



# iFIX 6.1

## Getting Started



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# Getting Started with iFIX

Welcome to iFIX®! Thank you for taking the time to install and use iFIX.

Before you begin installing our product, please take some time to review this Getting Started guide. The guide includes information about the following:

- Installing iFIX
- Upgrading from earlier versions of iFIX
- Supported networking components

## Reference Documents

For more information on the System Configuration Utility, troubleshooting your set-up, working with the iFIX WorkSpace, or setting up a process database or SCADA system after you install iFIX, please refer to the following electronic books:

- [Setting Up the Environment](#)
- [Understanding iFIX](#)
- [Building a SCADA System](#)

## General Installation Information

This chapter provides general information you need to install iFIX including:

- Hardware requirements, including required computer hardware, recommended computers, required memory, and required hard disk space.
- Installing the license and replacing defective ones.
- Installing iFIX.
- iFIX software requirements, including operating systems, supported regional settings, optimizing virtual memory, and running iFIX as a service.
- Optional installation features, including online registration, and installing optional hardware.
- Installing iFIX with other applications including Microsoft® Office and GE Change Management.

## Set-up Overview

When you are ready to begin setting up your iFIX environment, use the following steps to set up your nodes.

► **To set up your nodes:**

1. Set up each computer you require. Use the section [Hardware Requirements](#) as a guide and refer to the user manual that accompanies each computer for detailed setup information.
2. Install and optimize Microsoft Windows on each computer as needed. Also make sure you create a login account with administrator rights so you can install iFIX later. For instructions on optimizing Windows, refer to the [Optimizing Virtual Memory](#) section.
3. Set up the network adapters and network software required for each computer. Refer to the [Networking iFIX Nodes](#) and [Advanced Topics](#) chapters of the Setting Up the Environment manual for more information.
4. Install iFIX and any other hardware you may have purchased. Refer to the [Installing the iFIX Software](#) section for instructions. For information on installing other hardware, refer to that product's documentation.
5. Configure iFIX on each computer. Make sure that the user installing iFIX is a member of the Administrators Windows group. Refer to the [Configuring iFIX Using the SCU](#) chapter of the Setting Up the Environment manual for more information on configuring iFIX.

## Hardware Requirements

The minimum iFIX hardware requirements are:

### iFIX without Enhanced Failover or GE Historian Server

For iFIX computers, the recommended minimum hardware requirements are:

- A 3.0 GHz Intel® Core™ i3 Processor or equivalent with 4GB of memory.  
**NOTE:** To use more than 4 GB of memory on a 32-bit platform you need to use Physical Address Extension (PAE). For more information on PAE please reference <http://msdn.microsoft.com/en-us/library/windows/desktop/aa366796%28v=vs.85%29.aspx>
- SpeedStep® technology is not supported and must not be enabled.
- For time synchronization, the Windows Net Time and W32tm commands are both supported. However, if using the W32tm command, be sure to use the /nowait instruction when resynchronizing the clock. For example: W32tm /resync /nowait. The /nowait parameter instructs the operating system to make a stepping adjustment against the time server.
- The power save settings on your computer must be disabled. Do not use any power setting features that affect CPU clock speed.
- A minimum of 10 GB of free hard drive space for iFIX pictures, databases, alarm files, and other data files. Even after allowing for an extra GB for iFIX, it is strongly recommended that many GBs of additional free space exist on the hard drive to avoid performance issues.
- Be aware that iFIX alarm and historical data files grow dynamically. If you plan to perform extensive alarm or data collection on a node, you may need more disk space on that particular node.
- Other GE products, such as Plant Applications, GE Historian, and Web HMI, impose additional requirements. Refer to the Important Product Information (IPI) topic in the product's electronic books for specific system requirements. Click the System Req. tab in that product's IPI for details.

- 100 MBit or faster Full Duplex TCP/IP-compatible network interface adapter for iFIX network communication between SCADA and Client nodes.

**NOTE:** iFIX no longer supports NetBIOS.

**NOTE:** iFIX does not support IPv6.

- One free direct-connect USB port. Some touch screens, pointing devices, and I/O drivers require a serial port. Additional ports for I/O hardware should be ordered with the computer.
- SVGA or better color monitor with a 24-bit (16,777,216 colors) graphics card capable of at least 1024x768 resolution. For Windows 7, the graphics cards should be “Windows 7 (certified)”.
- Two-button mouse or compatible pointing device (such as a touch screen) that is capable of opening a context menu.

### iFIX with Enhanced Failover Enabled

For iFIX computers with SCADA Enhanced Failover features enabled, the recommended minimum hardware requirements are (for both primary and secondary computers):

**IMPORTANT:** The minimum requirements below assume that you are running only a SCADA server without additional applications, such as EDA applications. If you want to run more applications, you will need to increase your hardware support for better performance.

- A 3.0 GHz Intel® Core™ i5 Processor or equivalent with 4GB of memory. For better performance, please consider using more.

**NOTE:** To use more than 4 GB of memory on a 32-bit platform you need to use Physical Address Extension (PAE). For more information on PAE please reference <http://msdn.microsoft.com/en-us/library/windows/desktop/aa366796%28v=vs.85%29.aspx>

- SpeedStep® technology is not supported and must not be enabled.
- For time synchronization, the Windows Net Time and W32tm commands are both supported. However, if using the W32tm command, be sure to use the /nowait instruction when resynchronizing the clock. For example: W32tm /resync /nowait. The /nowait parameter instructs the operating system to make a stepping adjustment against the time server.
- The power save settings on your computers and dedicated network card (NIC) must be disabled. Do not use any power setting features that affect CPU clock speed.
- One additional Gigabit-Ethernet card (or better) dedicated for SCADA-to-SCADA traffic (for a total of at least 2 network cards). The dedicated SCADA-to-SCADA network card should be excluded from the iFIX-to-iFIX network (not enabled for LAN redundancy), and used exclusively for Enhanced Failover synchronization. Both network cards must be of the same speed, and appear on the compatibility list for each card. It is strongly recommended that the cards be of the same make and model number, and use the same drivers.

**IMPORTANT:** You must use a direct connection via a Cat6 crossover cable, without going through any switches, hubs, or routers. Due to limited bandwidth and latency, wireless networking technology should not be considered.

- The wake-up upon receiving a socket or/and request feature must be disabled on the dedicated SCADA-to-SCADA network card.
- Jumbo Frames technology must be used on the dedicated network for Enhanced Failover. Jumbo Frames technology allows for an Ethernet frame of 9000 MTU for the payload, compared to a frame of 1500 bytes without the Jumbo Frames.

- A minimum of 40 GB of free hard drive space, in addition to the free disk space required by the operating system for Windows Updates. Even after allowing for an extra GB for iFIX, it is strongly recommended that many GBs of additional free space exist on the hard drive to avoid performance issues.

Be aware that iFIX alarm and historical data files grow dynamically. If you plan to perform extensive alarm or data collection on a node, you may need more disk space on that particular node.

- Other GE products, such as Plant Applications and GE Historian, impose additional requirements. Refer to the Important Product Information (IPI) topic in the product's electronic books for specific system requirements. Click the System Req. tab in that product's IPI for details.
- Primary and Secondary SCADA computers located physically next to each other, in the same location/room.
- One free direct-connect USB port. Some touch screens, pointing devices, and I/O drivers require a serial port. Additional ports for I/O hardware should be ordered with the computer.
- SVGA or better color monitor with a 24-bit (16,777,216 colors) graphics card capable of at least 1024x768 resolution. For Windows 7, the graphics cards should be "Windows 7 (certified)".
- Two-button mouse or compatible pointing device (such as a touch screen) that is capable of opening a context menu.

## Virtual Machine Support

As part of our development testing and qualification, we make extensive use of virtualized environments. iFIX does not target any specific hardware or virtualized platform.

GE Digital will support the functional operation of the product that is running on a supported Operating System in a virtualized environment and will address any functional issues related to the software.

GE Digital cannot guarantee performance of the software in the virtualized environment due to the wide range of parameters associated to the hardware, configuration, memory settings, 3rd party software, and the number of virtual sessions running on the same hardware, all of which can affect performance. GE Digital can only provide best possible support related to the performance of the software running on a VMWare based system or configuration of VMWare system.

It is the responsibility of you, the customer, to ensure that the performance of the GE HMI/SCADA software and application are adequate to meet the needs of their runtime environment. GE does not support issues related to functionality that is not available as a result of running in a virtual machine. Examples include the functionality of card level drivers such as Genius, RMX, SA85 and functions requiring direct video access, or functionality of other software running in the same environment. It is your responsibility to check with the vendor of those applications for their ability to run in a virtualized environment.

Each virtual machine instance that is using our software is required to have a valid license. The licensing in a virtualized environment will depend on the access to a hardware key or a license server depending on the selected license type.

## Memory Requirements

iClients and SCADA nodes (without Enhanced Failover or GE Historian) require at least 2 GB RAM. For better performance, please consider using more.

**NOTE:** As more applications run simultaneously on a SCADA server, performance decreases. Whenever possible, run additional applications on different computers.

If your picture cache size increases, your memory requirements should increase:

- 2 to 3 times the file size for each picture that does not include bitmaps and controls.
- 3 to 4 times the file size for each picture that includes bitmaps and controls.

For example, a 2 megabyte file that does not include bitmaps and controls requires a 4 to 6 megabyte increase in memory. A 2 megabyte file that includes bitmaps and controls requires an increase in the memory of 6 to 8 megabytes.

## Software Requirements

The minimum iFIX software requirements are:

- One of the following operating systems:
  - Microsoft® Windows® 10 (32-bit or 64-bit) Professional or Enterprise Edition.
  - Microsoft® Windows® 8.1 (32-bit or 64-bit) Professional or Enterprise Edition.
  - Microsoft® Windows® 7 (32-bit or 64-bit), Service Pack 1, Professional, Enterprise or Ultimate Edition.
  - Microsoft® Windows® 7 Embedded, or an operating system released under Long Term Service Channel for iFIX for IoT. Use of iFIX for IoT is further restricted by your End User License Agreement (EULA), please see your EULA for details.
  - Microsoft® Windows® Server 2019.
  - Microsoft® Windows® Server 2016.
  - Microsoft® Windows® Server 2012 R2.

**NOTE:** Only English Windows IoT, with English regional settings, is supported with English iFIX; other language operating systems or regional settings for Windows IoT are not supported.

**TIPS:** Since Microsoft Windows has continuous updates, you should run the Windows update feature to get the latest Windows software for use with iFIX. Some operating systems require Microsoft KB2999226 to be installed before you can install iFIX. For Windows 7, you must have SP1 installed before you can install KB2999226. For Windows Server 2012 R2, you must have KB2919442 and then KB2919355 installed before installing KB2999226. For Windows 8.1, you just need KB2999226.

- Network interface software for TCP/IP network communication and certain I/O drivers.
- If you are using third-party software along with iFIX, make sure that the third party software is also supported for the operating system you are running iFIX on. For instance, if you are running iFIX on Microsoft Windows Server 2019, your third party software must also be supported on Microsoft Windows Server 2019.
- An I/O driver for SCADA servers. GE supplies I/O drivers for many programmable controllers or you may purchase a driver separately.

**IMPORTANT:** Be certain that the I/O driver you purchase is compatible with your hardware and operating system. For example, if the driver is not supported on a specific operating system, then you cannot use this driver with iFIX running on that operating system. For more information drivers and supported operating systems, check our support web site at: <https://digitalsupport.ge.com>.

- If using VisiconX and GE Historian, you must install the GE Historian OLE DB driver.
- If using the Plant Applications Dynamics in iFIX pictures, Microsoft Office 2003, 2007, or 2010 (32-bit) is required.
- If using the OPC UA Client driver, the following browsers are supported:
  - Google Chrome
  - Microsoft Edge
- One of the following relational database applications, if relational database software is used with iFIX:
  - Microsoft® SQL Server 2017.
  - Microsoft® SQL Server 2016.
  - Oracle® 12c R2
  - Oracle® 18c
  - Microsoft® Access 2000 (or higher). Microsoft Access is supported for local installs only.

### Third-Party Software Installed During the iFIX Install

iFIX includes the following third-party software in its install:

- Microsoft® VBA 7.1
- Microsoft® Visual C++ 2015 Update 3 Redistributable Package
- Microsoft® .NET Framework 4.6.1
- NGINX 1.15.9

Please note that if the version of Microsoft VBA on the iFIX DVD are newer than the versions on your computer, then the iFIX install updates the version on your computer.

### Supported Regional Settings

iFIX supports the following regional settings available in the Windows Control Panel:

- Decimal symbol - one character
- Digit grouping symbol
- List separator - one character
- Time style
- Time separator
- Short date style
- Date separator

**NOTE:** The decimal symbol and the digit grouping symbol cannot be the same character. Also, the time separator and the date separator cannot be the same character.

### Formatting the Time and Date

Avoid changing the time style or short date style in regional settings to values that are outside of the standard styles provided. Changing these values to non-standard styles may result in improperly formatting times and dates in some parts of iFIX.

iFIX supports the following short date formats, some of which may not be available in certain language versions of Windows:

- dd/mm/yy, or dd/mm/yyyy
- dd/yy/mm, or dd/yyyy/mm
- mm/dd/yy, or mm/dd/yyyy
- mm/yy/dd, or mm/yyyy/dd
- yy/dd/mm, or yyyy/dd/mm
- yy/mm/dd, or yyyy/mm/dd

### Formatting the Regional Language Setting

Avoid changing the language setting once a timer has been used in a schedule. If changed, the date always reverts to 30/12/99, regardless of what you set the start time to be.

### Setting the System Default Locale

The selected locale must be set as the system default.

## Language Support

The iFIX English product with English regional settings is supported on English, non-English single-byte, double-byte, and Cyrillic Windows operating systems. However, be aware that double-byte characters are not supported on single-byte operating systems (OSs). For example, you cannot display Chinese or Japanese characters on an English OS with an English iFIX product installed. For a detailed list of the iFIX supported operating systems, refer to the [Software Requirements](#) section in this chapter.

The iFIX product is also available in other languages, though language releases that may come after the release of the English version of the software. The following table outlines the currently supported languages and operating systems. For more information on the available iFIX versions for each language, contact your regional Sales Representative.

**IMPORTANT:** English iFIX installed on Windows Embedded Standard 7 is only supported on the English Windows Embedded Standard 7 operating system, with English regional settings. No other languages are currently supported for Windows Embedded Standard 7.

