screen for initial registration appears. Execute initial registration. For information on the execution procedure, refer to [“Windows Vista Business \(HDD Revision: CN925 or above\)” on page 32](#).

NOTE

If the touch screen does not work after System Recovery, refer to [“Reconfiguring Touch Panel Settings” on page 34](#)

HDD Revision: CN924 or below

NOTE

You need a keyboard for this operation.

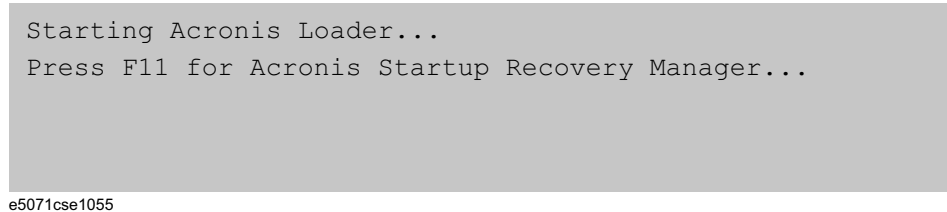
Step 1. Shut down the E5071C.

Step 2. Disconnect all of the USB device from the USB ports.

Step 3. Connect the keyboard to the E5071C.

Step 4. Press the standby switch of the E5071C to turn it on.

Step 5. When the screen as shown in the figure below appears, press **F11** of the keyboard.



CAUTION

Press F11 only once. If you press F11 twice or more and a screen which is not mentioned in this manual appears, reboot the instrument and restart the process from the first.

NOTE

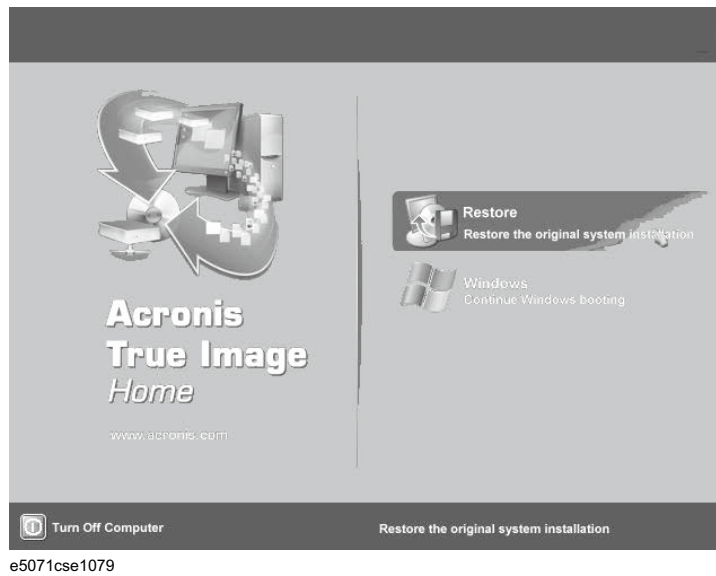
After several seconds, the next screen appears automatically even if you do not press any key, so do not miss it.

NOTE

After **Step 5**, if the E5071C freezes with the cursor does not blink, turn the off and remove unnecessary USB devices. Then, replace the keyboard with a PS/2 keyboard to execute the process again.

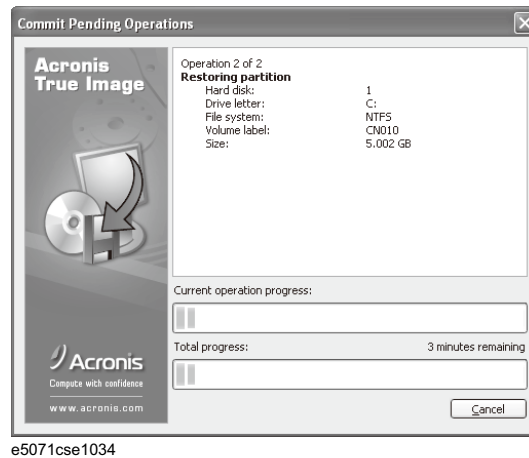
Step 6. Select *Restore*.

Figure 3-10 Activate Acronis Startup Recovery Manager



Step 7. A confirmation dialog box is displayed. Push the enter to select **Yes** to start the recovery of the factory backup. The recovery takes a few minutes depending on the amount of data.

Figure 3-11 Recover Factory Backup



- Step 8.** When the recovery is finished, push the enter select OK. The E5071C restarts automatically.
- Step 9.** After restart, the screen for initial registration appears. Execute initial registration. For information on the execution procedure, refer to “**Windows Vista Business (HDD Revision: CN924 or below)**” on page 36.
- Step 10.** Execute the calibration of the touch screen.

CAUTION

Never turn off the power during the system recovery because doing so may cause serious damage to the E5071C.

Procedure for Windows XP Pro for Embedded Systems

NOTE

Only the recovery function for the Factory image is loaded.
The User back up function is not available.

NOTE

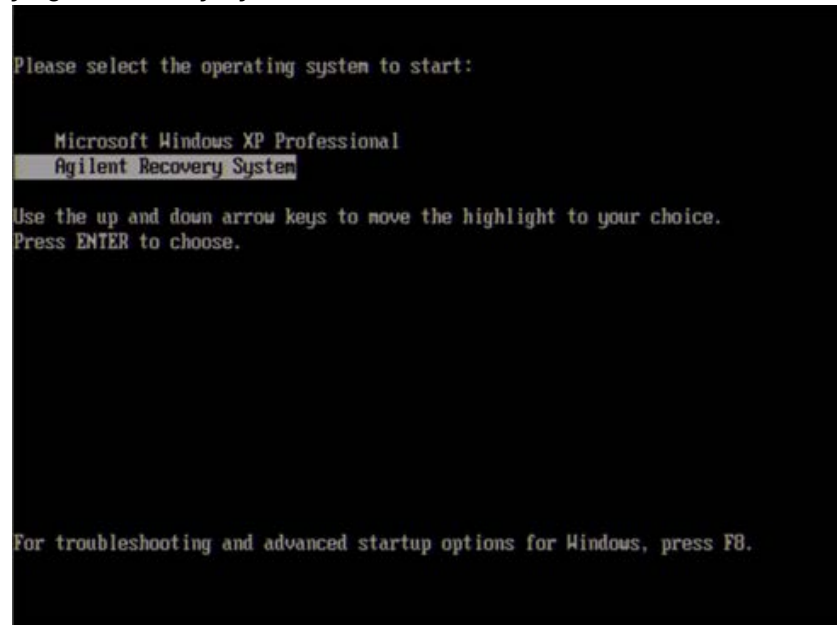
You need a keyboard for this operation.

