

Advantech GeniDAQ CE Runtime User's Manual

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Advantech Co., LTD.
FL.4, No.108-3, Ming-Chuan Rd.,
Shing Tien City, Taipei, Taiwan R.O.C.
TEL : 886-2-22184567
FAX : 886-2-22181989

Homepage: <http://www.advantech.com/ia>

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Overview

Advantech GeniDAQ allows you to build your application on PCs with Windows NT/98/95, and run it on these platforms or on Advantech HMI-640S model with Windows CE. Advantech HMI-640S is a HMI platform with 5.7 inch screen size. For the detailed information, please refer to Advantech HMI-640S hardware manual.

This chapter describes how to run Advantech GeniDAQ on HMI-640S platform, including the installing Advantech GeniDAQ CE Runtime on HMI-640S, developing GeniDAQ CE strategy, downloading the strategy, configuring the devices, TCP/IP networking and running the application.

The steps to run your strategy as below:

- a. Build your application with Advantech GeniDAQ Builder (V4.10 or higher) on Host PC
- b. Download GeniDAQ CE strategy to HMI-640S
- c. Launch \Harddisk\GeniDAQCE\AdsDeviceInstall.exe to configure and install devices.
- d. Launch \Harddisk\GeniDAQCE\GeniDAQCE.exe program under My Computer icon to start the Advantech GeniDAQ CE Runtime.

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- Installing Advantech GeniDAQ CE on HMI-640S
- Creating GeniDAQ CE strategy on host PCs
- Downloading GeniDAQ CE strategy to HMI-640S
- Configuring I/O devices on HMI-640S
- Configuring TCP/IP networking on HMI-640S
- Running Advantech GeniDAQ CE on HMI-640S
- Summary

Installing Advantech GeniDAQ CE on HMI-640S

Microsoft Windows CE version 2.12 and Advantech GeniDAQ CE Runtime are optional pre-installed in HMI-640S when shipping. We also provide Advantech GeniDAQ CE Runtime installation CD-ROM disc. If the program is damaged on HMI-640S, you can re-install it from the CD-ROM disc by following the steps below:

Installing Advantech GeniDAQ CE Runtime for HMI-640S via Microsoft ActiveSync

Before you begin:

Install Microsoft ActiveSync by selecting the “Install Advantech GeniDAQ CE Runtime” item.

Set up a partnership between your device and desktop computer using a serial cable, cradle, or infrared connection. For more information about setting up a partnership, see Microsoft ActiveSync Help.

If your computer is running Windows NT 4.0, you need to install the Remote Access Service (RAS).

If your desktop computer is running Windows 95, you need to install Dial-Up Networking Upgrade (DUN) 1.3 or later which is available at <http://www.microsoft.com/Windows95/downloads/>. The following procedures will not work with DUN 1.2. For Windows 98, it is built-in.

Install a NULL modem for your desktop computer and configure it for general use as instructed in Windows Help or your modem instructions.

For more information, please refer to readras.doc in the Microsoft ActiveSync installation directory.

Connecting a HMI-640S device to host PC

- 1 On HMI-640S, select Start|Programs|Communication|Remote Networking.
- 2 Double-click or double-tap the Make New Connection icon.
- 3 In the Type a name for the connection box, enter a unique name for the connection.
- 4 Select Direct Connection and then select Next.
- 5 In the Select the device field, select the COM port that connects to the host PC.
- 6 Click Configure button, it generates the “Device Properties” dialog box. Click Port Settings tab. We suggest to use 115200 bps for Baud rate field.
- 7 Select Finish to close the New Connection settings. The connection that you create appears as an icon in the Connections window.
- 8 Select Start|Settings|Control Panel.
- 9 Double-click the Communication icon. Click the PC Connection tab and change the connection to the new created connection.
- 10 Launch `\windows\repllog.exe` to setup connection.