### Product Language-Supported Operating System (OS)

English iFIX	English OS, Chinese OS, Japanese OS, Polish OS, Russian OS, French OS, and German OS - all <u>only</u> with English regional settings
Chinese iFIX	Chinese OS, with local regional settings
Japanese iFIX	Japanese OS, with local regional settings
Polish iFIX	Polish OS, with local regional settings

Russian iFIX Russian OS, with local regional settings  
French iFIX French OS, with local regional settings  
German iFIX German OS, with local regional settings

## Unsupported Items

- GE does NOT support running the localized version of the product on an English operating system.
- Multilingual User Interface versions of the Windows Operating Systems are not supported by the iFIX product.
- iFIX client/server configurations with different OS languages are not supported. For instance, connecting an English SCADA Server (on an English OS) with a German View node or iClient (on a German OS) is not supported.
- Double-byte characters are not supported on single-byte operating systems.

## Optimizing Virtual Memory

Through the use of paging files, Windows allocates space on your hard drive for use as if it were actually memory. This space is known as virtual memory. The following steps describe how to optimize virtual memory in Windows to achieve maximum performance from iFIX.

### ► To optimize the virtual memory paging file for iFIX in Windows:

1. From the Windows Control Panel, select System, and click on Advanced Systems. Next, click the Advanced tab and then in the Performance section click Settings. The Performance Options dialog box appears. Click the Advanced tab.
2. In the Virtual Memory group box, select Change.
3. In the Initial Size field, enter a value equal to three times your physical memory, as long as the result of the calculation does not exceed 4 GB or the Maximum Size value.
4. In the Maximum Size field, enter a value equal to three times your physical memory, as long as the result of the calculation does not exceed 4 GB.

**NOTE:** For more information on the 4 GB paging file limit, refer to article 237740 on the Microsoft Knowledgebase: <http://support.microsoft.com/kb/237740/en-us>.

6. Select Set.
7. Click OK to save the changes and exit the dialog box.

**NOTE:** If the paging file is set to grow dynamically, your system may experience severe performance problems during runtime. To ensure optimal performance, be sure that the Initial Size and Maximum Size of the paging file are the same so that the paging file does not grow dynamically.

## Running iFIX as a Service

If you are running iFIX as a service, please take note of the following information.

## Windows Services

In the Windows Services control panel, do not stop the iFIX service or make changes to the iFIX configuration. This applies to iFIX running on any operating system.

### Disabling Fast Startup in Microsoft Windows 8.1

In Windows 8.1, there is a functionality available in the Power Options called "Fast startup" (Power Options are accessible from the Settings > Control Panel). When "Fast startup" is enabled as a Power Option (the default) and you power down your computer or tablet, Windows will save the current state of the system. The next time you restart Windows, your previous state is restored. This is because, by default, Microsoft Windows 8 and 8.1 shuts down by logging off all users and then hibernating. In this case, any service that was running will continue to run on the next startup.

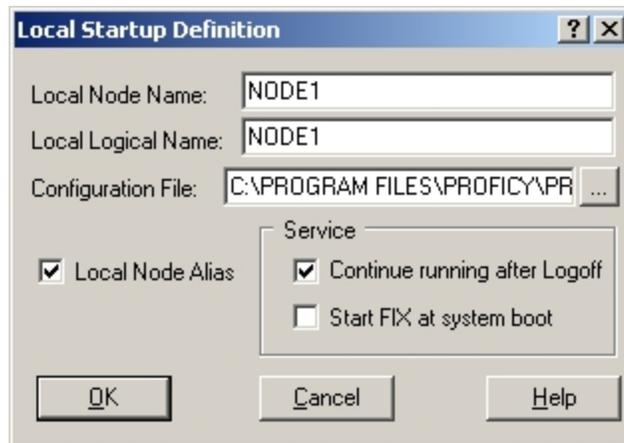
When iFIX is running as a service, you may want to avoid this "Fast Startup" functionality. To revert to the full shutdown on Windows 8.1, in the Power Options on the SCADA Server, select "Choose what the power buttons do." Select the "Change settings that are currently unavailable" option and then scroll down to the Shutdown Settings area, and clear the "Turn on Fast startup" option.

(The "Fast Startup" feature is not available on Microsoft Windows Server 2012 R2.)

### Enabling iFIX to Run as a Service

► To enable iFIX to run as a service:

1. Shut down iFIX.
2. Ensure that you are logged in as a user in the Administrators group. If not, log in as an Administrator now.
3. On the Start menu, point to Programs, iFIX, and then System Configuration. The System Configuration Utility (SCU) window appears.
4. On the Configure menu, click Local Startup. The Local Startup Definition dialog box appears.
5. In the Service area, select the *Continue running after logoff* check box, as illustrated in the following figure. This configures iFIX to run as a service when you start iFIX.



**NOTE:** The check boxes in the Service area of this dialog box are unavailable while iFIX is running. You need to shut down iFIX, as you did in step 1, to update them.

6. Additionally, if you want to start iFIX whenever you start Windows, select the *Start iFIX at system boot* check box.

The Start iFIX at system boot option is available only when the Continue running after Logoff option is selected.

7. Click OK.
8. Exit the SCU.
9. Restart iFIX.

### **Disabling iFIX as a Service**

► To disable iFIX from running as a service:

1. Shut down iFIX.
2. Ensure that you are logged in as a user in the Administrators group. If not, log in as an Administrator now.
3. On the Start menu, point to Programs, iFIX, and then System Configuration. The System Configuration Utility (SCU) window appears.
4. On the Configure menu, click Local Startup. The Local Startup Definition dialog box appears.
5. In the Service area of dialog box, clear the *Continue running after logoff* check box.
6. Click OK.
7. On the File menu, click Save to save the SCU file.
8. Exit the SCU.
9. Restart iFIX.

### **iFIX Paths**

Windows does not map network drives until a user logs in. Therefore, if you are running iFIX as a service under Windows, all iFIX paths must be set to a local drive.

### **Required Application Feature**

You must assign the Enable Ctrl+Alt+Del application feature to the user that is logged in when iFIX is running as a service. Otherwise if a user logs out of the operating system while iFIX is running as a service, no one will be able to log back in to the operating system.

### **Running iFIX with Terminal Services**

You must configure the Default Service SCU in the Startup Profile Manager if you want to run iFIX as a service on the Terminal Server. For more information, refer to the [Configuring the Default Profile](#) section in the Using Terminal Server electronic book.

### **Running iFIX with Other Programs**

By default, iFIX uses the local System account when running as a service. However, you cannot use the System account with certain applications, such as GE Historian.

► To configure a different user account for iFIX running as a service:

1. From Control Panel, open the Administrative Tools, then Services.
2. In the Services folder, right-click iFIX server and select Properties.
3. In the Log On tab, set the user name and password for This Account to the user account you want to log in when iFIX is running as a service.

## Fast User Switching Not Supported

Fast user switching is not supported with iFIX, even if you are running iFIX as a service.

## Running the OPC Client Driver and iFIX as a Service

If you want to run the OPC Client driver as a service, iFIX must also run as a service. Likewise, if you want to run iFIX as a service, the OPC Client driver must run as a service. You cannot run one as a service, without the other also running as a service.

## Running Workspace.exe from the SCU Task List Not Supported

It is not recommended that you run Workspace.exe in the SCU task list when iFIX is running as a service.

## Disk Space Requirements

The iFIX WorkSpace checks to make sure you have at least 10 MB of disk space when you save a picture or a schedule. If there is insufficient disk space, the WorkSpace may react unpredictably and you may lose your work.

To help minimize this problem, the WorkSpace warns you if you have less than 10 MB of disk space available. Although you can continue loading the software, we recommend that you stop iFIX, free some disk space, then restart. Otherwise, the WorkSpace may become unstable.

The WorkSpace examines the iFIX Picture path and the Windows TEMP path when it starts. If you change either path so that they reference different drives, for example, D:\Program Files (x86)\GE\iFIX\iFIX and C:\Temp, the WorkSpace requires 10 MB on each drive.

You may find that 10MB is not enough space to protect against instability during file save operations. You can increase this threshold by changing the FreeDiskSpace parameter in the FixUser-Preferences.ini file. This parameter sets the minimum amount of space that the WorkSpace requires in bytes. By default, the parameter is set as follows:

```
[AppRunPreferences]
FreeDiskSpace=10000000
```

### ► To change FreeDiskSpace parameter:

1. Shut down the WorkSpace.
2. Locate the FixUserPreferences.ini file in the Local path.
3. Open the file with a text editor, and change the FreeDiskSpace parameter to the amount you want.
4. Save the .INI file and restart the WorkSpace.

## OPC Certification

Based on Microsoft's OLE (Object Linking and Embedding) technology, OPC (OLE for Process Control) provides greater interoperability between control applications, field systems and devices, and front office/backoffice applications. OPC servers, such as DCSs, PLCs, smart field devices, and analyzers provide real-time information and can communicate directly with the iFIX product.

The iFIX product is an OPC 2.05a DA enabled client, which lets iFIX retrieve data from any OPC 1.x or 2.x (up to version 2.05a) compliant data server. To access local or remote data from a third party OPC Server, use the iFIX OPC Client version 7.4x, which is also included with iFIX.

iFIX also has an iFIX OPC Server (OPC20iFIX.exe) that serves out data via OPC from the iFIX Database.

Be aware that iFIX currently includes two OPC servers:

- OPC20iFIX.exe (Intellution.OPCiFIX) - an OPC 2.05a (out of process) Data Server
- iFixOPCAESrv.exe - an OPC 1.10 Alarm and Events (A&E) Server

Both OPC Servers included with iFIX are in compliance with the OPC Foundation's "Self Tested" specifications. GE ran a series of OPC tests to verify compliance for the versions listed above.

You can find more information about OPC on the Support web site at: <https://digitalsupport.ge.com>.

## Installing the iFIX Software

The steps that follow outline how to install the iFIX software from the product installation.

**NOTE:** The iFIX DVD no longer includes GE Historian or WebSpace (previously known as iFIX WebSpace) installs. These products are now distributed on separate media. To install or upgrade these products, you must obtain the media for that product.

### **IMPORTANT:**

- Installing or uninstalling iFIX via a remote desktop connection or through a terminal server session is not supported.
- When configured for WebSpace, none of the iFIX SCU's on WebSpace Server should be configured to start iFIX as service, as this is an unsupported configuration.

For iFIX upgrade steps or for more general information on upgrading iFIX, refer to the [Upgrading from an Earlier Version of iFIX](#) and [Upgrading from iFIX 7.x](#) sections.

### **► To install iFIX software:**

1. Log in to Windows with Administrator privileges. You must be an Administrator to install iFIX. Ensure that there are no iFIX or GE processes running, and close any other programs that are running.

**NOTE:** It is important to shut down any GE or Proficy services and licensing prior to installing iFIX.

2. Insert the iFIX DVD into your DVD drive. The iFIX installation screen appears.

**NOTE:** If this screen does not automatically appear, double-click the InstallFrontEnd.exe file on the DVD to display it. A message may appear with a security warning. If it does, select Run to proceed.

**IMPORTANT:** Be aware that if you do not already have .NET 4.6.1 installed and you choose to install iFIX, the .NET 4.6.1 install will run first. After it installs, you will be prompted to restart your computer.

After the restart, the iFIX install continues. The install media must be available or connected to the target machine the entire time for the install to finish.

3. Click the "Install iFIX" link. A message box appears asking you to confirm the install.
4. Click Yes to proceed. An informational message box appears.

**TIP:** If you see this message during iFIX installation, you will need to install a Microsoft update before you can continue: "A necessary Windows security update for the Universal C Runtime component is missing on this computer. Please install the latest Windows updates and then install iFIX. For details, check the New Features section of the IPIiFIX.chm found in ReleaseNotes folder on this install media." Install the Microsoft Update, KB2999226, and then try installing iFIX again. To install KB2999226, you may need to install other updates first. For Windows 7, you must have SP1 installed before you can install KB2999226. For Windows Server 2012 R2, you must have KB2919442 and then KB2919355 installed before installing KB2999226. For Windows 8.1, you just need KB2999226.

3. Click OK to proceed. The install program starts and the Welcome screen appears.
4. Click Next to continue. The license agreement screen appears.
5. Click "I accept the terms of the license agreement" if you want to continue, and then click Next.

**IMPORTANT:** If a previous version of iFIX is detected, you can choose to upgrade iFIX. For iFIX versions before 4.0, you have the choice to upgrade or install iFIX to a completely new folder, without upgrading. If you want to upgrade, it is suggested that you do so using the install at this point.

The Setup Type screen appears.

8. Select an option and click Next:
  - **Complete** - Installs all iFIX components, including options such as Electronic books (e-books), the My-T-Soft virtual (on screen) keyboard, and the Water and OEM Solutions Packs.
  - **Custom** - Installs iFIX and the options that you choose. You are prompted to enter your options after you select an install path.
  - **Typical** - Installs iFIX, the Electronic books (e-books).

The Choose Destination Location screen appears.

9. Leave the default path or click Browse to select a folder.

**NOTES:**

- If you are upgrading from FIX32, make sure that you choose a location other than the folder that contains your FIX32 software, if it is installed on the same computer. **Do not install over a current FIX32 installation.**
- If you enter a custom install path, be aware that the path can be no greater than 100 characters long.
- If you want to use 6.x drivers, the iFIX compressed install path must be no greater than 64 characters long. iFIX uses the Microsoft compression algorithm to try to fit longer paths within this boundary. Some paths are not compressible to the 64 character maximum length. Please be aware of this. In addition, make sure that the registry key, HKEY\_LOCAL\_MACHINE\System\CurrentControlSet\Control\FileSystem\NtfsDisable8dot3NameCreation, is not enabled (is set to 0) when the install folder is created. When set to 1, the compression algorithm is disabled. Refer to Microsoft help for more information on the GetShortPathName() compression algorithm.

- After installing a 6x driver, the driver is listed in the SCU in the Drivers Available dialog box (which can be accessed from the I/O Driver Name browse button in the SCADA Configuration dialog box). You need to manually add the driver to the Configured I/O Drivers list in the SCADA Configuration dialog box.

10. Click Next to continue.

**NOTES:** If you selected a Custom install, instead of Complete, the Select Features screen appears next. Select the features you want to install, and click Next.

