



GE VERNOVA

**PROFICY® SOFTWARE & SERVICES**

# **PROFICY iFIX HMI/SCADA**

iFIX Glossary

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# Numerics

## 21 CFR Part 11

Government regulation that provides criteria for acceptance by the Food and Drug Administration (FDA) of electronic signatures and electronic records.

# A

## ABS Function

Calculates the absolute value of the specified number.

### Syntax

ABS (number)

## Account Privileges

The rights to access applications features and security areas. You can use account privileges to restrict unauthorized users from accessing parts of iFIX.

You assign account privileges to user and group accounts using the Security Configuration program.

## ACOS Function

Calculates the arccosine of the specified number. The number must be specified in radians.

### Syntax

ACOS (number)

## Active Network Path

The path (LAN connection) the View node is currently using to communicate with the SCADA server.

## Active Picture

The picture with which the WorkSpace is interacting. You can distinguish the active picture by the appearance of the title bar, which will be a different color or shade from the title bars of inactive pictures. The picture border is highlighted on active pictures without a title bar.

## Alarm Area Database

A list of the defined alarm areas.

## Alarm Areas

Physical or functional divisions of a plant that act as routing labels for alarms and messages.

## Alarm Conditions

A digital block setting that indicates when to generate an alarm.

## Alarm Destination

An enabled service on a node where alarms are routed. Alarm destinations include Alarm Printers, the Alarm File Service, the Alarm Summary Service, and the Alarm Network Service.

## Alarm Limits

Pre-defined values used by an analog block to generate alarms.

## Alarm ODBC

The iFIX Alarm ODBC Service. This service writes iFIX alarms and messages to an ODBC-compliant relational database.

## Alarm Priority

The relative severity of an alarm. You can assign a priority of INFO, LOLO, LOW, MEDIUM, HIGH, HIHI, or CRITICAL to alarms.

## Alarm Queue

Reserved memory that holds incoming alarm messages until an alarm service can process them. The size of the queue determines how many alarms can be stored. If the queue overflows, the oldest unprocessed alarms are discarded.

## Alarm Status

The state of an alarm, such as OK, High, High High, Low, Low Low, Rate of Change, Deviation, or Change of State.

## Alarm Summary Object

A real-time display of alarms. The object also provides tools for filtering, sorting, coloring, acknowledging, deleting, and pausing alarms.

## Alarming

The process by which blocks receive process data, compare the data against pre-defined alarm limits, and react to those process values that exceed these limits.

## Alarms

A potentially harmful process condition requiring a response. Typically, this happens when a process value has exceeded its pre-defined limit.

## Alarms Path

Stores alarm data files and security log files. By default, the alarms path is set to C:\Program Files (x86)\Proficy\iFIX\ALM.

## Alphanumeric Pattern

A pattern that generates alphanumeric strings for a block field. The syntax is <"string1","string2","stringX">, where *string1* is the first string, *string2* is the second, and *stringX* represents the last string in the series. Note that each string must be enclosed in quotes.

For example, you can enter <"Pump1", "Pump2", "Pump3"> as the pattern for descriptor fields when generating a number of new blocks that control these devices.

## Animation Objects

Objects that can be animated through connections to data sources. Animation objects come in three forms: linear, lookup, and format.

## Application Feature

An account privilege that allows an operator access to specific application functions. For example, the WorkSpace Run-time application feature enables an operator to access the WorkSpace run-time environment.

## Application Message

Message generated by operator actions or iFIX applications that include operator messages and recipe messages.

## Application Path

Stores data and configuration files for iFIX applications. By default, the application path is set to C:\Program Files (x86)\Proficy\iFIX\APP.

## Application User

An operator you want automatically logged into iFIX. Once logged in, operators have access to the privileges assigned to the specified user account.

## Application Validator

A utility you use to verify the versions of an application's files, and to ensure that the files associated with the application have not changed. You can run the Application Validator with or without iFIX running.

## ASIN Function

Calculates the arcsine of the specified number. The number must be specified in radians.

### Syntax

ASIN (number)

## Asterisk Wildcard Character

The asterisk (\*) wildcard character can be used to represent one or more characters in a string. To represent a single character use the question mark (?) wildcard character.

## ATAN Function

Calculates the arctangent of the specified number. The number must be specified in radians.