9-pin NULL Modem Cabling

Remote Host Serial Port Connector	Calling System Serial Port Connector	Signal
3	2	Transmit Data
2	3	Receive Data
7	8	Request to Send
8	7	Clear to Send
6, 1	4	Data Set Ready and Carrier Detect
5	5	Signal Ground
4	6, 1	Data Terminal Ready

For more information about setup connection, please refer to Microsoft ActiveSync on-line help.

Copying GeniDAQ CE Runtime files from host PC to HMI-640S

Using Microsoft ActiveSync, you can copy or move information from the desktop to the device and vice versa.

1. On host PC, in ActiveSync, click Windows Explorer. Then it will open the Mobile Device window for your device.
2. In Windows Explorer, browse to the GeniDAQ CE Runtime files (for example, C:\Program Files\Advantech\GeniDAQCE).
3. Right-click the files and click Copy. Place the cursor in the \harddisk\genidaqce folder for your device, right-click, and click Paste

Installing Advantech GeniDAQ CE Runtime for HMI-640S via TCP/IP Network

1. Insert the Advantech GeniDAQ CD into CD-ROM drive on host PC. The installation program will be launched automatically.
2. Select "Install Advantech GeniDAQ WinCE Runtime" item and specify the installation directory to C:\Program Files\Advantech\GeniDAQCE on Host PC to install it.
3. After installing it to host PC, share the installed directory, C:\Program Files\Advantech\GeniDAQCE directory, with other machines by right-clicking on the GeniDAQCE directory and selecting resource sharing item in the Windows Explorer.

Note: The other way, you can transfer the files through a network server by copying all files under C:\Program Files\Advantech\GeniDAQCE directory to the server.

4. Connect the host PC and HMI-640S to a hub or a network server.

Note: If you use a hub for download, you should assign IP addresses for host PC and HMI-640S manually.

5. On HMI-640S, click Start->Programs->Command Prompt menu and issue the command
[] Net View Host_PC_Computer_Name for download via hub, or

*Note: For download via network server, issue the command
[] Net View Server_Name
It generates Logon to Network Server Dialog box, then inputs the user name,
password and domain for login the server.*

6. Then it shows the directory on the host PC or server. Then issue the command

[] Copy \\Host_PC_Computer_Name*.* \Harddisk\GeniDAQCE, or

[] Copy \\Server_Name\...\files

to \Harddisk\GeniDAQCE directory on HMI-640S. After copying all download files, close Command Prompt Prompt.

Creating GeniDAQ CE Strategy on Host

1. Launch Advantech GeniDAQ Builder, and click on the File/New menu to create a new strategy. A dialog box is shown. Click the Windows CE option in the Platform field, and specify the desktop size.

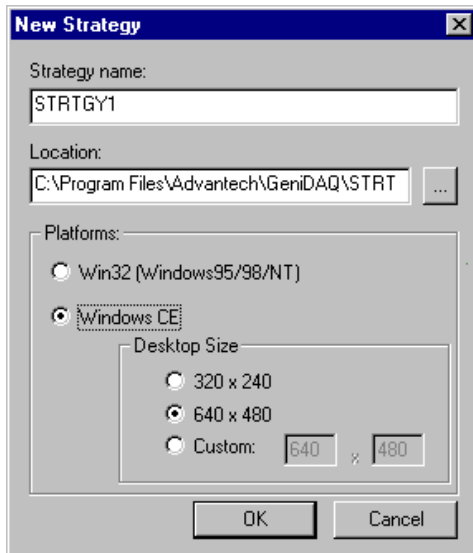


Figure 1-1: Select Windows CE and the screen size in the New Strategy Dialog Box

2. It generates a empty strategy for Windows CE platform. Note some icons are disabled for Windows CE, including BasicScript block, DDE Server and Client blocks, and conditional wavefile block.
3. After developing your application, click on the File/Save menu to save the strategy file. You have to save it with *.gce extension.