Step 1. Turn ON the E5071C.

Step 2. The boot option is displayed. Use the downward arrow key to select the “Keysight Recovery Solution” and press Enter

Figure 3-12

Keysight Recovery System selection screen

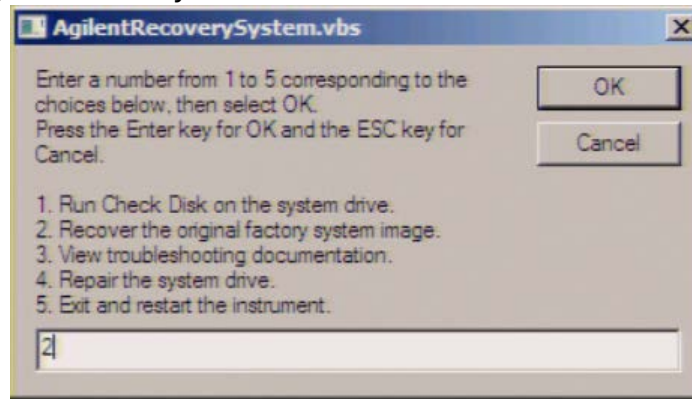


NOTE

After several seconds, the next screen appears automatically even if you do not press any key.

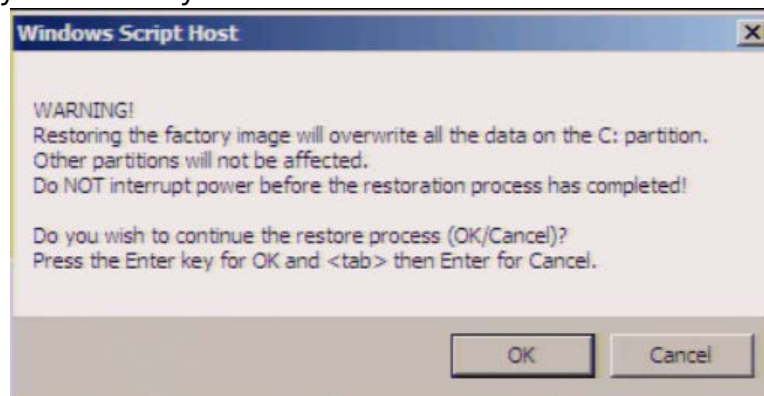
- Step 3.** Type 2 to select Recover to original factory system image option and press Enter.

Figure 3-13 System recovery selection screen



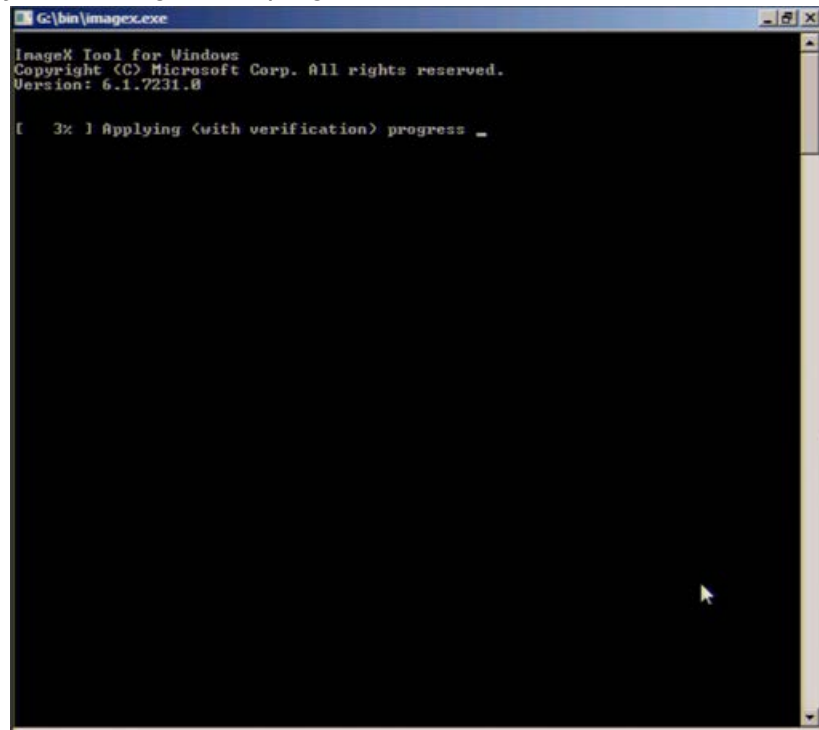
- Step 4.** A confirmation message appears. Click OK to continue the process.

Figure 3-14 System recovery confirmation screen



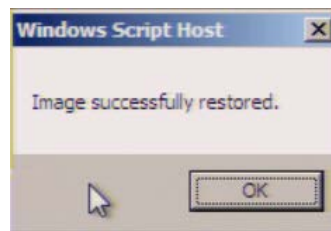
- Step 5.** The progress of the system configuration is displayed on the screen. The recovery takes a few minutes depending on the amount of data.

Figure 3-15 System configuration progress screen



Step 6. Once the recovery process is completed, completion message prompts. Click OK. The E5071C restarts automatically.

Figure 3-16 Recovery Option confirmation dialog box



Step 7. After the restart, execute initial registration. For information on the execution procedure, refer to [“Windows XP Pro for Embedded Systems” on page 28](#).

CAUTION

Never turn off the power during the system recovery because doing so may cause serious damage to the E5071C.

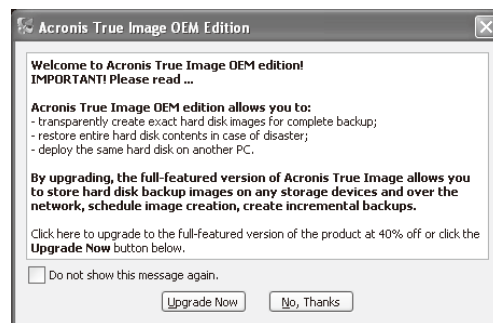
User Recovery (only for HDD Revision CN924 or below)

Procedure to create the user backup image (only available when HDD Revision is CN924 or below)

This section describes how to create the user backup image. The C and D drives' contents saved in this procedure are recalled when the user recovery function is executed.