The Ready to Install Program screen appears.

11. Click Install. The progress of the installation displays on screen as the files are copied. After a few minutes, when the install finishes copying the files, the iFIX Configure Wizard dialog box appears.

12. Enter the Node Name, Node Type, and Connectivity Type, if applicable, and then click OK. For example, if you want to set up a SCADA server without any remote nodes, select SCADA and Stand-alone. If you want a networked SCADA server, select SCADA and Networked. If you want to configure a networked client, select View and Networked.

**TIP:** As a best practice, be sure to enter a new name in the Node Name field. Use a name other than the default name of iFIX for your node name. This distinction is important if you have multiple SCADA nodes on the same network.

After you configure your settings and click OK, and if prompted to enter your remote nodes (for a networked node), enter the name of your Remote SCADA node(s), click Add, and then click OK. Otherwise, click Skip and you can configure this later in the SCU (from the Configure > Network menu option).

A message box requests that you enable iFIX through the firewall, if the Windows firewall is enabled.

13. Click Yes to continue (otherwise, you may need to do this later, if the firewall is enabled). The install continues.

14. Click Yes or OK to continue. The install continues.

17. When a message box appears requesting that you view the release notes, click Yes. Close the release notes after you finish reviewing them to resume the install. The Setup Complete screen appears.

18. Select Yes to restart your computer, and then click Finish.

19. After you restart your computer and the install completes, install your product licensing. For information on installing and configuring your license, refer to the [GE Support site](#).

20. Restart the computer again. As the computer restarts, log in to Windows with the same user name (with Administrator rights).

**NOTE:** If a previous version of iFIX already resides on your computer when you try to install the latest version of iFIX, a message box appears during the installation suggesting that you upgrade your existing iFIX install. It is recommended that you elect to upgrade iFIX when this message appears. By following the upgrade process, iFIX installs to same folder where your previous version existed. For example, if you have iFIX installed to the C:\Dynamics folder, when you upgrade, the newer version of iFIX installs to the C:\Dynamics folder. After the iFIX upgrade completes and you restart iFIX, your SCU file is upgraded automatically, and the original file is backed up with a .^CU extension. For more information on upgrading SCU files, refer to the [SCU Files and the Upgrade](#) section.

21. Check if there are any required Service Packs or SIMs to install for iFIX on the GE [Support web site](#), and install them.
22. If you just installed a SCADA Server, change the default iFIX Administrator password in the Security Configuration program. iFIX must be running to do this. For steps on how to change the password and other user account settings, refer to the [Modifying a User Account](#) topic in the Configuring Security Features e-book. Make sure you save this password.
23. If you are using iFIX on a Domain, in a client/server networking configuration, update the HOSTS file with the name of the iFIX SCADA Server, to ensure the highest reliability for connectivity. This update must be done on the server and all clients, as the contents of the HOSTS file should be identical on each node (client and server) in your TCP/IP network. If your iFIX SCADA Server node name is different from the computer name where iFIX is installed, you also need to add this name to each HOSTS file.

**TIPS:**

- You can find the HOSTS file in the C:\WINDOWS\system32\drivers\etc folder.
  - Use a text editor such as Notepad to edit the HOSTS file, and do not add a file extension to the file.
  - An example entry in the HOSTS file is as follows: 198.212.170.4 SCADA01. If SCADA1 was the iFIX SCADA Server node name, but the computer name where the iFIX SCADA Server was installed was AREA1, you would need to add a second line to the HOSTS file for AREA1:  
198.212.170.4 AREA1.
  - If you do not know the TCP/IP address of the SCADA computer, run the IPCONFIG command on the SCADA Server.
  - Be sure to update the HOSTS file on the SCADA Server and each iFIX Client that you install.
  - The same, identical entries should appear in the HOSTS file for the iFIX SCADA Server and each iFIX View node (Client) on your network.
24. If you just installed an iFIX View (Client) node, and you want to be able to view pictures from the SCADA Server from this node, you need to either copy the pictures from the iFIX SCADA to the iFIX client (no database or other files need to be copied), or map a drive on the View node to the picture folder on your SCADA Server. You should then update the SCU (with Configure > Paths menu option) on the View node to point to this mapped drive location.

## Using iFIX with GE Historian

With GE Historian, you can perform the following tasks in iFIX:

- Set Historian tags for collection for the iFIX database.
- Insert a Historical Data Link into your picture in the iFIX WorkSpace.
- Use a Historical HP Dynamo with Historian tags.
- Use Time Lapse Playback to replay an event.
- Use VisiconX data and grid objects to access Historian data from the iFIX WorkSpace.

When making your decision on how you want to use GE Historian with iFIX, keep the following considerations in mind.

## Configuration Considerations

Although many of the features of GE Historian can be configured in iFIX, some cannot. They must be configured directly in GE Historian. These features include:

- Security
- Alarms, if you are using them
- Collection on any field other than F\_CV.
- Archive compression
- Archive back-up
- Other tag properties not configurable in iFIX
- GE Historian parameters for Database Dynamos, or loadable blocks
- Redundancy

## Other Considerations

### Multiple Databases

Only a single, local database is supported with GE Historian. If you want to use multiple databases, you may want to use GE Historian separately from iFIX. When used together, GE Historian does not recognize tags from the iFIX database with the same name as different tags, even though the source is different. So, tags that exist in your iFIX database are ignored. The data that is populated comes from GE Historian, not from the iFIX database. To avoid this problem, verify that each tag has a unique name.

When using multiple iFIX databases that have the same node name and the same tag name, GE Historian will be unable to discriminate a tag coming from one node with a tag coming from another node, and these tags will be subsequently be ignored. It is best practice to not use the same iFIX node name on multiple nodes.

For example, you have a tag called AI1 in both Process Database 1 (PDB1) and Process Database 2 (PDB2). Both tags are added to GE Historian as FIX.AI1.F\_CV. If you reload PDB1 and then PDB2, the AI1 tag is overwritten in GE Historian.

### Collection Delay

When iFIX and GE Historian are used as an integrated application, rather than as separate applications, it takes longer for tags to update if the Collector is running. Additions, deletions and modifications of tags may take twice as long to display - approximately two minutes, instead of one - than if each application was used separately.

### Collectors

If you choose to use GE Historian, not all installed collectors will be available for selection as the default Collector. Because this feature only supports collectors that read data from iFIX, the collectors available for selection are limited to the following:

- iFIX Native Collector

## Electronic Signatures

If you use electronic signatures, then you should probably not use the integrated GE Historian feature. If a tag requires an electronic signature in GE Historian and does not in iFIX, and a user makes a change in iFIX, the user is not prompted for a password. Instead, the change is made, bypassing GE Historian's electronic signature requirement.

## Spare1 Fields

When used with iFIX, the GE Historian Spare1 fields are used to keep track of tags that were added or modified by iFIX. When you enable Collection for a tag in the iFIX Database Manager (on the GE Historian tab, in the Collection Options area), the Spare1 field is assigned to iFIX. iFIX controls the creation or modification of this tag in GE Historian. In other words, iFIX becomes the owner of the Spare1 field. The Spare1 fields are written to when an iFIX tag is added for the first time from iFIX to the GE Historian Server. The Spare1 field contains the iFIX database name.

If you want to use the Spare1 field in GE Historian to allow data to be written to GE Historian from a third party application separate from iFIX, you need to Disable Collection on the tag from within iFIX (which is the default setting for any new tags you add in iFIX Database Manager). When disabled, GE Historian collection is not enabled for the tag and the tag is handled exclusively by GE Historian. When the tag is being handled by GE Historian, it cannot be modified or deleted from iFIX.

## Choosing Not to Install Integrated GE Historian

If you do not want to install integrated GE Historian, and continue using GE Historian as you did before, then never do the following:

- Select the Automatically Configure Tags for Collection in GE Historian on the GE Historian tab of the User Preferences dialog box.
- Use GE Historian fields in iFIX Database Manager to configure anything in GE Historian.

## Post-Installation Steps for GE Historian

If you choose to install GE Historian, there are post-installation steps you will need to perform. For more information, see [Configuring iFIX to Use GE Historian](#) and [Configuring Security When Using iFIX with GE Historian](#).

## Configuring Security When Using iFIX with GE Historian

Beginning with iFIX 5.0, iFIX configures GE Historian by adding and deleting tags and changing tag properties. Therefore, applicable security measures must be configured. However, tag level security and GE Historian domain security cannot be configured in the iFIX application; it must be done in GE Historian.

For GE Historian domain security, see "User Privileges for Starting a Collector" in the GE Historian e-book.

For all other security considerations for GE Historian, see the chapter "Implementing Historian Security" in the GE Historian e-book.

## Configuring iFIX to Use GE Historian

The following tables describe the process for configuring iFIX to run with GE Historian:

### Configuration Process - New Install of Historian

Stage	Description
1	Install iFIX, and then restart your computer.
2	Install GE Historian. The Historian install is available on separate media. Restart your computer.
3	Install the Historian Client Tools and the iFIX Collector on the iFIX computer. The Historian Client Tools and iFIX Collector are on the same media as the Historian Server install. Restart your computer.
4	<p>Define your security strategy for Historian and iFIX.</p> <p>Since Historian enables strict security by default (the Security tab on the DataStores menu of the Historian Administrator has both Enforce Strict Client Authentication and Enforce Strict Collector Authentication options enabled to maximize security), be sure to review the Historian security considerations in the "Implementing Historian Security" chapter of the GE Historian Getting Started guide before getting started. You may need to temporarily disable these options during the installation process, or until all Historian components are upgraded.</p> <p>Additionally, plan your iFIX security by reviewing the "Configuring Security Features" e-book in the iFIX e-books. If iFIX is not running as an Administrator, be sure to review the "User Privileges for Starting a Collector" topic in the Historian e-books as well.</p>
5	Start iFIX and the WorkSpace.
6	<p>On the iFIX computer, start the iFIX Collector.</p> <p><b>TIP:</b> If you add the iFIX Collector to the iFIX SCU Task list with the "runasdos" command line, then the iFIX Collector will automatically start when iFIX starts, and you will not to start the iFIX Collector manually. You can specify tasks for automatic start-up by clicking the Task button on the SCU toolbox and displaying the Task Configuration dialog box.</p>
7	In the iFIX WorkSpace, on the Administration tab, in the Configure the Historian Server (s) dialog box, add and configure the Historian Server. Do not set a default collector unless your configuration requires it. Be sure to review the "Using iFIX with GE Historian" section first before enabling a default collector.

### Configuration Process - Upgrade to GE Historian

Stage	Description
1	If upgrading from a previous release of iFIX and you have GE Historian installed on the PC, shut down all services and licensing prior to installing iFIX and then GE Historian.
2	Install iFIX.
3	Back up all the GE Historian archive data files (*.iha), configuration files (*.ihc), and any other backup files you maintained. By default, you can find these files in the c:\Program Files\GE Digital\Historian Data\Archives folder. Make a copy of those backup files.
4	From the Add or Remove Programs feature in the Control Panel, manually uninstall Historian. Do Not Delete Archives when prompted.
5	Restart your computer.
6	Install Historian as described in the Historian Getting Started guide.

7	After the install completes, restart your computer. It is very important not to forget this step, and to restart your computer. Make sure the Historian Archiver is running.
8	Restore your GE Historian archive using the Historian Administrator.
9	Copy your configuration files (*.ihc) to the Archive folder.
10	<p>Install the Historian Client Tools and the iFIX Collector on your iFIX SCADA Server.</p> <p><b>IMPORTANT:</b> When upgrading from a previous version of Historian, Enforce Strict Client Authentication and Enforce Strict Collector Authentication should be disabled on the Historian Server to allow for compatibility with older clients or collectors that cannot be upgraded concurrently. It is recommended that all clients and collectors receive a timely upgrade to the latest version of Historian, which permits enabling both strict client and collector authentication on the server for the highest security configuration.</p> <p>By treating clients and collectors separately, it is possible to accommodate new and legacy authentication during the upgrade process. However, upgrading all clients and collectors to the latest version immediately will achieve a higher level of security. The two options, Enforce Strict Client Authentication and Enforce Strict Collector Authentication, permit flexibility during the upgrade process by selectively accommodating legacy clients and collectors.</p>
11	Configure iFIX and your GE Historian Server.

## Using the Discover and Auto Configure Tool with GE Historian

Not only can you use the Discover and Auto Configure tool to automatically add tags to your iFIX database, but you can also choose which tags get collected on in GE Historian as well.

Additionally, you can configure the GE Historian description and the interval for the collection for each tag through Discover and Auto Configure. For information about adding GE Historian fields in Discover and Auto Configure, refer to the [Adding GE Historian Fields as Columns](#) topic.

Before you begin collection, you must have your GE Historian Server configured, and your iFIX Collector configured as your local, default collector.

Be aware of your license limits for GE Historian. For example, there are limits to the number of iFIX tags you are permitted to add to the GE Historian Server for collection. Use care when you select which tags that you want to collect on in Discover and Auto Configure. You do not want to exceed your license limits.

For more information on this tool, refer to the [Discover and Auto Configure](#) e-book.

## Using iFIX with Microsoft Office

You can use the Microsoft Office family of products and iFIX on the same computer. However, to ensure that VBA works correctly, install Microsoft Office products before installing iFIX.

Use the following table as a guide for installing and removing either product.

If you have...	And you want to...	Then...
Installed iFIX	Install Microsoft Office Products	Remove iFIX, install Microsoft Office products, and re-install iFIX.
Installed Microsoft Office Products	Remove Microsoft Office Products	Remove iFIX, remove Microsoft Office products, and re-install iFIX.

Started the iFIX WorkSpace for the first time, and this message appears: Run time error "48": Error in loading dll.	Use iFIX and Microsoft Office harmoniously	Uninstall iFIX, uninstall Microsoft Office, re-install Microsoft Office, and re-install iFIX.
--	--	---

## Backup Files

When you save one of the following files, iFIX creates a backup file:

- \*.PDB - backed up as \*.^DB
- \*.SCU - backed up as \*.^CU
- Profiles.cfg - backed up as Profiles.cfg.^AK
- DISPLAY.DOV - backed up as DISPLAY.^OV
- NODENAME.DOV - backed up as NODENAME.^OV

iFIX also creates these backup files after you start iFIX for the first time after an upgrade. These backup files are helpful in disaster recovery of the individual files.