### Syntax

ATAN (number)

## Audit Trail

A text file that lists all recipe activity on a node. The Recipe Builder provides two types of audit trails: a summary audit trail and a detailed audit trail. The summary audit trail tracks recipe activity for an entire recipe. The detailed audit trail tracks recipe activity on individual recipe items.

## Automatic Login File

Identifies the operator to automatically log in when the specified node starts up.

## Automatic Mode

A database tag mode in which the tag is scanned by the Scan, Alarm, and Control (SAC) program. In this mode, the tag accepts data only from the poll table or other tags.

## **Available Network Path**

When iFIX is configured for TCP/IP networking, any local IP address is considered available.

## B

### Background Area

The area of the chart that surrounds the trend area.

### Background Schedule

A schedule that runs on a separate thread from the iFIX WorkSpace scripts.

### Base Path

Stores all iFIX executable files. By default, this path is set to C:\Program Files (x86)\Proficy\iFIXX.

### Bitmap

A graphic created by painting with pixels.

### Block

An individual unit of instructions capable of receiving, checking, manipulating, and outputting process values. A block can also compare a process value against an alarm limit and perform calculations based on a specific process value.

### Block Field

A location in a block that holds process data. Blocks have many fields such as their current value, name, scan time, EGU range, alarm limits, alarm areas, and security areas.

### Block Type

Blocks are organized into types based upon similar functions. Blocks capable of performing batch functions are of the batch type; blocks capable of performing statistical calculations are of the statistical type, and so forth.

The types of blocks available to your system are dependent upon the options you purchased with iFIX.

### BMP

A Windows file format for bitmaps.

## C

### Chain

Two or more blocks connected to each other. Your goal in creating a database is to chain blocks in a sequence such that each block performs a specific task and then passes its information on to one or more appropriate blocks.

### Click and Stick

A picture property that allows you to view which objects can be selected, highlighted, or modified at run-time. When enabled, as the mouse moves around the screen, a single highlighted box 'clicks' around the object if it is selectable. If the object is highlighted, you can select or 'stick' the object. In addition, if sound support is enabled, 'click' and 'stick' sounds play. Click and Stick is configured on the Picture Preferences tab of the User Preferences dialog box, and is enabled by default.

### Clipboard

An invisible data area used for temporarily holding data. iFIX makes use of its own clipboard and, for some commands, the Window Manager Clipboard.

### Collection Group

A set of tagnames for a selected node that identifies the database blocks that contain process data required for trending. You can define up to 255 collection groups with 80 different tags in each collection group.

The Historical Assign program stores collection groups in the historical data path in the following format: HTRGRP##.DAT, where ## represents the number of the group (01- 255).

### Color Box

The dialog box used to change the foreground, background, and edge colors of objects. It is also used to access and create custom color palettes.

### Color Palette

The set of colors from which you can color objects. It is also used to create custom colors.

### Color Threshold



Either a color and value combination (Color by Value) or a color and alarm state combination (Color by Alarm or Color by Latched Alarm).

For a value threshold, you specify the upper limit of the range of values that correspond to a color. When the value of the target database field is less than or equal to the threshold, but greater than all lower thresholds, the foreground, edge, or background color of the object changes to the defined color.

For an alarm threshold, you specify the color that corresponds to an alarm state. When the target database tag is in an alarm state, the object changes to the defined color.

## Common Alarm Area

An alarm area you want to share among the enabled alarm destinations on the local computer.

## Completion Status Indicator

Any analog database block used to monitor the progress of a recipe as it is downloaded or uploaded. Once you define the block that acts as a completion status indicator, you can display its value through a link or use it to post messages to an operator display using a command language script. The block must be in manual mode.

## Compression Mode

Trend charts automatically enter compression mode when a large time duration causes the total number of trended points to exceed 1,000 points. In compression mode, charts filter out a proportion of data points. There is a loss of precision when compression is enabled. If you want all the points trended to be plotted on the chart, use a shorter time duration.

## Connection Failover

Connection Failover occurs when the iClient switches its connection from one SCADA node to its partner.

## Constant Pattern

A pattern that generates a string of text for a block field. The literal pattern can contain up to 255 characters. When the constant pattern contains a punctuation mark or non-alphanumeric symbol, it must be enclosed in quotation marks (" ").