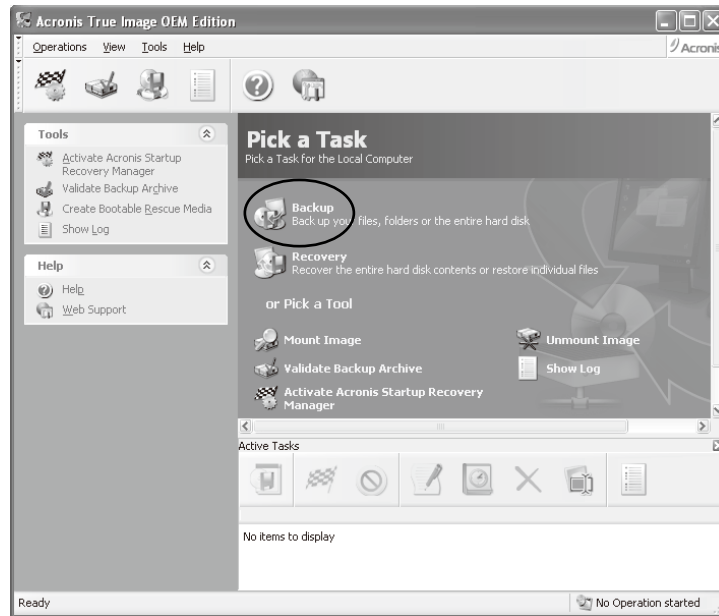
- Step 1.** Close the E5071C application by pressing **System** > Service Menu > Exit.
- Step 2.** Close all other applications you currently open.
- Step 3.** From the Windows start menu, select All Programs > Acronis > Acronis True Image.
- Step 4.** Click “No, Thanks” button.

Figure 3-17 Recover User Backup



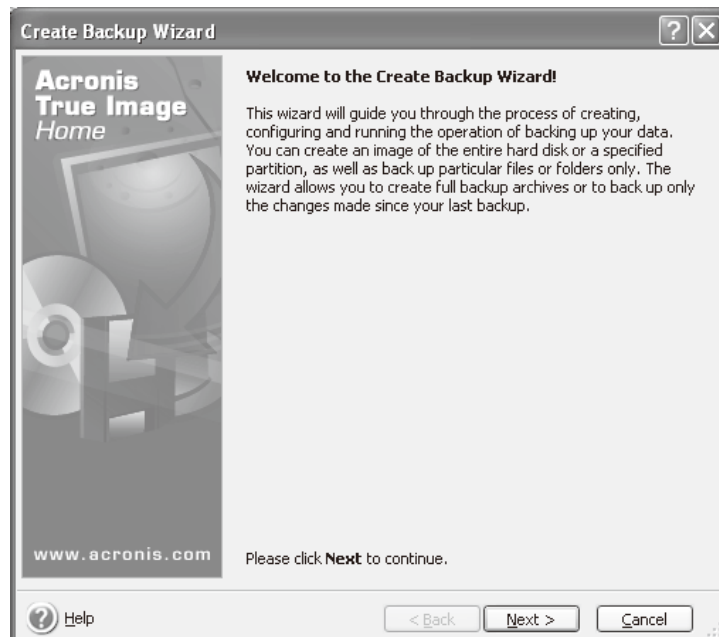
e5071cse1080

Step 5. Click Backup



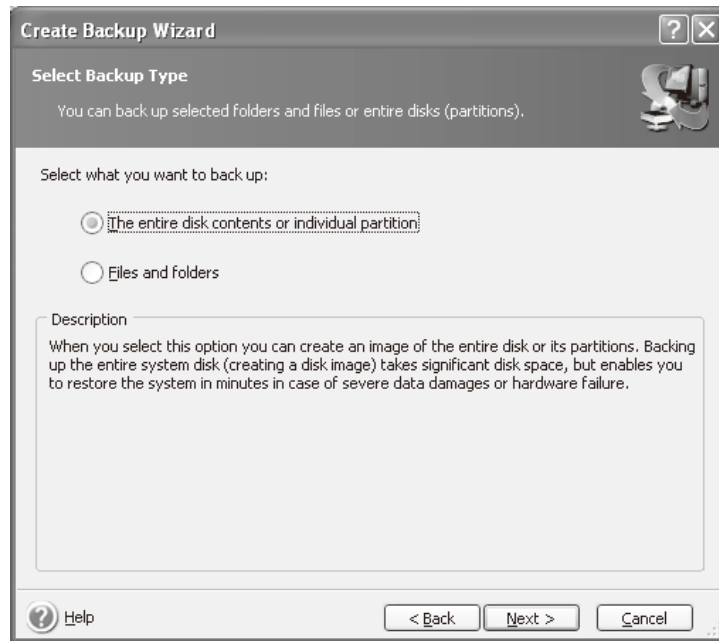
e5071cse1125

Step 6. Click Next button.



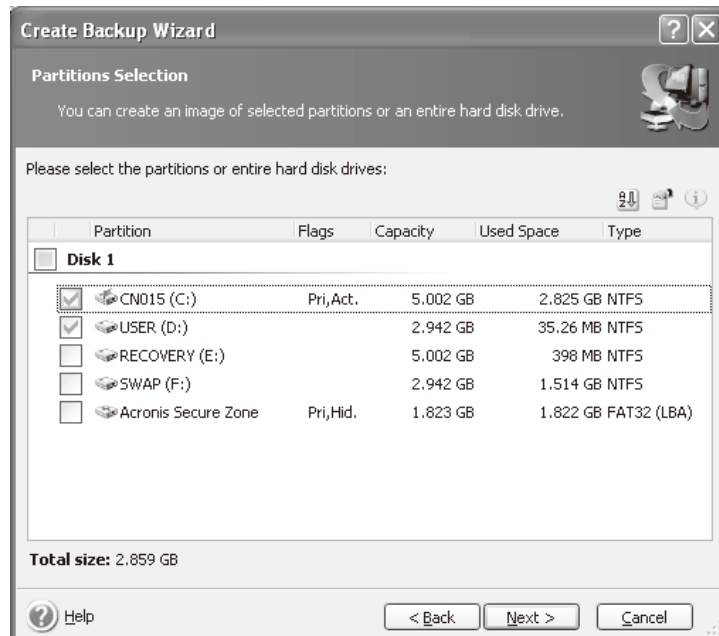
e5071cse1126

Step 7. Select “The entire disk contents or individual partition,” then click **Next** button.