For new iFIX installs, be aware that you can also use the Factory Default Backup for disaster recovery - performing a clean restore of your entire iFIX system. A clean restore includes the files listed above along with other Factory Default files. For more information, refer to the [Using and Creating Factory Default Files](#) section in the Understanding iFIX electronic book.

For upgrades, be aware that you can perform a Custom Backup to backup the files listed above before the upgrade. After the upgrade, you can restore these files with the Backup and Restore wizard. Refer to the [Overview of the Backup Process](#) section in the Understanding iFIX electronic book for more information.

**IMPORTANT:** Do not use a Full Backup from a previous release of iFIX to update the files in the currently installed iFIX folder. Issues can occur with upgrade paths, and possibly other files.

Optionally, after you upgrade your system with the Custom Backup, you can create a new Factory Default Backup, that you can use for disaster recovery in replace of the original Factory Default Backup file. This information is described in the [Using and Creating Factory Default Files](#) and [Sample BackupRestore.ini](#) sections.

## Change Management and iFIX

If you plan to use Change Management with iFIX, to help you manage your iFIX project files, and track changes to these files, install iFIX first. After you install iFIX, you can install Change Management.

Additionally, you need to configure a few items on both iFIX and the Change Management Server, as described in the [Setting up iFIX for Use with Change Management](#) topic in the Change Management and iFIX e-book.

**NOTE:** If you want to run iFIX with other GE products, such as Change Management, you will need to upgrade your key to at least an M4 key, or better.

If you are upgrading an iFIX computer with the Change Management, upgrade to the latest version of Change Management.

## Discover and Auto Configure

The Discover and Auto Configure is a tool used to extract tag information from PLC programming software files or OPC servers and then add the tags to your target application's iFIX database. Using the Discover and Auto Configure tool saves you valuable time and effort when creating tags for your driver (s) and iFIX application database because you no longer need to manually create the individual tags.

You can currently extract information using the following Discovery Agents:

- OPC Discovery Agent
- Siemens S7 Discovery Agent
- Allen-Bradley PLC-5/SLC 500/MicroLogix Families Discovery Agent
- IGS - Industrial Gateway Server Discovery Agent

Not only can you automatically generate tags for OPC, Siemens S7, and Allen Bradley, but with the Industrial Gateway Server (IGS), you have support for tag creation in over 90 protocols.

Within Discover and Auto Configure, you can also configure the iFIX tags that you want to collect on in Historian (through the iFIX Collector). For information on using Discover and Auto Configure with Historian, refer to the [Using the Discover and Auto Configure Tool with Historian](#) section.

For more information on this tool, refer to the [Discover and Auto Configure](#) e-book.

## Optional Hardware

iFIX supports the following optional hardware. You may want to purchase one or more of these items to enhance your iFIX system.

- A Microsoft-supported touch screen or other pointing device.
- A DigiBoard™ to provide your computer with up to 9 serial ports. If you are using multiple I/O drivers or multiple ports for one I/O driver, you may require the use of a DigiBoard. GE has tested and supports the Digichannel PC/8E.

## Uninstalling iFIX

To uninstall iFIX, from the Control Panel, in the Add or Remove Programs dialog box, click the Remove button next to the iFIX entry. This action launches the install program allowing you to remove the iFIX product.

If you want to uninstall other items that install along with iFIX, such as the iFIX OPC Client, Common Licensing, and Discover and Auto Configure application, you need to uninstall these items separately.

**IMPORTANT:** For the Discover and Auto Configure (DAC) application, it is recommended that you uninstall it before you uninstall the iFIX product. If you wait until after you uninstall iFIX, the DAC uninstall will display error messages.

## Sleep or Hibernate Mode

If your SCADA computer has been sleeping overnight, or in hibernate mode, be aware that you will need to acknowledge all of the queued "License Warning" messages.

## Upgrading from an Earlier Version of iFIX

This chapter contains information about issues concerning upgrading your iFIX version.

**NOTE:** Direct upgrades from iFIX 3.5 to the latest version of iFIX are not supported. To upgrade iFIX in this case, upgrade to 5.8 first and then upgrade to the latest version of iFIX.

### The Database and the Upgrade

Be aware that when you upgrade to the current version of iFIX, the file size of your process database file will increase.

Also, when you upgrade your database, the high and low engineering units (EGU) fields are converted from single precision to double precision floats. What that means, is that the degree of accuracy (the Epsilon value) changes from  $\pm 0.00000012$  to  $\pm 0.000000000000000022$ . If you are using extreme ranges (very large or very low values) for your EGU limits, you may possibly experience issues after an upgrade. To resolve these issues, open the Database Manager, export your database and then re-import it. This procedure resets the block values.

### SCADASync.ini File and the Upgrade

Be aware that during the upgrade, as part of the updated Enhanced Failover functionality, the existing SCADASync.ini file will be overwritten. This happens so that the SCADASync.ini will be updated to include the new Maintenance Mode parameters.

### DDA Drivers and the Upgrade

If you are using DDA drivers, such as ROC, BR3 or MBR, you must reinstall them after upgrade. If the driver installation files are unavailable, you can use a copy of your existing FIX.INI file to compare to the one created after the upgrade. Then, copy the missing lines from your old FIX.INI file to your new FIX.INI file.

### Before You Upgrade

Before you upgrade your version of iFIX make sure you:

- Shut down all GE applications. It is important that no GE products are running when you run the iFIX installation program.
- Save copies of your existing .INI files with your application preferences and any custom files you create. Customized files, such as \*Res.dll files, and some \*.INI files may be overwritten during an upgrade. As such, you may need to integrate your custom changes into the newer versions of these files after you upgrade.
- Back up your existing iFIX projects. This includes the files in your LOCAL, Config Files Backup, PIC, and PDB folders.
- It is also recommended that you create a backup copy of your Alarm ODBC configuration file(s).
- Export a report of your system configuration (SCU), for reference. (In the SCU, on the File menu, click Report. Refer to the Generating a System Configuration Report section for detailed steps.)
- Export a report of your security configuration, for reference. (In the Security Configuration application, on the File menu, click Export. Refer to the Exporting a Report of the Security Configuration section for detailed steps.)
- If you have an application created by an Integration Toolkit, Database Dynamo Toolkit, or System Extension Toolkit from iFIX 2.5 or earlier, and you want to use this application with latest version of iFIX, do not uninstall iFIX. You must install the newer version of iFIX over your existing iFIX configuration. Your toolkit application will not run if you uninstall your previous version of iFIX.
- Be sure to obtain any toolkit updates that you need, prior to installing iFIX. For instance, if you have previously installed the iFIX Productivity Pack for Allen Bradley, you must get the updated version prior to upgrading iFIX.
- If you plan to use Enhanced Failover feature provided in iFIX, review the [Enhanced Failover and Upgrading](#) section.

## Steps to Upgrade from an Earlier Version of iFIX

### ► To upgrade from earlier versions of iFIX

1. Update your license.
2. Log in to Windows with Administrator privileges. If you intend to use iFIX as a service in conjunction with a GE driver, make sure you use the same administrator account to install and register each program as a service.
3. Ensure that there are no iFIX, FIX, GE, or Proficy processes running, and close any other programs that are running.
4. Insert the iFIX DVD into your DVD-ROM drive. The iFIX installation screen appears.  
**NOTE:** If this screen does not automatically appear, double-click the `InstallFrontEnd.exe` file on the DVD to display it.
5. Click the "Install iFIX" link. A message box appears asking you to confirm the install.
6. Click Yes to continue. The install program starts and the Welcome screen appears.
7. Click Next to continue. The license agreement screen appears.
8. Click "I accept the terms of the license agreement" if you want to continue, and then click Next. A message box appears indicating that a previous version of iFIX has been detected.

9. Click Yes to upgrade.

**CAUTION:** If you select No to this message, you can no longer run the older version of iFIX. By default, iFIX installs to the C:\Program Files (x86)\GE\iFIX folder instead. THIS IS NO LONGER AN UPGRADE. Use caution in copying files from your previous iFIX release, into your new iFIX install folder.

The Setup Type screen appears.

10. Select Complete and then click Next. If you selected Custom instead, you will be prompted later to select your install features. The Ready to Install Program screen appears.
11. Click Install. The progress of the installation displays on screen as the files are copied. After a few moments, a message box appears asking if you would like to review the release notes.
12. Click Yes to view the release notes. Close the release notes after you finish reviewing them to resume the install. The Setup Complete dialog box appears.
13. Click Yes to restart your computer now, or No to do it later.
14. Click Finish.

**NOTE:** Be sure to restart your computer before starting iFIX. As the computer restarts, log in to Windows with the same user name (with Administrator rights).

## Preserving Settings when Upgrading

When iFIX is installed, all previously existing configuration files in the iFIX Local folder, with the exception of the \*Res.dll files, are backed up to the C:\Program Files (x86)\GE\iFIX\Config Files Backup folder. To preserve these settings, after the install, copy your customized changes from these backup files into each current file located in the Local folder. Do not copy and paste the entire file into the Local folder because it would overwrite any new settings installed with the latest version of iFIX.

## Notes on Database Dynamos and Custom Programs that Run with iFIX Startup

When you install the newest release of iFIX, the product install program places a new version of the startup control file, FIX.INI, into your iFIX Local directory. The previous version of this file is copied to the iFIX Config Files Backup folder, along with the other configuration files.

If you configured Database Dynamos, also known as loadable blocks, or other custom programs to run as part of iFIX startup, you should compare the new FIX.INI file in the Local folder against the FIX.INI file stored in the Config Files Backup folder. If you find any changes between the two files, add the necessary lines to the new FIX.INI stored in the Local path. Do not copy the old FIX.INI over the new FIX.INI file.

**NOTE:** Paths with embedded path spaces in the FIX.ini require quotes. For example:  
`RUN="%E:\PROGRAM FILES(x86)\GE\iFIX\SysAlertQMgr.exe" /F /NSysAlertViewer`

## SCU Files and the Upgrade

By following the upgrade process, iFIX installs to same folder where your previous version existed. For example, if you have iFIX installed to the C:\Dynamics folder, when you upgrade, the newer version of

iFIX installs to the C:\Dynamics folder. After the iFIX upgrade completes and you restart iFIX, your SCU file is upgraded automatically, and the original file is backed up with a .^CU extension.

**NOTE:** Direct upgrades from iFIX 3.5 to the latest version of iFIX are not supported. To upgrade your SCU, upgrade the SCU to 5.8 first and then upgrade to the latest version.

If you choose not to upgrade and install iFIX to another path, such as the default: C:\Program Files (x86)\GE\iFIX, there are a few extra steps you need to perform before you can start the older version SCU file in the latest version of iFIX. First, you must rename the older version SCU file, so that the name is different than the default iFIX SCU file. For instance, if you try to start an iFIX 4.0 SCU file in the latest version of iFIX, when the names of both SCU files are the same, an error message appears instead. So, be sure to rename your iFIX 4.0 SCU file to something other than the startup default file name before opening it in the upgraded iFIX System Configuration Utility. After launching the SCU application, open the older SCU file. Now you can manually update the information in it, as described in the steps below.

Be aware that if you have a Custom Backup available of your node with the previous version installed, you also can use that file to upgrade your SCU. During the restore, make sure you select the Use SCU File from Archive check box. If the SCU file name you are upgrading is the same as the iFIX default SCU file name in the latest version, you need to change the path configuration at this point. Click on the View Project Path Configuration button to check the current paths. In the Project Path edit box, enter the iFIX install path. This upgrades your SCU file automatically, however you still have to manually update other SCU information in the System Configuration Utility, as described in the steps below. For more information on the restore process, refer to the [Overview of the Restore Process](#) section.

#### **IMPORTANT:**

- You do not need to use a Full Backup from a previous release of iFIX if you are just upgrading the SCU file. Instead, use a Custom Backup. Make sure that you back up the SCU only in the .fbk file and restore it only in the latest version of iFIX. If you do a Custom Backup, click “NO TO ALL” other files when restoring just the SCU file. Do not use a Full Backup between iFIX versions. Issues can occur with upgrade paths, and possibly other files.
- During a restore, use caution in restoring other configuration files. For instance, if you overwrite the .INI files in your iFIX Local folder, you lose all of iFIX .INI settings from the latest version. After that is done, there may be issues that cause iFIX or certain features not to work properly. For instance, if you overwrite the FIX.ini file with a 3.5 one, you need to remove or comment out the RUN-N=REGISTERHELPPFILES line in order to start the latest version of iFIX with this file.
- Be sure check the default iFIX path configurations in the SCU in each of your iFIX projects after you upgrade or restore a project. For example, if you installed the latest version of iFIX to a 64-bit path (C:\Program Files (x86)\GE\iFIX), and your previous picture files were installed to a 32-bit path (C:\Program Files\GE\iFIX), you will need to make sure you update these paths to 64-bit.

#### **► To update the SCU information manually:**

**NOTE:** The following steps describe how to modify an SCU file with a path outside the install path, so that you run it in iFIX.

1. Shut down iFIX.
2. On the Start menu, point to Programs, iFIX, and then System Configuration to open the SCU.
3. From the SCU Configure menu, click Paths.
4. In the Path Configuration dialog box, change the base path and NLS path to point to the local install path. Change the project path to point to the project destination folder, if it does not already do so.

5. From the SCU Configure menu, click Tasks.
6. In the Task Configuration dialog box, change the path of the configured tasks to the local install path, make sure that you include the same command line options.
7. From the SCU Configure menu, click Network.
8. In the Network Configuration dialog box, confirm the information is correct and make changes if necessary.
9. From the SCU Configure menu, click SQL, and then click Configure SQL Tasks.
10. In the SQL Task Configuration dialog box, make sure that the Primary and Backup paths are correct, if used.
11. From the SCU Configure menu, click Local Startup Paths.
12. In the Local Startup Definition dialog box, change the path to the folder you copied the project to with the get command.
13. From the SCU File menu, click Save. Save it as the default startup SCU file name or indicate that this is the SCU you want to use on startup.
14. Restart iFIX.