For example, you can enter "Current Value > 100", "I/O Addr. < 500", or "PLC:N7:"<766:780:1>"/15" as constant patterns.

## Contact Pattern

An eight or sixteen character text string that represents the state of the digital points controlled and monitored by the Device Control block. Each contact pattern character corresponds to an output or input address defined in the block's dialog box.

A contact pattern can be used to:

- Monitor the digital points specified in the Input box.
- Control the digital points specified in the Output box.
- Specify the Initial Value of the digital points specified in the Output box when the Scan, Alarm, and Control (SAC) program is first started.

## Contact Pattern Character

The characters that make up a contact pattern are as follows:

Character Represents	
O	An open digital point. Enter the letter O, not the number zero (0).
C	A closed digital point.
X	The current state of a digital point. Use this character if an output address is not defined or if a particular digital point's state is immaterial.

## Continuous Use

Mode used in electronic signature. When a continuous use period is in effect, the user name field in the Performed By section of the Electronic Signature dialog box contains the user name associated with the last valid signature, requiring the operator to enter only his password.

## Control Recipe

A production version of a recipe intended to be used by operators.

## Control Recipe Path

Stores control recipe, control recipe error, and control recipe report files. By default, this path is set to C:\Program Files (x86)\Proficy\iFIX\RCC.

## Controllable

When an operator can highlight an object at run-time and control its properties, the object is said to be controllable.

## COS Function

Calculates the cosine of the specified number. The number must be specified in radians.

### **Syntax**

COS (number)

### **Cross-Hair Cursor**

The cursor used to create rectangles, ovals, lines, polygons, and polylines.

# D

## Data Link

An object that allows you to display text and values from databases on a network.

## Data Source

A reference to a source of information, such as iFIX tagnames and historical files, or other OPC-compliant data servers. Additionally, a data source may consist of iFIX objects (such as shapes, charts, and variables) or 3<sup>rd</sup> party OLE controls.

## Database Builder Command Line Parameters

Program	Parameter Name	Syntax
DBBSAVE	Physical Node Name	-Nnodename
	Database	-Ddatabase
DBBLOAD	Physical Node Name	-Nnodename
	Database	-Ddatabase

## Database Path

Stores process database files, Database Builder configuration files, and I/O driver configuration files. By default, this path is set to C:\Program Files (x86)\Proficy\iFIX\PDB.

## Deadband Limit

A convenient and powerful way to compress data. It determines by how much the current collection value must deviate from the last recorded value for the system to record the value in the historical data file. For example, if the deadband limit is set to 0.5 (the default) and the first recorded value is 50, the next value recorded must be greater than or equal to 50.5 or less than or equal to 49.5.

During times when process values are changing by insignificant amounts, a deadband limit can improve system performance and decrease the amount of disk space used by historical data files.

## Disable Tag

A database tag that prevents the Auto Alarm Manager from sending alarms.

## Download

The transfer of data from a recipe to a process database on any SCADA node.

## Drilling Down

A method of changing a group's member objects by entering into the group without breaking the group.

## Driver Image Table

The Driver Image Table is an area in memory in which the I/O driver stores process data. The Scan, Alarm, and Control (SAC) retrieves this information and updates the database with it.

The Driver Image Table is built by the Driver Image Definition file, which is created when you configure an iFIX I/O driver.

## Dynamic Connections

A network option within the SCU that allows iFIX to automatically make a network connection when it needs to resolve a link. The Dynamic Connections option is disabled by default, and when enabled will affect all connections from the node.

**NOTE:** When you first connect to a remote node using a dynamic connection, you will receive a message stating that no session is established with that node. This is normal -- the dynamic connection will be established to the remote node at this time.

## Dynamo Object

A reusable graphic, stored in a Dynamo set, that contains object properties. When you paste a Dynamo from a picture into a Dynamo Set, the Dynamo object in the Dynamo Set becomes a Master Dynamo. To create an instance of this Dynamo in a picture, drag and drop the Dynamo object from the set into the picture. You are prompted to enter the appropriate animation values for the current picture. You can convert custom-built objects, links, and application scripts, such as pumps, valves, and charts into Dynamo objects.