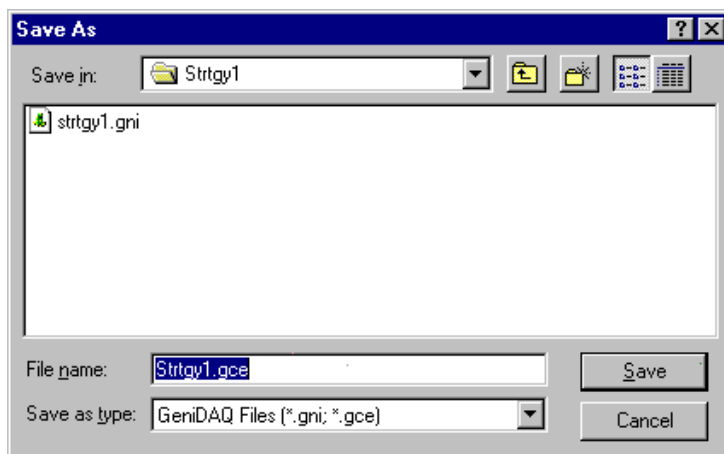


Figure 1-2: Save Your Strategy File with a *.gce File Extension

Downloading GeniDAQ CE Strategy Files to HMI-640S

After building your GeniDAQ CE strategy, you have to download it to your HMI-640S. Before you begin, you have to setup a connection between HMI-640S and host PC. Please refer to the “Connecting a HMI-640S device to host PC” section. After you setup the connection between host PC and HMI-640S, you can download the strategy by Advantech GeniDAQ builder program or Microsoft ActiveSync.

Download strategy files from host PC to HMI-640S via Advantech GeniDAQ

1. Launch Microsoft ActiveSync to setup connection between host PC and HMI-640S.
2. In Advantech GeniDAQ builder program, click File|Download menu to download it.
3. When download, you can specify to startup the strategy at booting HMI-640S.

Download strategy files from host PC to HMI-640S via Microsoft ActiveSync

Using Microsoft ActiveSync, you can copy or move information from the desktop to the device and vice versa.

1. On host PC, in ActiveSync, click Windows Explorer. Then it will open the Mobile Device window for your device.
2. In Windows Explorer, browse to the strategy files for download.
3. Right-click the files and click Copy. Place the cursor in the desired folder for your device, right-click, and click Paste

Configuring I/O Devices on HMI-640S

Advantech GeniDAQ CE supports the following devices, simulation I/O, ADAM-4000, 5000/485, Serial ModBUS RTU drivers, and serial port devices. These device drivers are built-in HMI-640S. If you want to connect to the other devices, you have to install the corresponding OPC servers for Windows CE on HMI-640S.

Connecting Devices Through OPC Interface

Before connecting to the OPC servers, you must install and/or configure your OPC server. Please refer to your OPC server documentation.

Advantech GeniDAQ CE includes two OPC servers, Advantech ADAM OPC server and Serial ModBUS RTU OPC server. Follow the steps below to configure it on Host PC.

1. Configure OPC servers by launching the ADAMOPC.EXE program or MODBOPC.EXE program on host PC, and save the configuration with the file name: ADAMOPC.TDB or MODBOPC.TDB. You must use the file name.

Note: The ADAM OPC server name or program ID is Advantech.adam.1. It is Advantech.ModBus.1 for ModBUS OPC server.

2. Build your strategy with Advantech GeniDAQ on host PC. Enable OPC function in I/O blocks, and connect to the OPC items.
3. Then download the OPC server configuration files, ADAMOPC.TDB and/or MODBOPC.TDB, and the strategy file to HMI-640S.

Note: By default, these OPC server are registered on HMI-640S. If you want to register them by yourself under some condition, you can register the OPC servers (ADAMOPC.DLL or MODBOPC.DLL) by entering the following commands under \harddisk\genidaqce directory in Command prompt:
[>]Regsrvce adamopc.dll (or modbopc.dll)
[>]Regsave

Note: You can use the following commands to unregister the OPC servers under Command Prompt:
[>]Regsrvce /u adamopc.dll (or modbopc.dll)
[>]Regsave

4. Run the strategy, then it can connect the devices.

Connecting Simulation I/O or Serial Port Devices

After you download your strategy to HMI-640S, you have to configure the I/O devices on HMI-640S. For simulation I/O or serial port devices, follow the procedure below to configure it.