## Enhanced Failover and Upgrading

If upgrading from previous versions prior to iFIX 5.0 with failover enabled, and you want to use the Enhanced Failover feature in iFIX, be aware that:

- The Enhanced Failover feature is a keyed option. You must purchase the additional Enhanced Failover option (SCADA Failover) if you plan to use SCADA Failover in iFIX. If you had purchased the Ack Failover option in your previous version of iFIX, your key upgrade will include the new SCADA Failover option.
- If you purchased the Failover feature when you bought a previous version of iFIX, then your iFIX .plc license file update will enable the Enhanced Failover option automatically. Be aware, when you use the GE License Viewer in iFIX, that the part description changed from "ACK Failover" to "SCADA Failover."
- Before installing iFIX, it is recommended that you confirm that the SCADA Failover option is enabled on your key. iFIX software checks the Enhanced Failover option at startup. Without this option enabled, the Enhanced Failover functionality will not work. An error message appears if you try to run iFIX with the SCADA Failover feature.
- If your SCADA key does not show the SCADA Failover functionality enabled, and you purchased this additional option, please contact your sales representative before upgrading.
- When you upgrade your iFIX SCADA node to the latest version of iFIX, you will need to make configuration changes on your iFIX SCADA nodes for the Enhanced Failover feature to work properly. For example, the Data Sync Transport dialog box in the System Configuration Utility (SCU) is new in iFIX 5.0 and greater. It requires that you enter the partner's IP address on both the primary and secondary SCADA nodes.

- Be aware that in an Enhanced Failover pair, both server computers in the failover pair must be at the same iFIX version. So, if you update one computer in the Enhanced Failover pair, you must update the other. Both computers must be identical in configuration.
- An iFIX network that contains Enhanced Failover SCADA nodes and also contains older iFIX client nodes may not be supported. Refer to the Enhanced Failover and Legacy Clients section on the Release Notes tab of the Important Product Information (IPI) topic for details.
- The Alarm Acknowledgement synchronization feature from previous iFIX versions is NOT supported on upgraded SCADA nodes. The Alarm Acknowledgement functionality is replaced by the database synchronization and alarm area files.
- It is required that you use a dedicated network between the primary and secondary SCADA nodes for dedicated SCADA-to-SCADA traffic. If the SCADA nodes are physically close to each other, then a crossover cable can be used.
- It is strongly recommended that the network components (LAN adapters, hubs, switches, cables, etc.) used for SCADA-to-SCADA connection of the SCADA pair support a minimum 1 Gigabit Ethernet. This allows for a higher rate of speed for data transfer between the primary and secondary SCADA nodes.
- You will need to configure a primary and a "secondary" SCADA node. One SCADA will be in Active mode (processing data and alarms) while the other will be in Standby mode. This is unlike previous versions of iFIX, where you configured a primary and "backup" SCADA node and both nodes were processing data and alarms. The concept of the SCADA pair still exists in iFIX, but GE does not support using your standby SCADA as a development machine (for example, for database or picture development). However, there is a maintenance mode that allows you to upgrade your SCADA configuration without requiring a SAC restart.
- Stratus solutions will continue to be supported in iFIX. Any Stratus SCADA nodes that you want to upgrade to use Enhanced Failover will require configuration changes on your iFIX SCADA nodes for the Enhanced Failover feature to work properly (the same configuration changes as the non-Stratus nodes).
- Custom applications or scripts that were written to synchronize databases or alarms on previous versions of iFIX will no longer be required with Enhanced Failover enabled. So as not to interfere with the SCADA failover, you should remove these custom applications or scripts from your failover configuration.

The following steps describe how to upgrade your failover system.

**► To configure your iFIX SCADA nodes after an upgrade, if failover was used in a release prior to iFIX 5.0:**

1. On the primary SCADA node, on the Start menu, point to Programs, then iFIX, and then System Configuration. The System Configuration Utility (SCU) appears.
2. On the Configure menu, click SCADA. The SCADA Configuration dialog box appears.
3. In the Failover area, select the Enable check box if it is not already selected.
4. In the Node area, verify or select the node type: Primary or Secondary.
5. In the SCADA Name field, verify or enter the name of your partner SCADA node.
6. Click the Data Sync Transport button. The Data Sync Transport dialog box appears.

7. From the Description list, select the LAN adapter(s) to use for data synchronization between the SCADA pair, then select the Enable check box. Make sure that the LAN adapters you will not be using for data synchronization are not enabled.
8. In the Partner's Address field, enter the IP address of the partner node.
9. Use the default settings for the rest of the fields.

**NOTE:** The Bandwidth Limit field in the Data Sync Transport dialog box allows you to enter a value to throttle down or limit the synchronization rate or bandwidth used. It is recommended when using a corporate, non-dedicated or shared network (10/100 or 1GB), that you "throttle" network traffic to limit bandwidth that the data synchronization process will consume.

10. Click OK.
11. Repeat steps 1-10 on the secondary SCADA node.

## Programs that Run as a Service with iFIX

When you start iFIX as a service, programs in the startup task list also start as services. If you upgrade from a previous version of iFIX, be aware that programs listed in the SCU's Task Configuration dialog box will continue to run as services if iFIX remains running as a service.

However, if you previously started the iFIX OPC A&E Server with this command:

```
iFixOPCAESrv.exe -service
```

The -service option is no longer needed to run the iFIX OPC A&E Server as a service. You should go into the Task Configuration dialog box and remove the -service command from the startup task list.

Be aware that you can only run programs such as the iFIX OPC A&E Server as a service if iFIX is configured to run as a service.

If you want to run the OPC Client driver as a service, iFIX must also run as a service. Likewise, if you want to run iFIX as a service, the OPC Client driver must run as a service. You cannot run one as a service, without the other also running as a service.

## Toolbars

If your iFIX WorkSpace contains additional standard toolbars from other iFIX versions, such as the Historian toolbar, these toolbars will appear in the iFIX WorkSpace system tree, in the Project Toolbar Files > Toolbars folder. Double-click a toolbar to display it in the WorkSpace.

## Changing Permissions for PlugAndSolve and User Globals

If you upgrade from iFIX 2.6, you may need to change the security properties of the user.fxg and plugand-solve.fxg files. To change the permissions on these files, you must be logged in as an Administrator. Use the following steps.

► **To change permissions on a file:**

1. Open the File Explorer.
2. Right-click the PlugandSolve.fgx or user.fgx file in your iFIX PIC folder, and select Properties. The Properties dialog box appears.
3. Select the Security tab.
4. Click the Advanced button. The Advanced Security Settings for *file name* dialog box appears, where file name refers to the name of the file you selected in step 2.
5. On the Permissions tab, for the specified user, check the Inherit from parent the permission entries that apply to child objects. Include these with entries explicitly defined here.
6. Repeat steps 1-5 for the other file.

## GeneralDataSet Object Replaces the HistoricalDataSet and RealTimeDataSet

In iFIX 5.5, the GeneralDataSet object replaces both the HistoricalDataSet (used by Historical Datalinks and animations, the Enhanced Line and XY Charts, and the HistoricalLineChart Dynamo) and the RealTimeDataSet (used by Enhanced Line and XY Charts) objects. The GeneralDataSet supports both real-time and historical data. Having a single data set for all data types allows for a more efficient way of rendering the data in the iFIX WorkSpace. It also provides the flexibility to configure a tag group without having to specify how the tag group has to be treated, as real-time or historical.

**NOTE:** The RealTimeSPCDataset still exists and has not been upgraded in iFIX 5.5.

When opening pictures from a previous version of iFIX (prior to iFIX 5.5), pictures that contain any older dataset objects are upgraded to use the new GeneralDataSet object. An informational message appears telling you that the file you are opening has been updated to the most recent format and that the original can be found in the backup directory.

Any scripts with the logic to check against the dataset's class name in order to determine the data type will now be replaced with the method IsHistoricalData. Each upgraded line in the script includes a comment that starts with the words: **\*\*\* Upgraded \*\*\***. This comment is provided so that you can easily search and find any upgraded areas in your VBA scripts. For example, an updated line would display like this:

```
*** Upgraded ** If ds.ClassName = "HistoricalDataSet" Then  
    If ds.IsHistoricalData = True Then
```

An upgraded dataset still retains its object name in order to keep the scripts compatible in the latest version of iFIX. For instance, a RealTimeDataSet named "XYZ" will still show up as "XYZ" in the system tree in the iFIX WorkSpace, but the object itself will become a GeneralDataSet with the additional properties. This name is still retained even if the data type is changed to a different type (for instance, from real-time to historical).

Be sure to review the functionality of any custom scripts if you previously used the classname property of a HistoricalDataSet or RealTimeDataSet.

## GE Historian

Beginning with iFIX 5.0, GE Historian was integrated into iFIX. However, using GE Historian in an integrated manner is entirely optional. To help you decide whether or not to use GE Historian as an integrated component of iFIX, see [Using iFIX with GE Historian](#).

## Upgrading Pictures

### Coordinate Systems

In prior versions of iFIX, when you opened a picture from a previous version of iFIX in the newer version, and saved it, your picture was automatically updated to the newest version of iFIX. Pictures created with iFIX 5.5 (or earlier) were created with a Logical Coordinate System, which uses logical units for screen measurements. The Logical Coordinate System allowed this automatic upgrading.

With new versions of iFIX, pictures are not automatically upgraded because the Enhanced Coordinate System applies for screen measurements. An expert is provided to easily upgrade pictures you select from the legacy Logical Coordinate System to the new Enhanced Coordinate System.

You can use both the Logical and Enhanced Coordinate Systems with latest version of iFIX. For example, you can edit a legacy picture before you upgrade it. By default, the Enhanced Coordinate System is enabled for new picture creation. For more information on this expert and on coordinate systems, refer to the [Creating Pictures](#) e-book.

To assist you with upgrading command button captions (text) that may not scale properly, a Button Caption Converter expert allows you to scale one or more button captions in an active picture that uses the Enhanced Coordinate System. For more information on this expert, refer to the [Creating Pictures](#) e-book.

**NOTE:** Be aware that pictures with Enhanced Charts containing tag groups will display a message on upgrade. However, pictures with Historical datalinks and Historical animations containing tag groups will not.

### VisiconX

Due to the design of the VisiconX objects in iFIX 5.0 and greater, it is recommended that you manually replace your older VisiconX objects with the newer versions (if you are upgrading from a version of iFIX prior to iFIX 5.0).

## Compatibility of iFIX Pictures

iFIX supports pictures created, saved, or built in previous versions of iFIX (version 5.5 or earlier). However, with latest version of iFIX, pictures created with the legacy Logical Coordinate System should be upgraded to the Enhanced Coordinate System.

Make sure you review the following sections:

- [Picture Coordinate Systems](#)
- [Upgrading Pictures to Enhanced Coordinates](#)
- [Resolving iFIX Displays](#)
- [Running Pictures Created in an Older Version of iFIX](#)
- [Using Code Written for Pictures in iFIX 2.1](#)

## Resolving iFIX Displays

When you upgrade your iFIX system, or add or delete tags from your database, it is important that you run resolve on all pictures and schedules. This will ensure that you are getting maximum performance from your iFIX system.

## Running Pictures Created in an Older Version of iFIX

If you performed your original picture development on an earlier version of iFIX and have not upgraded to iFIX 2.2 or later, you may experience color mapping errors when upgrading iFIX.

To avoid color mapping problems, perform the following steps before saving and resolving any pictures in the latest version of iFIX.

► **To avoid color mapping problems:**

1. Copy and save the tables.lst file from the older version of iFIX.
2. Install the iFIX upgrade or switch to the upgraded machine.
3. Shut down the WorkSpace.
4. Delete the tableconversion.lst file from the iFIX directory (C:\Program Files (x86)\GE\iFIX).
5. Copy the original tables.lst file to the iFIX directory.
6. Restart the WorkSpace.

## Historical Datalinks

Beginning with iFIX 5.1, the configuration requirements for historical datalinks changed. To upgrade your existing historical datalinks, for each picture which contains them, open the picture and save it. If you do not make any changes on the Historical Datalinks dialog box, the historical datalink, by default will use CurrentValue for its Historical Mode.

## Database Dynamos

Database Dynamos, also known as loadable blocks, will require updating to work with iFIX. If you have old Database Dynamos on your system, the iFIX install program will detect them, and generate a warning message. This includes any Database Dynamos that you downloaded from the Support web site, or installed from the Allen-Bradley Productivity Pack CD before you installed iFIX 3.x.

The GE web site contains updated versions of the Database Dynamos supplied by GE. To obtain updated version of other Dynamos, contact the vendor of that dynamo. To obtain the current version of the Database Dynamo Toolkit, contact your local iFIX sales representative.

**IMPORTANT:** To upgrade your Database Dynamos from a previous version of iFIX, you must recompile your blocks with the iFIX Database Dynamo Toolkit. After you recompile them, you can use them in the newer

version of iFIX. Follow the steps outlined in the iFIX Database Dynamo Toolkit and the Database Converter will update your Database Dynamos. For information on the Database Dynamo toolkit, contact GE.

**NOTE:** When upgrading an iFIX SCADA node with loadable blocks, always make sure that the block slot number prior to the upgrade matches the block slot number after the upgrade. Slots are saved inside the FIX.INI (in the [Scada] section) . If the block slot numbers do not match after the upgrade, iFIX will be unable to load these blocks, and eliminate them from the database. In addition, you may receive a warning message stating that there is a block configuration mismatch.

## iFIX Dynamo Sets

When you upgrade iFIX, or install a Software Improvement Module (SIM) that updates any iFIX Dynamo sets, the newer Dynamo sets overwrite the older ones. To avoid losing any modifications made to the older files, you can rename them or move them to a folder located outside the iFIX picture path. Dynamo set files have an .fds extension and are located in the C:\Program Files (x86)\GE\iFIX\PIC folder, by default.

Be aware that when you upgrade iFIX, the Dynamos in pre-built Dynamo sets and the Dynamos created before iFIX 4.5 are not considered *Dynamo objects*. This means you cannot use the Quick Dynamo Updater, the Dynamo Updater Wizard, and the Cross Reference Tool (available in iFIX 4.5 and greater) to update instances of these Dynamos within existing pictures. Only Dynamo objects created in the newer version of iFIX can be updated with these tools.

Pre-built Dynamos include the following Dynamo sets:

- Historical.fds
- Miscellaneous.fds
- Motors.fds
- Pipes.fds
- PipesAnim.fds
- Pumps.fds
- PumpsAnim.fds
- Tanks.fds
- TanksAnim1.fds
- TanksAnim2.fds
- Valves.fds
- ValvesAnim.fds

## Deleting Temp Directory Contents if iFIX Installation Fails

When upgrading to iFIX, in some cases the installation will run too quickly, taking only a few seconds, or hang and not complete the process. In both cases, the product will not successfully install.