## Dynamo Set

A collection of custom or pre-built Dynamos. iFIX contains an extensive library of Dynamo sets that you can use, or you can create your own.

# E

## Easy Database Access

A library of subroutines that provides easy access to iFIX data. EDA handles the details of memory management, error detection and recovery, networking, and so forth.

## EGU Range

The maximum and minimum process values the process hardware can measure.

## Electronic Record

Set of information containing the result of an action that required either one or two electronic signatures. This set includes the name of the person that performed the action, and the details of the action. If the action required two signatures, the set also contains the name of the person who verified the action. An electronic record can also include optional comments entered at the time of the action by both the performer and verifier.

## Electronic Signature

Computer data compilation of any symbol or series of symbols executed, adopted, or authorized by an individual to be the legally binding equivalent of the individual's handwritten signature.

## Emergency Tag

A database tag that indicates the Auto Alarm Manager could not or did not send its alarms.

## Enhanced Coordinate System

The system that defines an iFIX picture in postscript points. The Enhanced Coordinate System is provided with iFIX version 5.8 or greater.

## Environment Protection

Used to create a secure run-time environment that prevents the operator from performing unauthorized actions, including:

- Starting other applications.
- Opening unauthorized pictures.
- Switching to other applications.

- Closing the current picture.
- Exiting the iFIX WorkSpace.
- Restarting the node using <Ctrl> <Alt> <Del>.
- Switching to the WorkSpace configuration environment.
- Using the WorkSpace menu.

## Event-Based Entries

Entries in a schedule that can use any data source available to the system to trigger an action based on any of five events (OnChange, OnTrue, OnFalse, WhileTrue, WhileFalse).

## Event Message

A broadcast of database information that indicates when a Digital Input block has entered an alarm state, or an output block (Digital Output, Analog Output, Digital Register or Analog Register) has sent a value to the PLC.

An event message is similar to an alarm except that it does not require an acknowledgment.

- For output blocks (AO, DO, AR, DR) and the Text block, an event message is sent to the block's enabled alarm areas every time the output block writes a value or the Text block changes its value.
- For input blocks (DI), the block does not go into alarm, send any data to the Alarm Summary link, or require acknowledgment. It will, however, send an event message to all enabled alarm areas for that block. Links that displays the block's current alarms (A\_CUALM) and latched alarms (A\_LAALM) will still show the block's alarm state (as OK, COS, or CFN).

## Event Object

The name of the event type that will trigger the script.

## Exception

The following situations constitute exceptions:

- A change in a process value greater than the defined exception dead band.
- An unsolicited message from your process hardware.

## Exception-Based Processing

Instructions that tell the Scan, Alarm, and Control (SAC) program to process blocks by exception rather than a scheduled time interval. The Analog Input, Analog Alarm, Digital Input, and Digital Alarm blocks can use this processing method.

## Executable

The name of the file that runs an iFIX or a third party application. For example, RECIPE.EXE or EXCEL.EXE. The executable file name must include path information. A string variable can replace this parameter.

## EXP Function

Calculates the Anti-log of the specified number.

### Syntax

EXP (number)

## Expanded Decimal Notation

A format that displays measurements according to the following ranges:

Low Limit	High Limit	Numeric Type
-9999999	9999999	Signed integer

Using this format, you can specify up to six places after the decimal point. Make sure you enter the same number of decimal places in fields that require both high and low (EGU) limits. Note that this range would be  $-1E7$  to  $+1E7$  in scientific notation.

## Expert

A simplified user interface consisting of a dialog box that, when completed, executes a script to perform a task.

## Expression

Constants, data sources, or a combination of constants and data sources connected with one or more operators. Using the Expression Builder, you can create specific expressions that access data from unique sources. This gives you more flexibility when assigning dynamic object properties.

### Examples:

```
FIX32.FERMENT1.AI1.F_CV  
Picture1.Rect1.HorizontalPosition + 10  
FIX32.FERMENT1.AI1.F_CV + Picture1.Rect1.HorizontalPosition
```





# F

## Fast Path

Reserved for future use. By default, the fast path is set to C:\Program Files (x86)\Proficy\iFIX\FAST.

## Filter Condition

The criteria used by the Alarm Summary object to determine which alarms it displays.

## Flip

The process of swinging an object over the vertical or horizontal axis, as if the object were hinged to it.