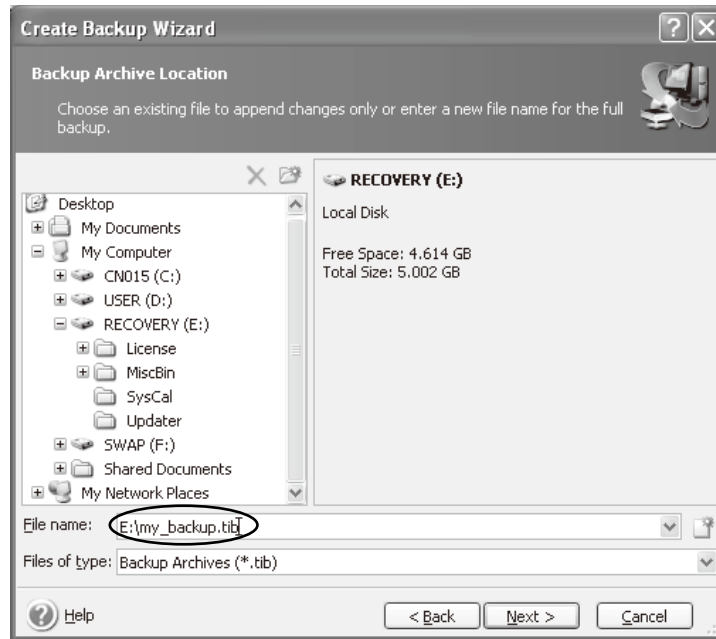
e5071cse1127

Step 8. Select the C drive and D drive.



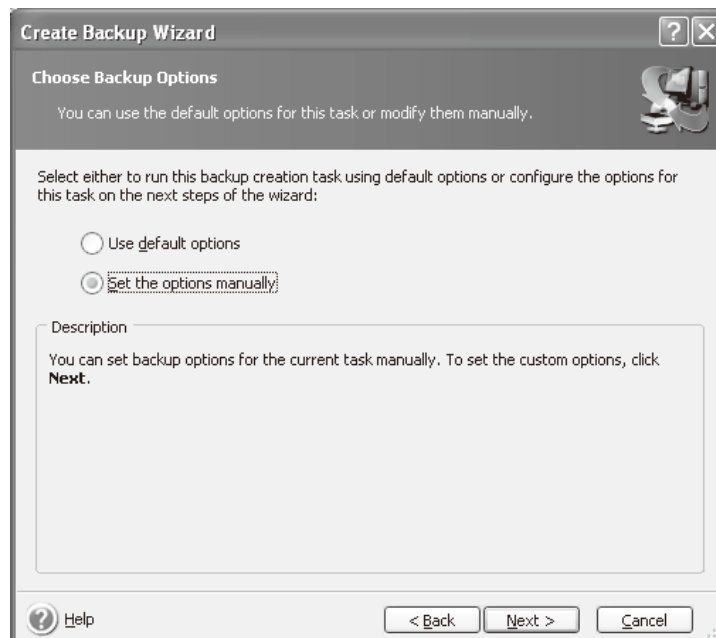
e5071cse1128

- Step 9.** Select the destination folder and input a file name, then click **Next** button. It is recommended to save the file to a directory which has enough space like the E drive. Also, never save the contents of the drive to the C, D or F drive.



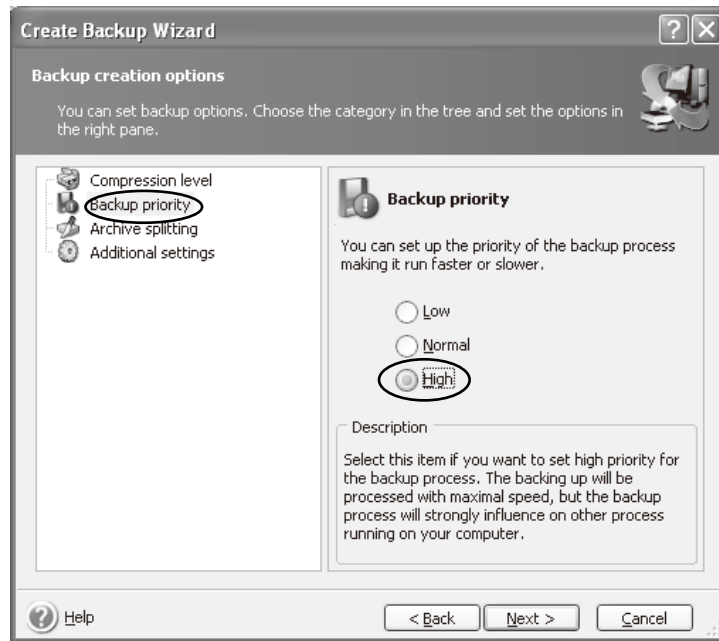
e5071cse1129

- Step 10.** Select “Set the options manually” and click **Next** button.