If this happens, delete the contents of the Temp directory and run the installation again.

## Alarm Summary Objects and Picture Translation

For each picture created in a previous release that uses the picture translation feature and includes an Alarm Summary object(s), you must export the language file again after you upgrade. This step updates your language files to include the Alarm Summary object information.

Next, using a text editor, you must provide translations for each of these new fields in the exported language (.csv) file(s). This step is required because the iFIX language translation file originally did not include the Alarm Summary object.

### NOTES:

- iFIX supports translation of the Alarm Summary object information through the picture object, or through the Alarm Summary object. You may also want to create new pictures which take advantage of the SwitchLanguage Method on the Alarm Summary object itself. For more information on how to use this feature, refer to the [SwitchLanguage Method Example](#) in the iFIX Automation Reference.
- In iFIX, you can also change the font of the Column Headers and the Status Bar in the Alarm Summary object for translation display purposes. This Font changing feature can be accessed from the General tab of the Alarm Summary object in configure mode. You may want to update your pictures to use this feature, as well. For more information on how to use this feature, refer to the [Configuring Fonts for the Column Headings and Status Bar](#) in the Creating Pictures electronic book.

### ► To export a single language file:

1. In the WorkSpace configuration mode, open the picture you want to export a language file for.
2. In Classic view, on the WorkSpace menu, click User Preferences.  
-Or-  
In Ribbon view, on the Home tab, in the WorkSpace group, click Settings, and then click User Preferences.
3. Click the Picture Preferences tab and make sure the Translate Picture On Open check box is cleared. If it is selected, the LanguageDesired and TranslateOnOpen properties in the Properties window cannot be changed.
4. Click OK to close the User Preferences dialog box.
5. Right-click in the picture and choose Property Window.
6. From the LanguageDesired list, select the appropriate language.
7. From the TranslateOnOpen list, select Yes.
8. On the Translation toolbar, click the Export language file button. A message appears letting you know the language file was successfully exported.
9. You can now open the language file in a text editor and translate the text strings for the picture.

### ► To export multiple language files:

1. In the iFIX WorkSpace, on the Translation toolbar, click the Export multiple language files button. The Language File Exporter dialog box appears.
2. In the Select pictures list, select the check box for each picture you want to export a language file for.
3. If applicable, select the Show Tag Status pictures check box to display and select tag status pictures in the Select pictures list.

4. If applicable, select the Always overwrite existing export files check box. If you are exporting a language file for a picture that already has a language file for the selected language, the existing language file will be automatically overwritten. If you clear this check box, you will be prompted to replace the existing language file. Click Yes to replace it and No to keep it.
5. From the Select language list, choose the language that you want to provide translations for.
6. Click Export. A separate language file is created for each picture you selected.
7. You can now open each language file in a text editor and translate the text strings for the pictures.

## Setting Up for Remote OPC Server Access

Before you can access remote OPC servers in iFIX, such as through the Discover and Auto Configure (DAC) application and the OPC Client driver, you must make sure your firewall settings are correct and that the Distributed Component Object Model (DCOM) settings for your operating system are correct. These settings can be different for each operating system and also for different product revisions. If the settings are not correctly set, you may not be able to access remote OPC servers. Changes to these settings should be reviewed and approved by your system/security administrator.

For more information on configuring these settings, refer to the following:

- For DCOM information, refer to the [Setting Up DCOM for Use with Remote OPC Servers](#) section.
- For Firewall information, refer to the [Setting Up the Firewall for Use with Remote OPC Server](#) section.

## Setting Up DCOM for Use with Remote OPC Servers

iFIX supports DCOM (Distributed Component Object Model) to browse remote OPC Servers. If you want to grant only certain users permission to launch or access the remote OPC servers, you can use the Windows utility, DCOMCNFG.EXE for configuring DCOM applications. DCOMCNFG.EXE is usually located in your operating system's \system32 folder.

When OPC Servers register, they set up initial custom DCOM security settings to enable users on the network to access and launch the Server. On large networks, it is recommended that you modify these settings to avoid confusion and inadvertent changes to a running OPC Server.

If Firewall security is enabled on Windows, you must also modify or add items to the Exceptions list. Refer to [Setting Up the Firewall for Use with Remote OPC Servers](#) section for more information.

### IMPORTANT NOTES:

- It is recommended that all users that need to access remote OPC Servers be members of the Administrators group. To facilitate this, it is recommended that you create a users group to contain individual users that need to access remote OPC servers.

For example, for the Discover and Auto Configure application, create a group named “DAC” and add those users who will log into the operating systems and access remote OPC servers. Add the users Tom, Denise, and Harry into the DAC group. Each of these users will also be added into the

Administrators group. This DAC group should also contain the following built-in security principals: INTERACTIVE; NETWORK; SYSTEM.

- To make any OPC Client / OPC Server application work via DCOM, changes need to be made on both sides, especially if you intend to use Asynchronous I/O communications.
- OPCENUM must reside on the remote machine with the OPC server. While most OPC Server applications install and register this file, some do not. You can download this file from [www.opcfoundation.org](http://www.opcfoundation.org). Currently it is contained within the OPC Core Components 2.00 Redistributable 2.30.msi file. After you download OPCENUM, run the .msi file.
- This section applies to OPC servers that need to use DCOM communications, regardless of whether the OPC server uses Serial or Ethernet devices.
- If OPC communications is confined to a single machine (that is, using COM, but not DCOM), it continues to work properly without making changes to DCOM settings.
- If you do not plan to use iFIX to connect remotely to OPC servers, then you may not need to change your DCOM settings.
- If this is the first time you are connecting to (or allowing connections from) other machines on the network, you must run the Windows Network Wizard (from Start > Control Panel) to set up your computer to run on your network. This allows you to share resources on your computer with other computers on your network. It is recommended that you run the Network Setup Wizard before modifying the DCOM settings.

## DCOM Settings

The following procedures provide general guidelines for configuring DCOM settings.

### ► To launch the DCOM configurator:

1. From the Start menu, select or type Run. The Run dialog box appears.
2. Type dcomcnfg and click OK. The Component Services dialog box appears.

## System-wide COM/DCOM Limits Settings

This procedure modifies the system-wide DCOM settings for the computer on Windows operating systems. When these steps are implemented, they apply to all programs that use COM/DCOM communications on the computer.

**IMPORTANT:** Be careful when making any system-wide security changes. Any inadvertent changes may affect the entire system and may cause some or all programs to stop working.

### ► To update system-wide COM/DCOM limits settings:

1. On the Component Services dialog box, expand Component Services, then expand the Computers item.
2. Right-click My Computer and choose Properties. The My Computer Properties dialog box appears.
3. Click the COM Security tab. There are four permissions on this dialog box.

You may need to make changes to the Edit Limits... for Access Permissions and Launch and Activation Permissions.

Do not change the Edit Default... settings, since this will change the default settings for all programs and applications running on the computer.

4. Click Access Permissions > Edit Limits... The Access Permission dialog box appears.
  - i. Select the user labeled ANONYMOUS LOGON, and then select the Allow check box for Remote Access.

**NOTE:** This setting is necessary for applications that use OPCenum.exe to function and also for some OPC Servers and OPC Clients that set their DCOM 'Authentication Level' to 'None' to allow anonymous connections. If you do not use such applications, you may not need to enable remote access for anonymous logon users.
  - ii. Select the user labeled Everyone, and then select the Allow check box for Remote Access.

**IMPORTANT:** Since "Everyone" includes all authenticated users, it is recommended to add these permissions to a smaller subset of users. One way of doing this is to create a Group named "OPC" and add all user accounts to this Group that will access any OPC server. Then substitute "OPC" everywhere that "Everyone" appears in the entire DCOM configuration dialogs.
  - iii. Click OK to close the Access Permissions dialog box and return to the My Computer Properties dialog box.
5. Click Launch and Activation Permissions > Edit Limits... The Launch Permission dialog box appears.

For each user or group (preferably add the "OPC" group) that needs to launch or activate the OPC server, or participates in OPC / DCOM communications, make sure that the Local Launch, Remote Launch, Local Activation, and Remote Activation check boxes are selected.
6. Click OK to save your changes, then click OK again to save and close the My Computer Properties dialog box.

## OPC Server-specific DCOM Settings

The following procedures detail the OPC server-specific COM/DCOM settings on all supported Windows operating systems. You must change the OPC server settings so remote users can access the OPC server as an OPC Data Access Server. This procedure is also necessary for the GE OPC Client driver to connect to, launch, configure, and start the remote OPC servers.

It is recommended that all users requiring access to remote OPC servers be members of the Administrators group.

**IMPORTANT:** Since the "Everyone" group includes all authenticated users, it is recommended to add these permissions to a smaller subset of users.

It is recommended that you create a group to contain individual users that need to access remote OPC servers. It is also recommended that all users who require access to see OPC Servers be members of the Administrators group.

For example, for Discovery and Auto-Assembly Component, create a group named "DAC" and add those users who will log into the operating systems and access remote OPC servers. Add the users Tom, Denise, and Harry into the DAC group. Each of these users will also be added into the Administrators group. This DAC group should also contain the following built-in security principals: INTERACTIVE; NETWORK; SYSTEM. Then substitute "DAC" everywhere that "Everyone" appears in the entire DCOM configuration dialogs.

► **To modify driver-specific DCOM settings in Windows:**

1. Access the DCOM configurator (dcomcnfg.exe). The Component Services dialog box appears.
2. Expand the Component Services item, then expand the Computers item, and then expand the My Computer item.
3. Select the DCOM Config object. A list of applications displays.
4. Right-click the OPC server you want to modify and choose Properties. The <Selected OPC Server> Properties dialog box appears.
5. Click the General tab. The Authentication Level should be set to "Default," if it is not already. This uses the default authentication rules that are set in the system-wide DCOM settings.
6. Click the Location tab and make sure that the "Run Application on this computer" check box is selected.
7. Click the Security tab and select the Customize option for each of the permissions in this dialog box and edit them as described in the following steps.
8. In the Launch and Activation Permissions area, click Edit. The Launch and Activation Permission dialog box appears.
9. Click the Add button. The Select Users or Groups dialog box appears.
10. Click the Advanced Button. Another Select Users or Groups dialog box appears.
11. Click the Find Now button. In the search results, select the OPC group and click OK. The Select Users or Groups dialog box displays the OPC group.
12. Click OK to return to the Launch Permission dialog box. The OPC group is displayed in the Group or user names list.
13. Select the OPC group and then select the Allow check boxes for Local Launch, Remote Launch, Local Activation, and Remote Activation permissions.
14. Click OK to return to the <Selected OPC Server> Properties dialog box.
15. In the Access Permissions area, click Edit. The Access Permission dialog box appears.
16. Click the Add button. The Select Users or Groups dialog box appears.
17. Click the Advanced Button. Another Select Users or Groups dialog box appears.
18. Click the Find Now button. In the search results, select the OPC group and click OK. The Select Users or Groups dialog box displays the OPC group.
19. Click OK to return to the Access Permission dialog box. The OPC group is displayed in the Group or user names list.
20. Select the OPC group and then select the Allow check boxes for Local Access and Remote Access permissions.
21. Click OK to return to the <Selected OPC Server> Properties dialog box.
22. In the Configuration Permissions area, click Edit. The Change Configuration Permission dialog box appears.
23. Click the Add button. The Select Users or Groups dialog box appears.
24. Click the Advanced Button. Another Select Users or Groups dialog box appears.

25. Click the Find Now button. In the search results, select the OPC group and click OK. The Select Users or Groups dialog box displays the OPC group.
26. Click OK to return to the Change Configuration Permission dialog box. The OPC group is displayed in the Group or user names list.
27. Select the OPC group and then select the Allow check boxes for Full Control and Read permissions.
28. Click OK to return to the <Selected OPC Server> Properties dialog box.
29. Click OK.
30. Repeat steps 2 through 29 for each OPC server you need to access remotely.
31. When you are done, close the Component Services dialog box.

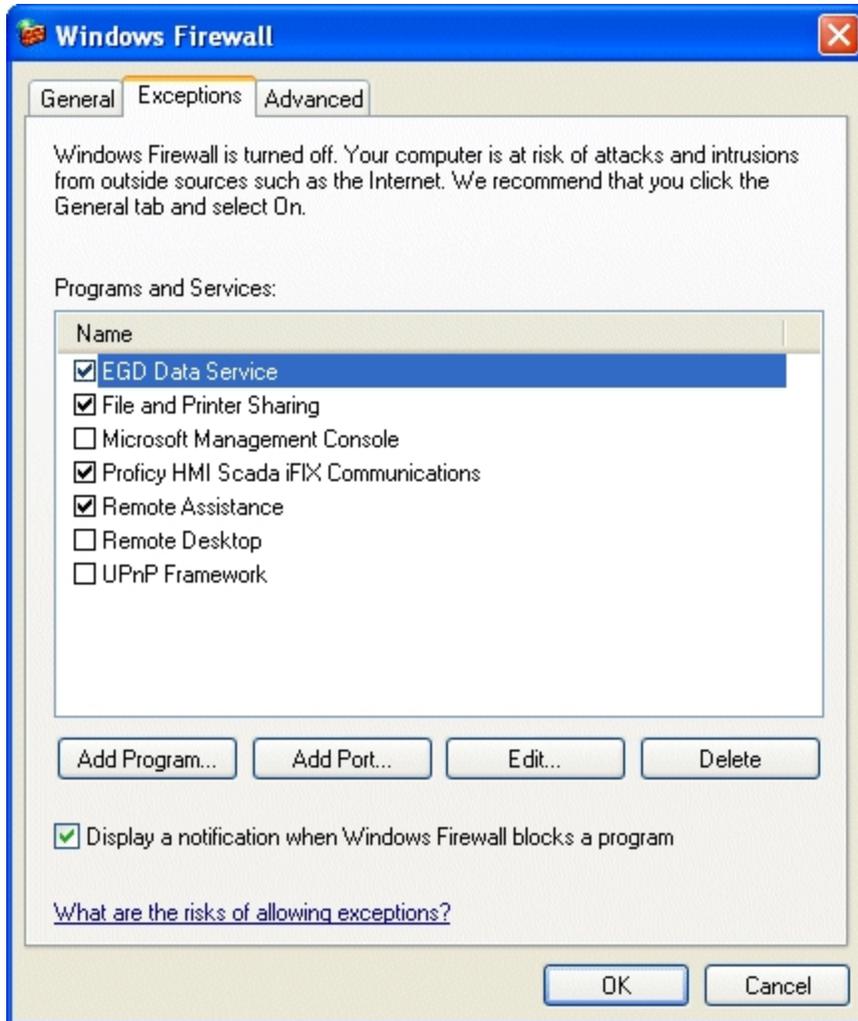
## Setting Up the Firewall for Use with Remote OPC Servers

If Firewall security is enabled you may need to modify or add items to the Exceptions list.