## Font

A text design. The characters in a text object all have a common design.

## Format File

A binary file that defines how the spreadsheet appears on the screen. The Recipe Builder appends the extension .RFT to its format file and stores it in the directory pointed to by the local path.

## Formula

A process value represented by a numeric or string constant, a mathematical expression, a function, a variable, or a keyword. The Recipe Builder calculates the value of the formula and assigns it to the recipe item or variable specified in the Identifier column of the spreadsheet.

## Function

A mathematical operation common to most spreadsheets. The Recipe Builder provides the following functions:

- ABS
- ACOS
- ASIN
- ATAN
- COS

- EXP
- INDEX
- INT
- LOG
- LOG10
- LOOKUP
- SIN
- SQRT
- TAN

# G

## Grid

A tool for helping you lay out and align objects in a picture.

## Group Account

A group account defines the application features and security areas for multiple users. By creating group accounts, you define the account privileges most commonly needed for two or more people.

## Group Membership

Group membership defines the group account(s) that a user is assigned to in a user account. Once assigned to a group account, a user may have access to all the application features and security areas defined for the group.

## Grouped Objects

A set of objects that has been joined together with the Group command. Once you group objects into a single object, you can manipulate the group like any other object.

# H

## Handles

The small squares that surround an object when you select it. Handles are used for resizing, rotating, or reshaping objects. An object with solid handles has animations. An object with hollow handles does not have dynamic properties.

## Handshaking

The method by which iFIX nodes synchronize themselves for sending and receiving alarms over the network.

## High Level Handshake

Coordinates the activity between the database, the PLC, and the SQL System Task.

## Historical Data Path

Stores historical data files and names the subdirectory according to the name of the node. By default, the historical data path is set to C:\Program Files (x86)\Proficy\iFIX\HTRDATA.

# I

## I-Beam Cursor

Marks the start of a new text object or places the insertion cursor within an existing text object.

## Identifier Column

A column in the Recipe Builder spreadsheet that enables you to enter the tagname of a database value for which you want to apply a formula.

## iFIX Security Group

User-configured collection of iFIX Security Areas and Application Features that can be assigned to iFIX users of the same security class, such as Operators or Supervisors.

## iFIX Security Privileges

Three categories of security permissions that can be assigned to an iFIX user: Security Group permissions, Security Area permissions, and Application Feature permissions.

## Index Function

Locates the position of a string or number within a list. The position of each item in the list is zero-based, so the first item is in position zero, the second item is in position one, and so on. You can substitute a variable name or keyword anywhere you can use a number or string value. All string values must be enclosed in quotation marks (" ").

### Syntax

INDEX (number; numeric list) or INDEX (string; string list)

## Insertion Cursor

Lets you create or edit text in your pictures.

## INT Function

Calculates the integer value of the specified number.

### Syntax

INT (number)

## Intelligent Defaults

The operation iFIX uses to automatically fetch a data source based on an incomplete operator entry.

# J

## **Justify**

To line up text or numbers using the right side, left side, or center as a guide.



# K

## Keyword

A reserved name for a recipe variable. The Recipe Builder maintains a keyword for fields in the recipe header and several other options. When you complete a header field or configure an option, the Recipe Builder assigns the specified data to the keyword.

## Keyword Variable

Keywords can be used as parameter variables in SQL calls. Keyword parameter variables are handled differently. You can time/date stamp records that are inserted or updated. All records are sent with the time and date on which they were triggered as well as the node name and SQT block tag name.

To stamp the time/date on a record, the SQL command is written containing the TMDT keyword parameter variable. When the iFIX ODBC Interface task detects this, instead of replacing the parameter variables with iFIX tag values, the time and date are used. This also applies to the NODENAME (SQT block node name) and SQTBLK (SQT block name).

## L

### Language Path

Stores the language files used to create dialog boxes and help files. If you choose to implement a native language other than English, the new language and help files replace the files found in this directory. By default, this path is set to C:\Program Files (x86)\Proficy\iFIX\NLS.

### Latched Alarm

A database block's most severe unacknowledged alarm.

### Legacy Network Computing

Legacy network computing allows you to continue to use legacy (iFIX 3.5 and earlier) security with iFIX 4.0. Legacy security works on non-secure IP addresses.