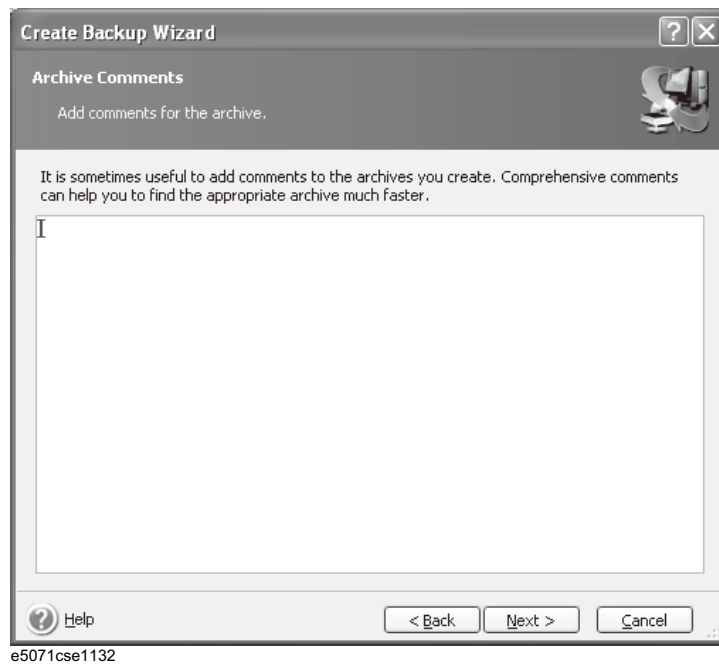


e5071cse1130

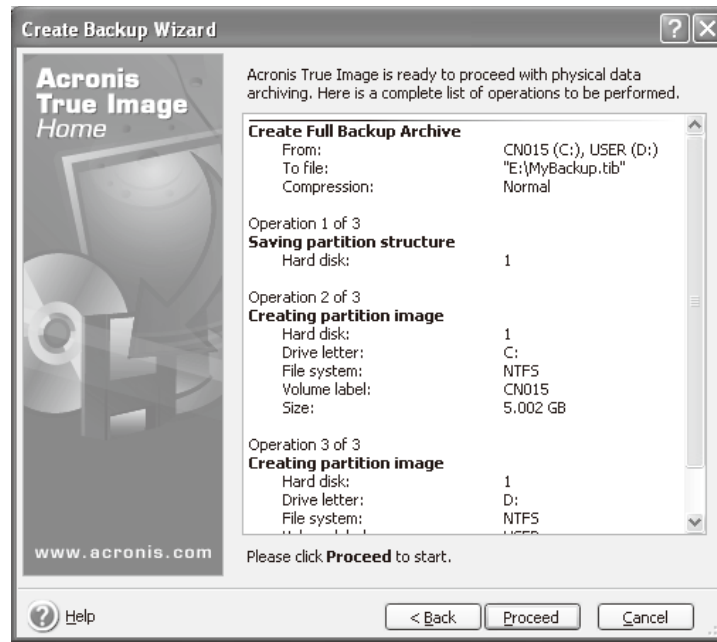
Step 11. Select “Backup priority” in the left field and “High” in the right field, then click **Next** button.



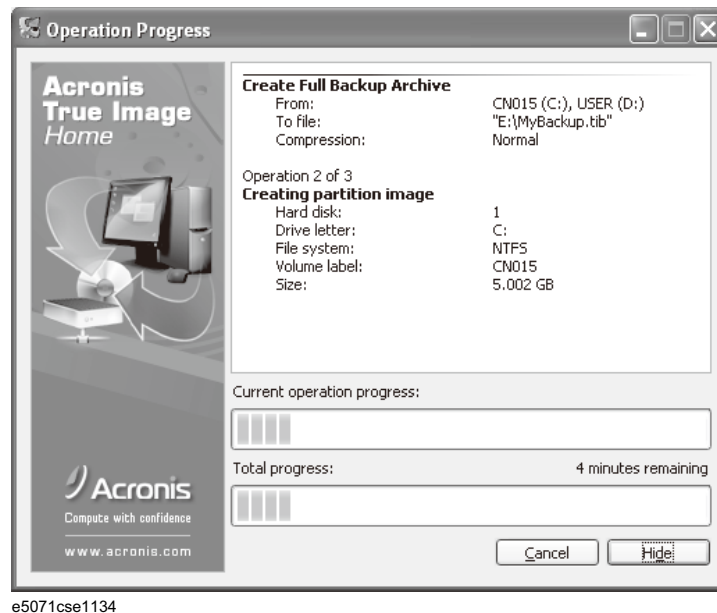
Step 12. If necessary, input comments and click **Next** button. The comments can be omitted.



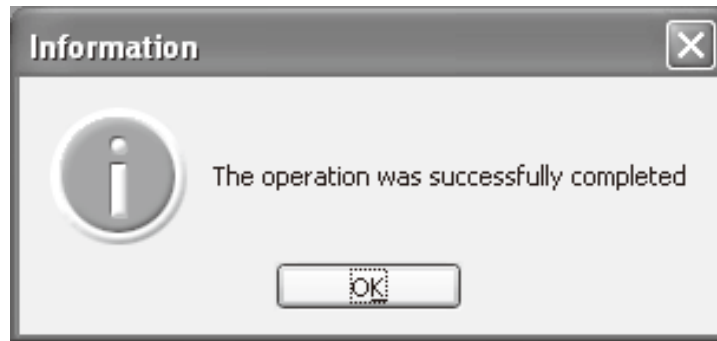
Step 13. Click **Proceed** button.



Step 14. The following screen appears during backup.



Step 15. The following screen appears when the user backup image was created. Click **OK**.



e5071cse1135

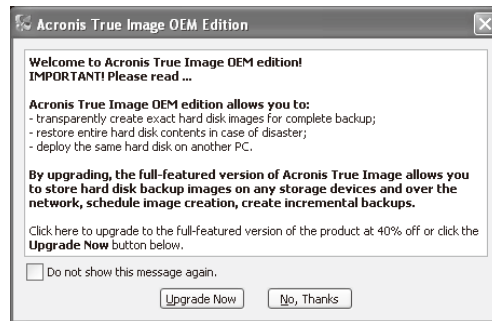
CAUTION

Never turn off the power during creating the user backup image because doing so may cause serious damage to the E5071C.

Procedure to execute the user recovery function (only available when HDD Revision is CN924 or below)

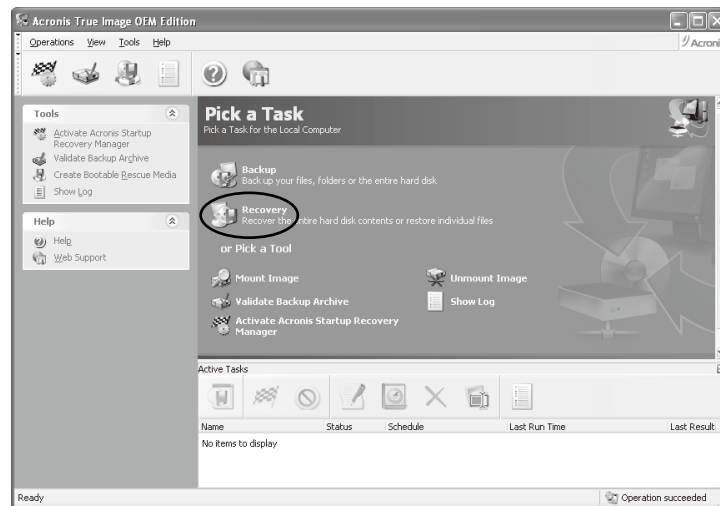
Returns the contents of the C and D drives to a user-specified state. To use this function, you must create the user backup image in advance. For more information, see the description “**Procedure to create the user backup image (only available when HDD Revision is CN924 or below)**” on page 53.

- Step 1.** Close the E5071C application by pressing **System** > Service Menu > Exit.
- Step 2.** Close all other applications you currently open.
- Step 3.** From the Windows start menu, select All Programs > Acronis > Acronis True Image.
- Step 4.** Click “No, Thanks” button.



e5071cse1080

- Step 5.** Click **Recovery**.