1. Launch the device installation program (ADSDeviceInstall.exe) under \Harddisk\GeniDAQCE directory.
2. Install and configure the simulation I/O or serial port. Note that make sure the I/O settings is the same as that on host PC.

You can also configure these devices on your PC with the device installation program. Then export the device configuration to a *.reg file, and download it to HMI-640S. Finally, use device installation program to import the *.reg file on HMI-640S.

Configuring TCP/IP Networking on HMI-640S

Please follow the procedure described below to set up network connection between HMI-640S and host PC via Ethernet network.

1. Before connecting to LAN, first make sure you have properly set up your host PC on an Ethernet LAN running TCP/IP networking protocol. If you have not installed the TCP/IP network protocol on your host PC, you must install it first before joining the host PC to Ethernet LAN.
2. Make sure the TCP/IP network protocol is enabled on your HMI-640S.

Note: If you use a CompactFlash drive which is preinstalled with Windows CE, your HMI-640S is ready for TCP/IP networking. You don't have to install other components to run TCP/IP networking

3. Disconnect any power source from your HMI-640S.

Note: Be sure to power off the HMI-640S before you connect or disconnect any cable.

4. Use a twisted-pair UTP or STP cable (category 3, 4, 5) to connect the HMI-640S through its RJ-45 port to a hub (or a switch) within the Ethernet LAN, to which your host PC is also connected to.

5. Assign valid IP addresses for your HMI-640S and host PC. If you are joining an existing Intranet, ask your network administrator for valid IP addresses. If you are using a DHCP server on the network, you have just no need to assign IP addresses yourself.

Note: To assign the IP addresses to your machines, just access Start/Settings/Control Panel/Network Properties sheet and enter valid IP addresses for your machine.

Note: If your network are using a DHCP server for dynamic IP address assignment, you have then no need to assign by yourself since the IP addresses will be assigned to each networking device once it is connected to the network.

6. Enter the device name for your HMI-640S for network identification.

7. After properly establishing the IP status and the device name of your machine on the network, you must reboot to make it viable on the network.

8. After rebooting is complete, verify that your HMI-640S is functionable within the network.

Note: To verify that your HMI-640S has joined that network and is properly connected with your host PC, just try to access your host PC through the Windows CE Explorer by typing //host-name_of_host_PC in the address bar. Press Enter to search for the host PC. If the connection is successful, you can see the network shares that is available from the host PC. Or you can simply "ping" your HMI-640S from your host PC to make sure TCP/IP is working. (e.g. c:\ping IP_address_of_your-HMI-640S or device_name_of_your_HMI-640S)

Running Advantech GeniDAQ CE on HMI-640S

Runtime Environment

The GeniDAQ WinCE Runtime environment is shown below:

Runtime Menus

File

Setup

View

Help

After a strategy file is open, the *Runtime* menu changes to the following:

File

View

Run

Help

File menu

The **File** menu includes commands that enable you to open and close existing strategy files.

Setup menu

The **Setup** menu includes commands that enable you to setup numeric keypad, change password, administrate users and setup runtime system.

View menu

The **View** menu includes commands that enable you to display or hide toolbar, status bar and event log window.

Run menu

The **Run** menu includes commands that enable you to start, stop, resume, pause, lock, unlock, login and logout the runtime system.

Toolbar Icons

Start icon starts running the strategy

Stop icon stops the running strategy

Pause icon pauses the running strategy

Resume icon resumes the paused strategy

Lock icon locks running strategy to protect from unintended operation

Unlock icon unlocks running strategy

Login icon is used to log in to the runtime system

Logout icon is used to log out of the runtime system

Starting Runtime

You can start the GeniDAQ Runtime with the following methods.