### Line Style Marker

A line style marker, defined in the Line Style dialog box, displays on the trend line and is used to distinguish between overlapping trend lines or when printing in black and white. Historical data pens must either use a line style marker or show a trend line, or both.

### Links

Real-time connections to data points in the process database that are used to display or process information.

### Literal Pattern

A pattern that generates a literal string of text for a block field. Literal patterns can contain up to 255 characters and do not require quotation marks.

For example, you can enter alarms, elapsed time, and analog input from tank A as literal patterns.

### Local Node

The node at which you are physically located.

### Local Path

Stores configuration files associated with the local computer, including the SCU and Security application files. By default, this path is set to C:\Program Files (x86)\Proficy\iFIX\LOCAL.

## LOG Function

Calculates the natural log of the specified number.

### Syntax

LOG (number)

## LOG10 Function

Calculates the Base 10 log of the specified number.

### Syntax

LOG10 (number)

## Logical Coordinate System

The system that defines an iFIX picture in logical units. The Logical Coordinate System is a legacy system used primarily in iFIX version 5.5 or earlier.

## Lookup Function

Locates nth value in a list, where n is a zero-based integer. You can substitute a variable name or keyword anywhere you can use a number or string value. All string values must be enclosed in quotation marks (" ").

### Syntax

LOOKUP (n; numeric list)

-or-

LOOKUP (n; string list)

# M

## Manual Mode

A database tag mode in the value of a tag can be manually changed by the operator or through a software application.

## Masking

A technique for creating complex objects. This technique is a way of appearing to remove unwanted parts from a shape. By creating objects that match your background color and have no edge, you can make parts of a shape disappear.

## Master Recipe

A generic version of a recipe; a recipe template. Master recipes are created and modified by process engineers and have a modifiable batch size and destination.

## Master Recipe Path

Stores master recipe, master recipe error, and master recipe report files for the Recipe application. By default, this path is set to C:\Program Files (x86)\Proficy\iFIX\RCM.

## Messages

Informational text that does not require an operator response. This text could describe a system-level, application, or database event.

## Modeless

The ability of a dialog box to remain on the operator's screen even when the cursor is not in that dialog box. Typically, this applies to dialog boxes that require re-entry, such as the Color Box and some Experts.

## Modifiable

When an operator can modify an object at run-time, it is said to be modifiable.

## Multi-Pen Trend Chart

A chart that plots up to eight floating point or Trend tag values as continuous lines. This chart monitors the change in key database tag values over a prescribed duration.

# N

## Network Path

A network path is made up of a protocol and LAN card or modem. For example: TCP/IP over a LAN card, or TCP/IP over RAS.

## Network Status Display (NSD)

The Network Status Display tag contains network status information.

## Node

Any computer running iFIX software.

## Nudging

The act of moving an object by the smallest possible increment. In an iFIX picture, you can nudge objects using the arrow keys.

## Numeric Pattern

A pattern that generates numeric data for a block field. The syntax is `<start:end:increment>`, where *start* is the initial value of the pattern, *end* is the ending value, and *increment* is the number to add to the current pattern value.

For example, if you enter `<1:10:1>` as a pattern, the system generates a range of numbers from 1 to 10. An entry of `<1:20:3>` generates the numbers 1, 4, 7, 10, 13, 16, and 19.

# O

## Off Scan Status

A tag with an off scan status is not processed by the Scan, Alarm, and Control (SAC) program. When a tag is off scan, its associated database chain is also off scan.

## On Scan Status

A tag with an on scan status is being processed by the Scan, Alarm, and Control (SAC) program every scan cycle. When a tag is on scan, its associated database chain is also on scan.

## One-Shot Processing

One-shot processing instructs the Scan, Alarm, and Control (SAC) program to process a block once. This processing method is similar to exception-based processing, except that the block will not trigger again unless SAC is restarted, the database is reloaded, or the block is turned off scan and then turned back on scan. Any block with a scan time can be configured for one-shot processing.

## Operator Message

A broadcast of information generated whenever an operator uses a mouse, keyboard, or touch screen to input to a iFIX application.