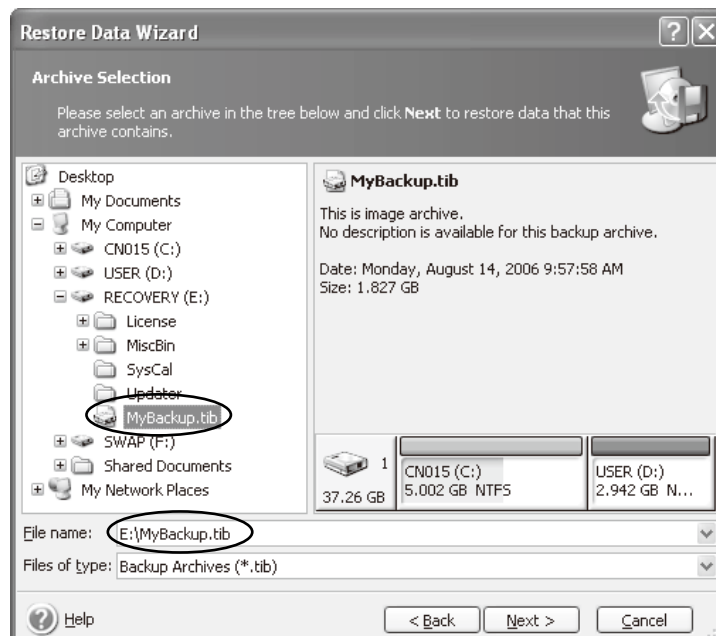
e5071cse1136

Step 6. Click Next button.



e5071cse1137

Step 7. Select the saved backup image file, then click Next button.



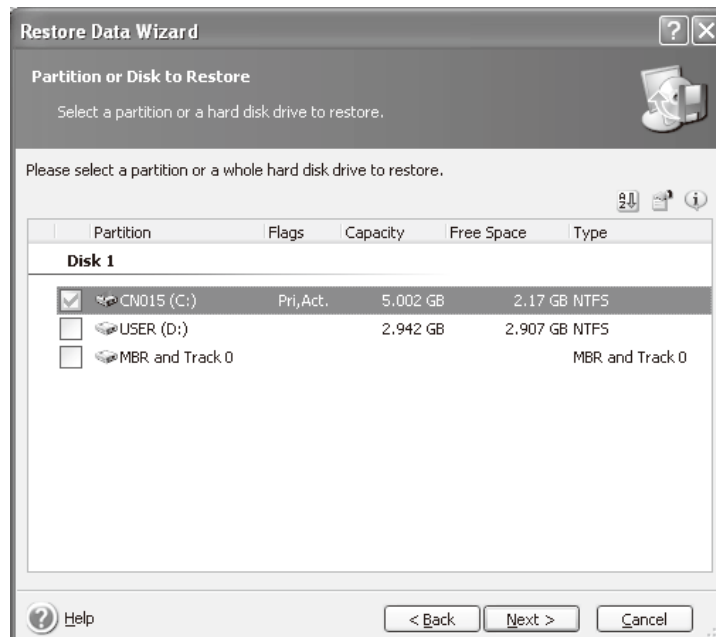
e5071cse1138

Step 8. Select “Restore disks or partitions,” then click **Next** button.



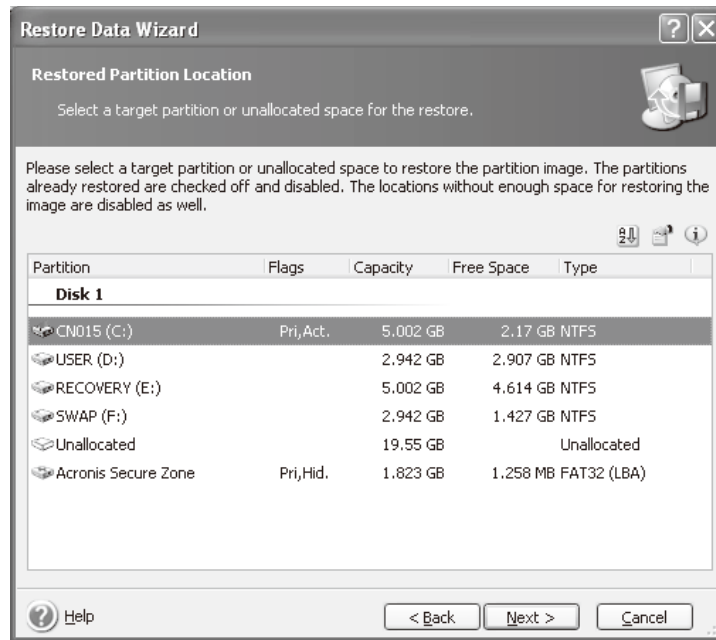
e5071cse1139

Step 9. Select the C drive, then click **Next** button.



e5071cse1143

Step 10. Select the C drive to restore, then click **Next** button.



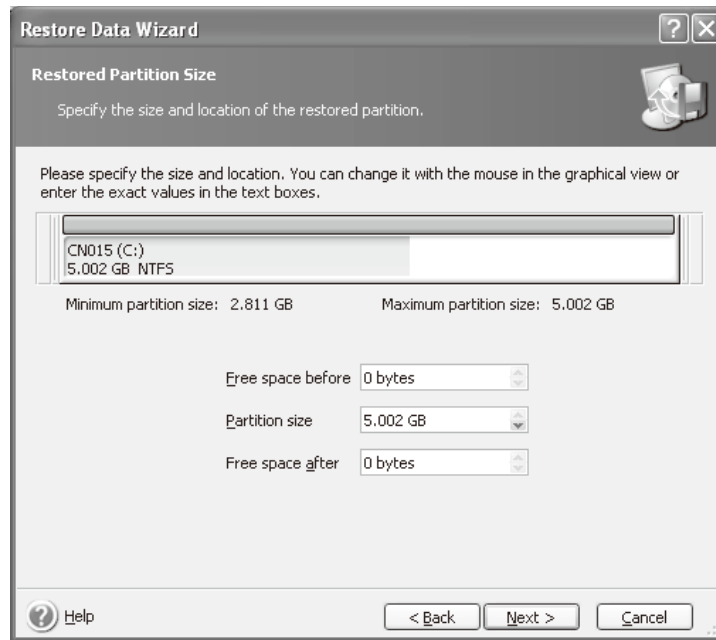
e5071cse1144

Step 11. Select "Active" and click **Next** button.