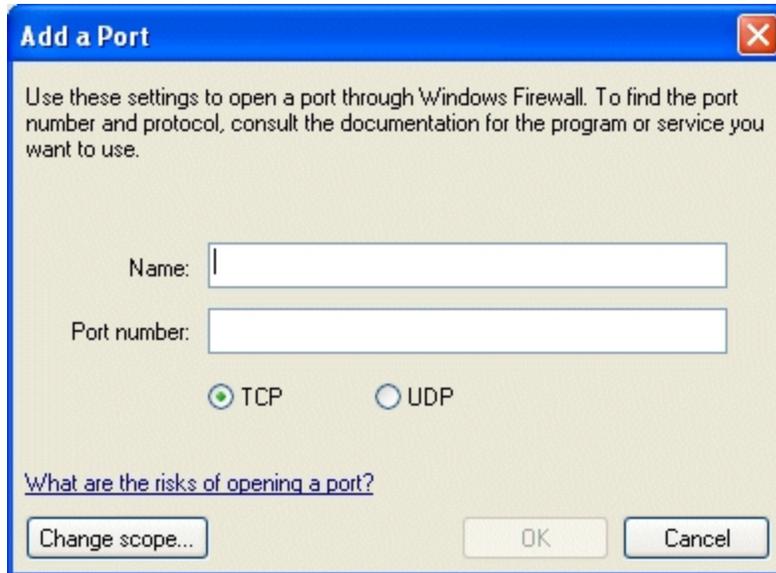
It is recommended that you enter these settings on the local machine running iFIX, as well as on the remote machine that has the OPC server you want to use.

### ► To modify Windows Firewall settings:

1. Log into the Windows operating system with an Administrator account.
2. Open the Control Panel and double-click Windows Firewall. The Windows Firewall dialog box appears. For the Windows Vista operating system, you also need to click the "Allow a program through Windows firewall" option.
3. Click the Exceptions tab and make sure that the File and Printer Sharing check box is selected. The following figure shows an example of this dialog box in Microsoft Windows XP.



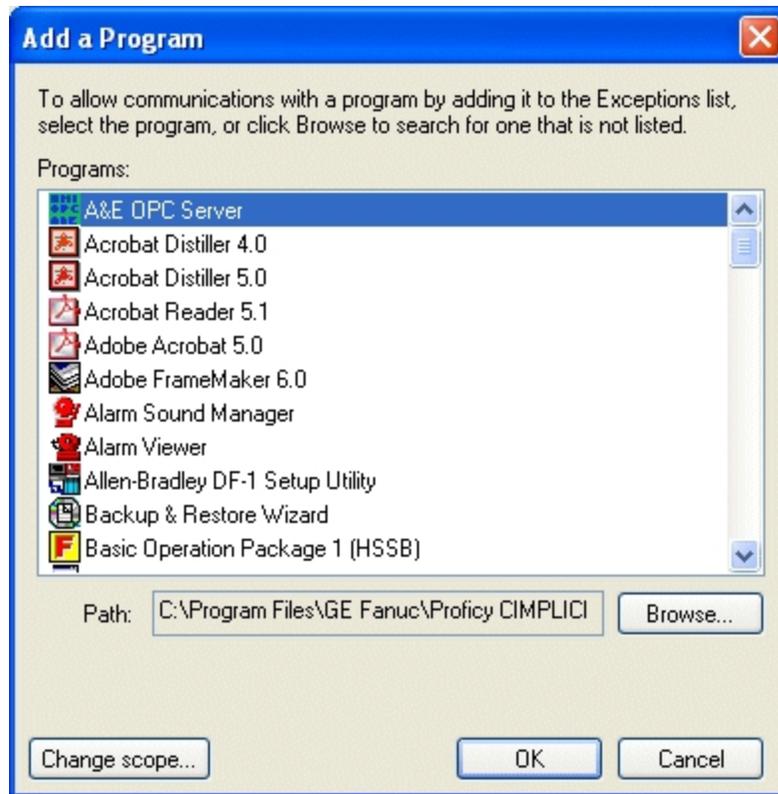
4. Click the Add Port button. The Add a Port dialog box appears. The following figure shows an example of this dialog box in Microsoft Windows XP.



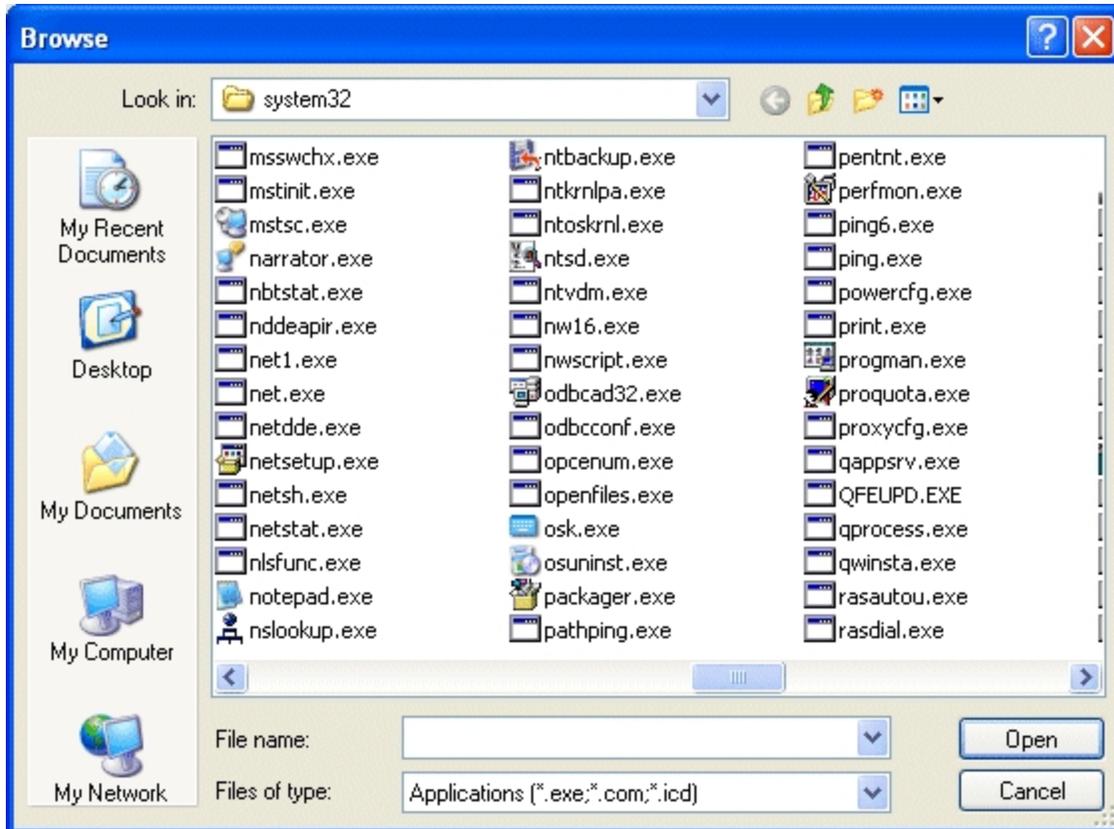
5. In the Name field, enter a name for the port.
6. In the Port Number field enter 135.
7. Select the TCP option.
8. Click OK to save your changes.

The port name you entered is now listed with its check box selected.

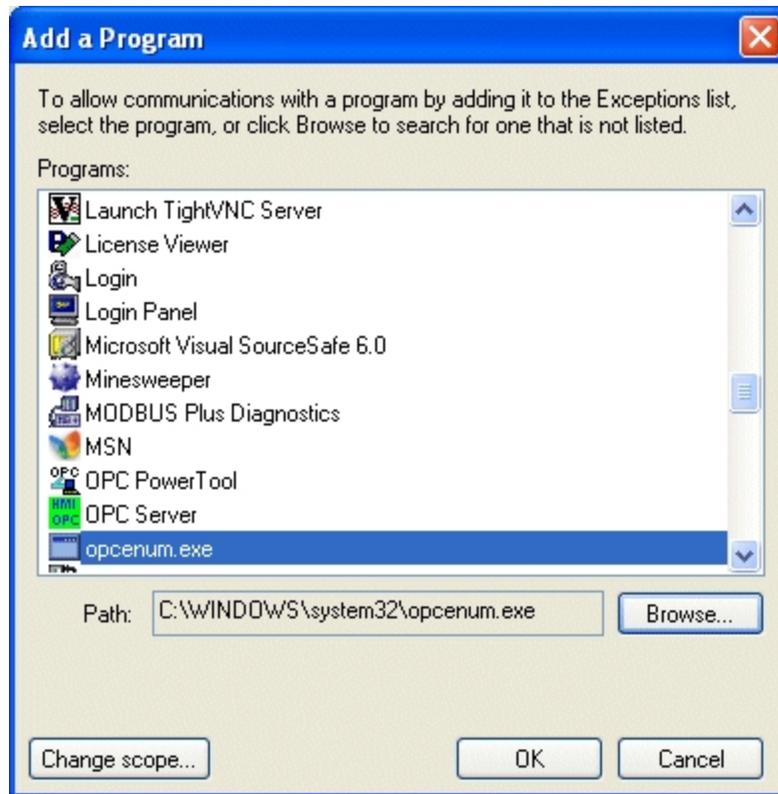
9. Select the Add Program button. The Add a Program dialog box appears. The following figure shows an example of this dialog box in Microsoft Windows XP.



10. Click the Browse button. A Browse dialog box appears.

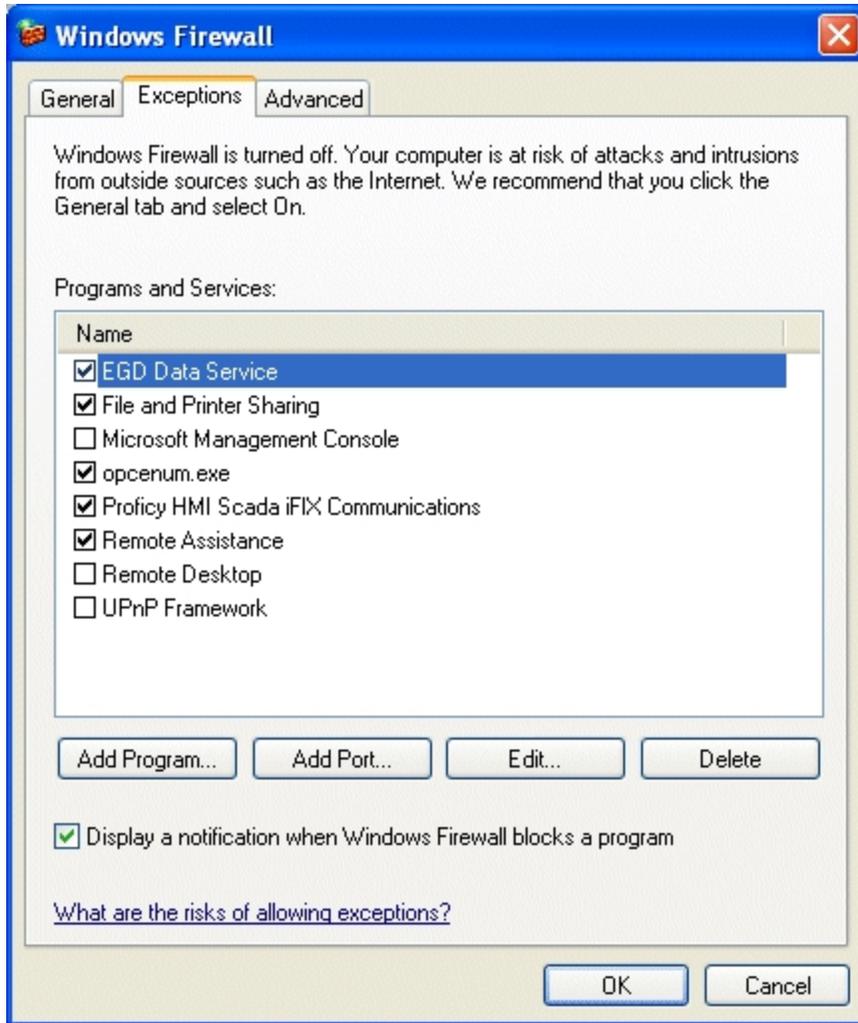


11. Navigate to the System32 folder. This folder is found under the operating system folder (usually Windows or WINNT).
12. In the System32 folder, select the OPCENUM.exe file, and then click the Open button.  
In the Add a Program dialog box the path field displays the full path to, and including, the OPCENUM.exe file.



13. Click OK.

OPCENUM.exe should now be listed in the Exceptions list with its check box selected.



14. Complete steps 9-13 for each OPC server that you want to access.

**NOTES:**

- If any OPC server that you want to use is a dll surrogate (an in-process dll and not an .exe), you must add `\system32\dlhost.exe` into the Exceptions list.
- You must also add the GE OPC Client driver by adding the file `OPCDrv.exe` into the Exceptions list.
- OPCENUM must reside on the remote machine with the OPC server. While most OPC Server applications install and register this file, some do not. You can download this file from [www.opcfoundation.org](http://www.opcfoundation.org). Currently it is contained within the OPC Core Components 2.00 Redistributable 2.30.msi file. After you download OPCENUM, run the .msi file.