1. Launch `\Harddisk\genidaqce\genidaqce.exe` program. Open the desired strategy file with the suffix “.gce”, and press START icon.
2. If you want to load and run a strategy upon system boot-up, you must create a startup.ini file as below:

`\GeniDAQ installed path\genidaqce.exe *.gce`

For example,

`\Harddisk\genidaqce\genidaqce.exe \Harddisk\genidaqce\showce.gce`

Put the startup.ini file under the `\Harddisk\Startup` directory.

Exiting Runtime

When you have finished working in Runtime, getting back to Windows CE is performed by pressing the STOP icon. Then you can exit the GeniDAQ Runtime system by pressing File|Exit menu from the main menu.

Differences between the Win32 and WinCE Versions of Advantech GeniDAQ

Advantech GeniDAQ WinCE doesn't support the following functions:

- BasicScript function
- DDE function
- OLE Automation interface for data center
- Conditional wavefile block

In addition, the task blocks and display blocks are limited supported. Check the following tables for the support listing.

TASK Blocks

Block	Description	Win32	WinCE
[AI]	Analog Input	Yes	Yes
[AO]	Analog Output	Yes	Yes
[DI]	Digital Input	Yes	Yes
[DO]	Digital Output	Yes	Yes
[TEMP]	Temperature Measurement	Yes	Yes
[COUNT]	Hardware Counter	Yes	Yes
[ALM]	Hardware Alarm	Yes	Yes
[RS232]	RS-232 Port	Yes	Yes
[PID]	PID Control	Yes	Yes
[ON/OFF]	On/Off Control	Yes	Yes
[SOC]	Single Operator Calculation	Yes	Yes
[AVG]	Average	Yes	Yes
[EV]	Event Counter	Yes	Yes
[BS]	Basic Script	Yes	No
[TM]	Timer(need modify)	Yes	Yes
[TMS]	Time Stamp	Yes	Yes
[LOG]	Log File	Yes	Yes
[INP]	Input File	Yes	Yes
[DDEC]	DDE Client	Yes	No
[DDES]	DDE Server	Yes	No
[NETIN]	Network Input	Yes	Yes
[SALM]	Software Alarm	Yes	Yes
[BEEP]	Beep	Yes	Yes
[WAVE]	Conditional Wave File	Yes	No
[SYS]	System Control	Yes	Yes

DISPLAY Blocks

Block	Description	Win32	WinCE
[BBTN]	Binary Button	Yes	Yes
[CBTN]	Conditional Button	Yes	Yes
[MBTN]	Menu Button(need modify)	Yes	Yes
[NUMC]	Numerical Control	Yes	Yes
[KNOB]	Knob Control	Yes	Yes
[SLD]	Slider Control	Yes	Yes
[IND]	Indicator Display	Yes	Yes
[NUM]	Numerical Display	Yes	Yes
[CTXT]	Conditional Display	Yes	Yes
[BAR]	Bar Graph Display	Yes	Yes
[MET]	Anameter Display	Yes	Yes
[TRN]	Trend Graph Display	Yes	Yes
[HIST]	Historical Trend Display	Yes	No
[XY]	XY Graph Display	Yes	Yes
[CBMP]	Conditional Bitmap Display	Yes	Yes
[RECT]	Rectangle Drawing Display	Yes	Yes
[ROUND]	Rounded Rectangle Drawing Display	Yes	Yes
[OVAL]	Oval Drawing Display	Yes	Yes
[POLY]	Polygon Drawing Display	Yes	Yes
[LINE]	Line Drawing Display	Yes	Yes
[TXT]	Text String Display	Yes	Yes
[GROUP]	Group Box Display	Yes	Yes
[EVLOG]	Event Log Display	Yes	Yes

Summary

Applications for Advantech's HMI-640S model running Windows CE can be developed on computers running Windows NT/98/95. The application must then be downloaded or copied on the HMI-640S. By enabling TCP/IP networking between the HMI-640S and a host PC, you will establish real-time data acquisition. While most of the functions available in the Win32 version of GeniDAQ are also available for the WinCE version, BasicScript, DDE and OLE automation are not supported. Some task are display blocks, when used on WinCE, only support a subset of the functions supported for the Win32 version of GeniDAQ.