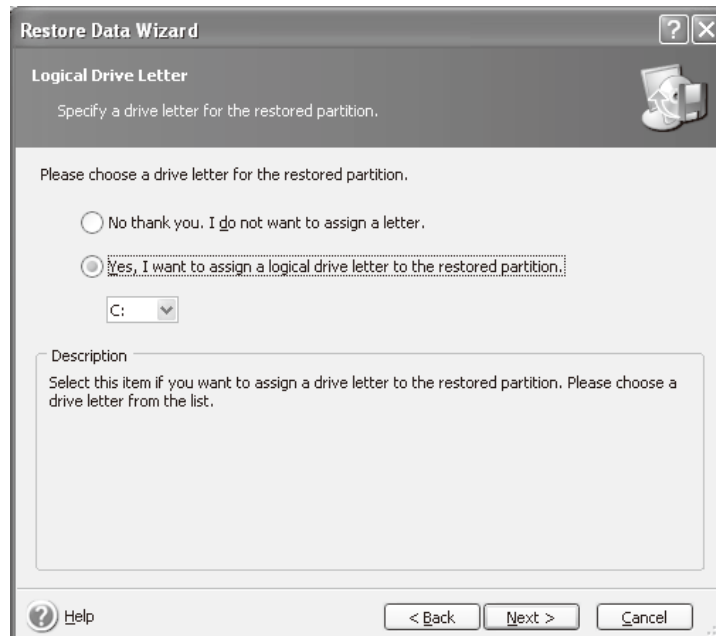
e5071cse1145

Step 12. Click **Next** button.



e5071cse1146

Step 13. Select “Yes, I want to assign a logical drive letter to the restored partition” and click **Next** button.



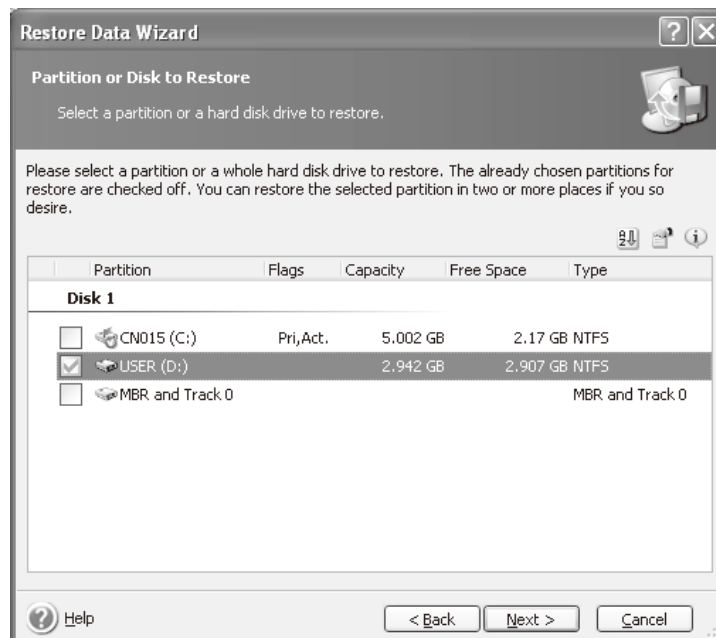
e5071cse1147

Step 14. Select “Yes, I want to restore another partition or hard disk drive,” then click **Next** button.



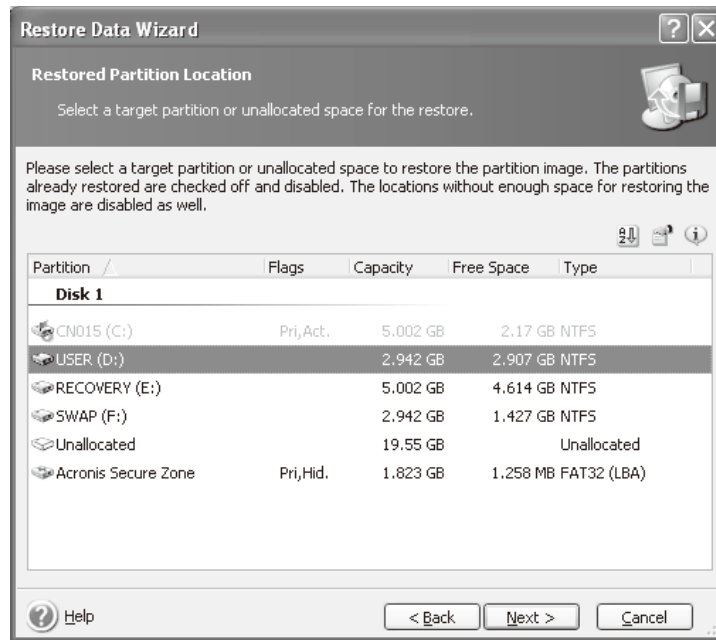
e5071cse1148

Step 15. Select the D drive to restore, then click **Next** button.



e5071cse1149

Step 16. Select the D drive to restore, then click **Next** button.



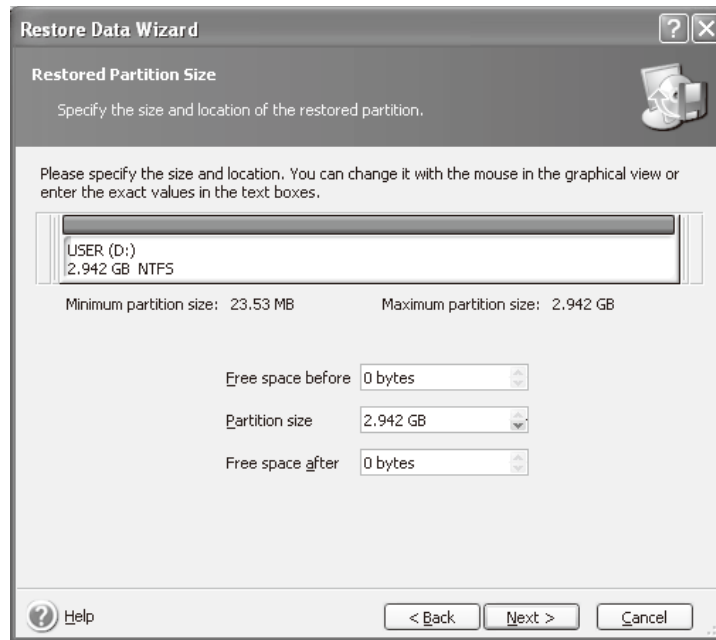
e5071cse1150

Step 17. Select “Logical” and click **Next** button.