## Windows Operating System Considerations

When using iFIX in newer versions of Windows, be aware of the following limitations when working with these products:

- **GEOPC Client Driver** - If you want to run the OPC Client driver as a service, iFIX must also run as a service. Likewise, if you want to run iFIX as a service, the OPC Client driver must run as a service. You cannot run one as a service, without the other also running as a service. If you want to run the OPC Client driver, be sure to check with the vendor of your OPC Server software to see if your OPC Server supports the operating system that you want to use.
- **Third-Party OPC Servers** - Be aware that at the time of the iFIX release there were a limited number of OPC Servers supported on newer versions of Windows. iFIX was tested with the OPC20iFIX.exe (Intellution.OPCiFIX) Server - an OPC 2.05a (out of process) Data Server.
- **Drivers and DAC** - If you want to run a driver on a newer operating system, be sure to check with the vendor of your driver software to see if your driver supports the operating system. Your driver must support your operating system to interface with the Discover and Auto Configure (DAC) application.
- **VisiconX**- Make sure that your data sources use UNC pathing, rather than mapped network drives. For example, use a path like this: \\myserver\users\mydb.mdb, instead of this: d:\myserver\users\mydb.mdb for your data source. Otherwise, you may experience connection errors.
- **PMON** - The GE diagnostic utility PMON.exe does not work when iFIX is running as a service in versions of Windows after XP.

Additionally, be aware of the following differences when working with iFIX in Microsoft Windows:

- **Security** - Microsoft Windows includes many new security enhancements in the newer operating systems. Due to these enhancements, there may be changes you need to make for the users who run iFIX. For more information, refer to the [Windows and Security](#) section.
- **Drive Mapping** - Security and data protection enhancements may require you to use data sources with UNC pathing, as opposed to mapped network drives. For more information, refer to the [Windows and Mapped Network Drives](#) section.
- **Sleep Mode** - Be aware that an iFIX View node running on a version of Windows will lose its connection to the iFIX network when going into "Sleep" mode.

## Windows and Security

As an Administrator, you have all of the rights you need to operate a SCADA node (start and stop iFIX), as well as running iFIX as a service. However, if you want to allow a user not in the Administrators group to operate an iFIX SCADA node or run iFIX as a service, you need to make some adjustments to the user rights.

To allow a non-Administrator to operate an iFIX SCADA node, you need to add the individual user or group to the "Create Global Objects" policy. If you want the user or group to run iFIX as a service, then you need to run the `GrantUserFixServiceRights` command for the user or group.

► **To allow a user who is not an Administrator to operate an iFIX SCADA node:**

1. Log in as an Administrator.
2. Click the Start button, and in the Search box, type `secpol.msc` and press Enter. The Local Security Policy window appears.
3. In the tree, double-click Security Settings, and then Local Policies, to view the contents of the Local Policies folder.
4. Click the User Rights Assignment item to view the policies.
5. Double-click the Create Global Objects policy. The Create Global Object Properties dialog box appears.
6. Click Add User or Group. The Select Users or Groups dialog box appears.
7. Enter an individual user name, or group name, such as "iFIXUsers."
8. Click OK to add the user.

► **To allow a user who is not an Administrator to run iFIX as a service:**

1. Click the Start button, and in the Search box, type Command Prompt and press Enter. If the Command Prompt does not appear immediately, double-click the Command Prompt from the list of results.
2. In the Command Prompt window, type:

```
GrantUserFixServiceRights GRANT FIX USERNAME
```

where *FIX* is the name of the service (iFIX) that you want to grant rights to, and *USERNAME* is the name of the user or group that you want to grant rights to.

## Running iFIX as a Service with Other Services

If you plan to run iFIX as a service along with other services such as the iFIX scheduler, the OPC A&E Server, and the OPC DA Server, make sure that your user has the rights to start/stop/pause all of those services. A user who is a member of the Administrators group usually has all these privileges. (This can be verified by opening the Windows service control panel and checking if the Start/Stop setting is enabled.) To grant a user who is a standard user rights to start/stop/pause these services, log in to Windows as an Administrator and run the following commands:

```
GrantUserFixServiceRights GRANT IFIXSCHEDULER username  
GrantUserFixServiceRights GRANT IFIXOPCAESRV username  
GrantUserFixServiceRights GRANT IFIXOPCDA username
```

## Examples: Using GrantUserFixServiceRights

If you want to allow a user named QA1 to run iFIX as a service, type:

```
GrantUserFixServiceRights GRANT FIX QAL
```

If you want to allow all members of the group "iFIXUsers" to run iFIX as a service, type:

```
GrantUserFixServiceRights GRANT FIX "iFIXUsers"
```

If you later need to revoke the right to run iFIX as a service, use the following command:

```
GrantUserFixServiceRights REVOKE FIX USERNAME
```

where *FIX* is the name of the service that you want to revoke rights from, and *USERNAME* is the name of the user or group that you want to revoke rights from.

## Windows and Mapped Network Drives

In newer versions of Windows, when you elevate an application and it runs under a different context, the application may or may not be related to the user who is logged in. As a result, drive mappings are not available in an elevated session unless you specifically map them while it is elevated.

To resolve this issue, make sure that your system data sources use UNC pathing, rather than mapped network drives. For example, use a path like this: \\myserver\users\mydb.mdb, instead of this: d:\myserver\users\mydb.mdb for your data source. Otherwise, you may experience connection errors. Be sure to select the "Remember my password" check box in the Connection dialog box when setting up your UNC pathing. By doing this, the next time you log in, your connection will succeed without failing.

For example, you add a system data source (ODBC) with a mapped network drive for use with VisiconX. When you configure a VisiconX data control and select a data source on the Database tab, an error appears (error number -2147467259 indicates that you do have a valid path). To resolve this issue, configure your data source with UNC pathing instead.

## EDA Applications and Windows

When running an iFIX Easy Database Access (EDA) application on newer versions of Windows, you may experience errors due to inadequate permissions. For instance, the logged in user may not have enough permissions to create the necessary global memory that the application requires, or the user may not be running an application with the fullest permissions (running elevated).

The "Allocation of Shareable Memory Failed" message is one of the messages that can appear in this scenario. To resolve these types of issues, elevate the application to the fullest privileges.

### ► To mark an application for elevation using an external manifest:

1. Create a text file named yourappname.exe.manifest, where yourappname is the name of the application you want to elevate.
2. In a text editor such as Notepad, open yourappname.exe.manifest.
3. Paste the following lines of code into the text file:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>  
<assembly xmlns="urn:schemas-microsoft-com:asm.v1" manifestVersion="1.0">  
  <assemblyIdentity version="1.0.0.0"  
    processorArchitecture="X86"
```

```

    name="yourappname"
    type="win32"/>
<description>Description of your application</description>
<!-- Identify the application security requirements. -->
<trustInfo xmlns="urn:schemas-microsoft-com:asm.v2">
  <security>
    <requestedPrivileges>
      <requestedExecutionLevel
        level="highestAvailable"
        uiAccess="false"/>
    </requestedPrivileges>
  </security>
</trustInfo>
</assembly>

```

4. Save the file in the same folder as the yourappname.exe, where yourappname is the name of the application you want to elevate.

**TIP:** If yourappname.exe was built with an internal manifest, yourappname.exe will ignore the external manifest created in the above manner. Instead, you need rebuild the application with the new elevation information.

**IMPORTANT:** If you have run the executable before performing the above steps and it failed to work, see this link for information on adding a manifest after the fact: <http://blogs.msdn.com/vistacompatteam/archive/2006/11/13/manifest-and-the-fusion-cache.aspx>.

► **To mark an application for elevation with an internal manifest:**

- Build your application's executable (.exe) file with the elevation information built into it. Be aware of issues with fusion cache when you use an external manifest file. For more information, refer to the MSDN web site: <http://blogs.msdn.com/vistacompatteam/archive/2006/11/13/manifest-and-the-fusion-cache.aspx>.

For more information on User Account Control (UAC), refer to the Microsoft web site: <https://docs.microsoft.com/en-us/windows/desktop/uxguide/winenv-uac>

► **To elevate a third party application that you do not own the source code for:**

Microsoft recommends writing a wrapper to invoke the application's executable (.exe) file in an elevated manner. If this is not feasible, the following is suggested:

- Create a shortcut (.lnk) to the yourappname.exe, where yourappname is the name of the application you want to elevate.
- Right-click the shortcut and select Properties. Configure the shortcut to run as an Administrator.

## Other iFIX Installation Considerations

This chapter provides information you need to consider when using databases or drivers and iFIX. This information includes:

- [Supported Drivers](#)
- [Special Keyboard Buttons](#)

## Supported Drivers

Be certain that before you purchase an I/O driver, that the driver is compatible with the hardware and operating system that you intend to run it on. For example, if the driver is not supported on a specific operating system, then you cannot use that driver with iFIX running on that operating system. For more information on iFIX supported drivers and their respective operating systems, refer to the GE Digital support web site at:

<https://digitalsupport.ge.com>

## Special Keyboard Buttons

Some computer keyboards have special buttons for e-mail launch, internet launch, search, and other functions. These keyboard buttons may disable certain key macros or allow users to circumvent iFIX security measures.

It is recommended that you reprogram or disable the software that operates such special buttons. Refer to your computer's documentation for instructions on disabling these buttons.

## Environment Protection and iFIX

Environment Protection is a feature within iFIX that allows you to restrict operator access in run mode. This feature helps to provide a secure operating environment. For instance, while in run mode, you may want to restrict an operator from:

- Starting other applications.
- Switching to other applications.
- Exiting from the WorkSpace.
- Restarting the computer using Ctrl+Alt+Del.
- Opening unauthorized pictures.
- Closing the current picture.
- Using the WorkSpace menu.
- Switching to the configuration environment.
- Accessing the system tree.
- Accessing the pull down menus.
- Viewing the title bar.

For more detailed information about Environment Protection, refer to the [Configuring Security Features](#) e-book. The [Restricting Access in the Run-time Environment](#) topic in the Defining and Assigning Security Privileges chapter, in particular, has detailed information with links to more steps.

## Important Information

Be aware that when using Environment Protection:

- Environment Protection is NOT supported with the My-T-Soft® virtual keyboard.
- Environment Protection is NOT supported with remote desktop applications such as those using Remote Desktop Protocol (RDP), Virtual Network Computing (VNC), and WebEx™.

## Important Task Switching Information

Task switching is disabled when security is enabled and either the logged-in user does not have task switching rights or there is no user logged-in. The task switching right can be assigned by adding the Enable Task Switching application feature to the user profile in the iFIX Security Configuration application.

Be aware of the following when using task switching with Microsoft Windows 8.1 and Windows Server 2012 R2:

- When you disable task switching on Windows 8.1 and Server 2012 R2 systems, iFIX disables the Windows shell which includes the task bar, the start menu, the desktop, file and folder access, the Charms bar, and hot corners that allow access to the Start screen.
- When security is enabled and iFIX is running, a user with task switching rights must be logged in for the shell to run and the desktop to be accessible. (When security is enabled, the rights of the logged in user will always take precedence over the environment protection settings configured in the iFIX WorkSpace User Preferences.) If there is no user logged in, task switching will be disabled, the shell will be disabled, and the system will become inaccessible.
- The Windows shell may be disabled when switching from run to configure mode in iFIX. To avoid this issue, make sure the logged-in user has both task switching rights and WorkSpace configure access, so that the desktop is always available in configure mode. The task switching right can be assigned by adding the Enable Task Switching application feature to the user profile in the iFIX Security Configuration application. The WorkSpace configure access can be assigned by adding the WorkSpace Configure application feature to the user profile.
- When a user with task switching rights is logged in, the Taskbar may be displayed on top of the Workspace. Enable the Auto-Hide the Taskbar property in Windows to push the Taskbar behind the Workspace.
- If the iFIX WorkSpace is not configured as a startup task in the SCU, you must configure a user to be logged in automatically who has task switching rights or the desktop will not be available and the system will become inaccessible when iFIX starts up.
- All users who have iFIX WorkSpace runtime exit privileges must also be assigned task switching rights or the iFIX WorkSpace runtime shutdown will be blocked.

## Working with Touch Screens

Be aware that:

- When iFIX is configured to run as a service and to start automatically, Fix.exe should always be started before launching WorkSpace.exe to enable the on-screen keyboard functionality. If

WorkSpace.exe is launched without starting iFIX in the user session on a system without a physical keyboard, the on-screen keyboard will not automatically display when the cursor is in an edit control or in edit mode.

- For Microsoft Windows 8.1 and Windows Server 2012 R2, the only supported on-screen keyboard for use with iFIX and touch screens is the tabtip keyboard (tabtip.exe).
- To launch the keyboard automatically from iFIX on Windows Server 2012 R2 systems, there is additional configuration. In the Server Manager, you must install the Desktop Experience feature included in the User Interface and Infrastructure features. (By default, this feature is already enabled in Windows 8.1). After enabling the feature and restarting Windows, the on-screen keyboard, tiptap.exe, will be available and will display automatically when focus is on an edit field in iFIX.
- To automatically display the on-screen keyboard when the focus is set to WorkSpace objects that have the ability to accept user inputs, enable PROFICYENABLEFOCUSTRACKING.EXE by adding the following lines to your FIX.INI file (located in the LOCAL folder) in the [OTHERS] section:

```
[OTHERS]
[SESSION INSTANCE]
INSTANCE0=%PROFICYENABLEFOCUSTRACKING.EXE
```

**NOTE:** If these lines are present in the FIX.INI, but are preceded by a semi-colon, remove the semi-colon to enable the lines.

## Networking

This chapter provides general information about the iFIX supported network protocol, supported network software, supported file servers, and installing network cards with Windows. Refer to the following sections for more information:

- [Supported Networking Protocol](#)
- [Supported File Servers](#)

### Supported Networking Protocol

If you decide to implement a networked iFIX system, make sure that all nodes are using compatible network configurations. iFIX supports TCP/IP interfaces for peer-to-peer communication. NetBIOS is no longer supported.

If you have difficulty networking your computer, refer to the [Troubleshooting](#) chapter of the Setting Up the Environment manual to pinpoint and resolve your problems.

### Supported File Servers

GE supports using a file server to store System Configuration Utility, alarm area database, security, historical, and recipe data files and file server-based iClients. iFIX does not require a file server.

Refer to your file server documentation for installation and configuration instructions.

If a file server becomes unavailable and an iFIX node attempts to access a file, you may experience no response, slow response, or time-outs. These conditions are a result of continuously polling all available drives while it waits for a response from the file server. It is recommended that you store a backup copy of the files you need on the local node. It is not recommended that you use the file server for files if it is susceptible to failure.

## Contact GE Digital

If you purchased this product through a GE Authorized Channel Partner, please contact them directly.

### Technical Support

For information on how to contact our Technical Support team, see [digitalsupport.ge.com](https://digitalsupport.ge.com).



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