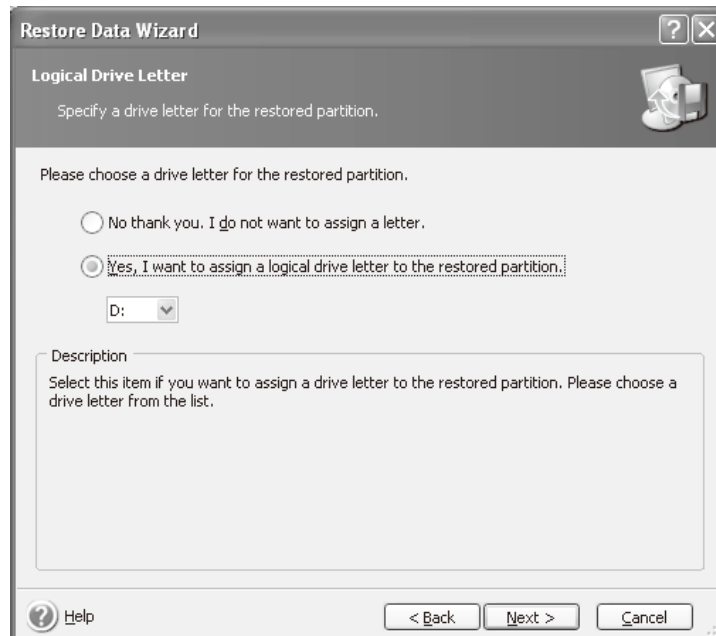
e5071cse1151

Step 18. Click **Next** button.



e5071cse1152

Step 19. Select “Yes, I want to assign a logical drive letter to the restored partition,” then click **Next** button.



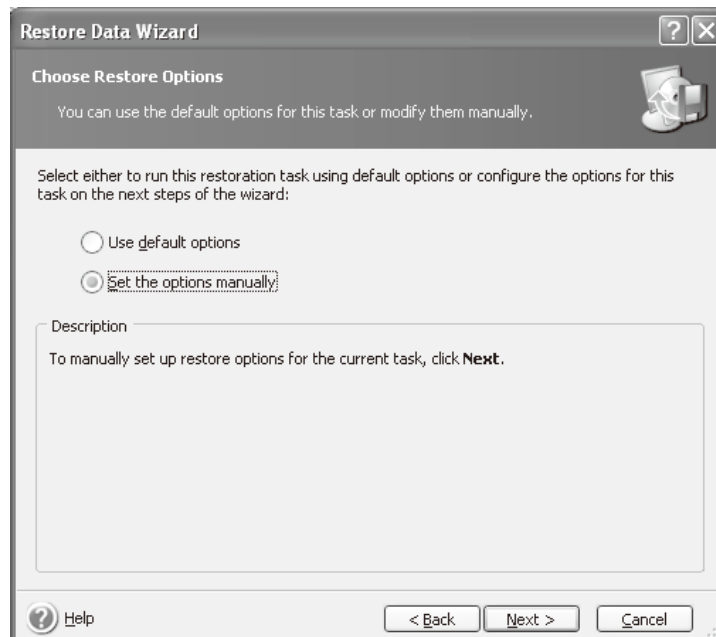
e5071cse1153

Step 20. Select “No, I do not.” and click **Next** button.



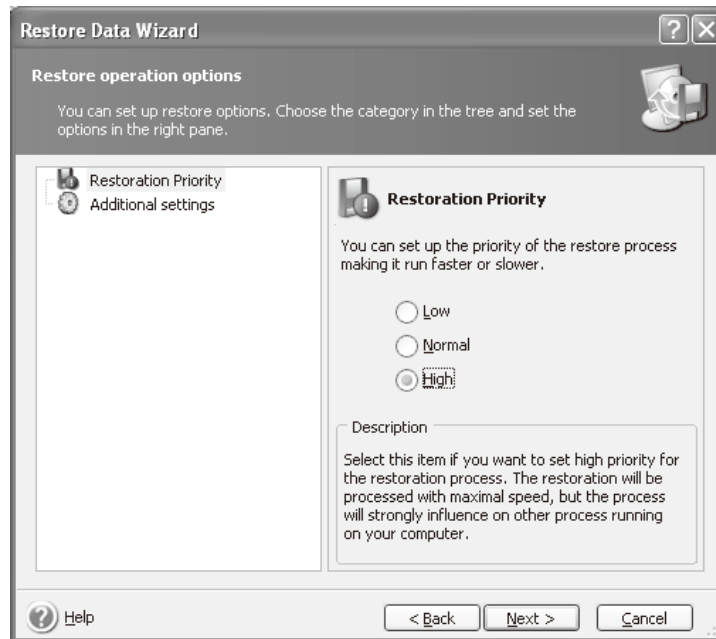
e5071cse1154

Step 21. Select “Set the options manually” and click **Next** button.



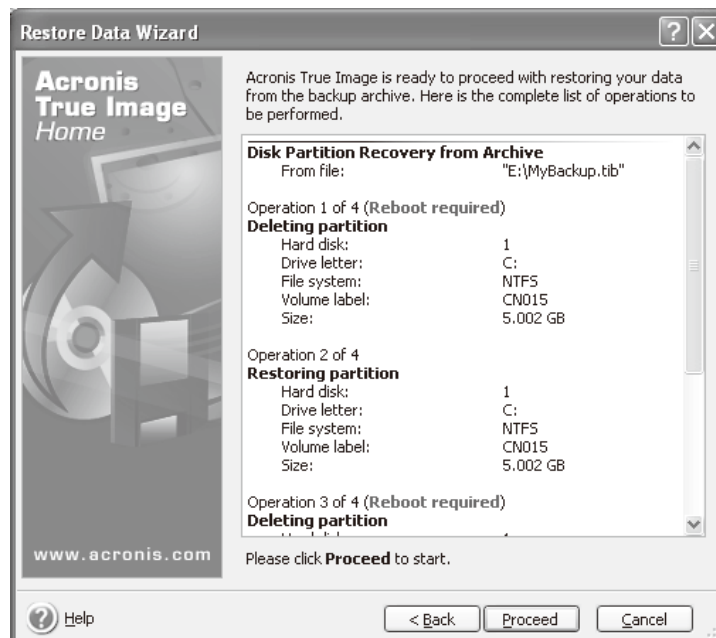
e5071cse1155

Step 22. Select “Restoration Priority” in the left field and “High” in the right field, then click **Next** button.



e5071cse1156

Step 23. Click **Proceed** button.



e5071cse1157

Step 24. Click **Reboot** button.



e5071cse1158

CAUTION

Never turn off the power during the recovery of the user backup image because doing so may cause serious damage to the E5071C.

Step 25. After boot up, perform **"Initial Registration of E5071C"** on page 26 and Calibration of the Touch Screen.

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