## Operators

The Recipe Builder provides the following set of operators common to many spreadsheet programs:

Operator	Syntax
( ) (parentheses)	(expression)
- (unary minus)	-number
^ (exponentiation)	number^number
* (multiplication)	number * number
/ (division)	number / number
+ (addition)	number + number

- (subtraction)	number - number
< (less than)	number < number
<= (less than or equal to)	number <= number
> (greater than)	number > number
>= (greater than or equal to)	number >= number
!= (not equal to)	number != number
= (equal to)	number = number

**Order of Solve**

The order in which SAC scans database blocks.

**Overphase**

A phase that is longer than its scan time.

**Override Limit**

The highest or lowest possible override value an operator can enter into a recipe. Each recipe has two override limits, the high override limit and the low override limit. The Recipe Builder verifies the override value is within the high and low limit range before it accepts the override value.

**Override Value**

An alphanumeric value you enter in place of a recipe item's or variable's calculated value. Any formula that references an overridden variable is recalculated using the override value. When a recipe is downloaded, the override value is sent to the database in place of the calculated value.



# P

## Part 11

Shorthand term referring to the 21 CFR Part 11 regulation.

## Pattern

A pattern acts as a programming statement for generating a range of numeric or constant values. The specific values generated by the pattern replace block field entries. For example, you can generate a range of block addresses for multiple blocks by entering a pattern for the I/O Address field. Each pattern can be up to 255 alphanumeric characters, including the angle brackets.

You can use a pattern to generate numeric data, alphanumeric data, literal strings, or constant strings in block fields.

## PDB

A process database, such as the iFIX tag database.

## Pen

A pen represents a floating-point value or tag that is displayed in a chart link.

## Phase

A phase is a unit of time that offsets the processing of a block from its defined scan time. Specify a phase that is the same unit of time and/or one unit of time lower than the unit of the scan time. The order of units is in hours, minutes, seconds, and subseconds.

Valid phase entries are as follows:

If the scan time is...	The phase time can be...
Hours	Hours:Minutes
Minutes	Minutes:Seconds
Seconds	Seconds
Subseconds	Subseconds

## Phasing

Phasing staggers the times at which SAC scans your primary blocks. You can use phasing with time-based processing to make more efficient use of CPU time and ensure that certain blocks are scanned before others.

Phasing offsets the processing of a block from its defined scan time. For example, if you have three blocks with a scan time of five seconds, SAC attempts to process all three blocks simultaneously. However, if you add a phase time based on one second increments, SAC evenly distributes block processing according to the phase time. For example (based on a 09:00 startup time):

Scan Time	SAC Processing	Phased scan time	SAC Processing
Block 1: 5S	09:00, 09:05, 09:10, etc	Block 1: 5S scan time, no phase	09:00, 09:05, 09:10, etc
Block 2: 5S	09:00, 09:05, 09:10, etc	Block 2: 5S scan time, 1S phase	09:01, 09:06, 09:11, etc
Block 3: 5S	09:00, 09:05, 09:10, etc	Block 3: 5S scan time, 2S phase	09:02, 09:07, 09:12, etc

## Picture Coordinate Systems

The system that defines an iFIX picture in either logical units or postscript points. The supported coordinate systems include:

- The Logical Coordinate System - a legacy system (primarily iFIX 5.5 or earlier) that measures screen resolution in logical units.
- The Enhanced Coordinate System - a newer coordinate system that provides independence from restricted screen resolutions and is provided with iFIX 5.8 and greater. The Enhanced Coordinate System measures screen resolution in postscript points.

## Picture Path

Stores picture files, Dynamo files, tag group files, macro files, block status display files, and WorkSpace configuration files. By default, the picture path is set to C:\Program Files (x86)\Proficy\iFIX\PIC.

## Pitch

The width of a character.

## Pixel

Short for *picture element*. A pixel is one of the tiny dots that make up a monitor screen.

## Point

A measure of size. One point is equal to 1/72 of an inch.

## Polygon

A closed graphic object consisting of three or more sides.

## Polyline

Two or more connected line segments.

## Primary and Secondary Contacts

Remote Access Service (RAS) phone book entries that the Auto Alarm Manager dials when it reports alarms. Each phone book entry defines a phone number for a receiving node.

## Primary Block

A block that receives data from an I/O driver or OPC server. Primary blocks are usually associated with one or more pieces of I/O hardware and are always the first block in a chain.

## Primary Node

The SCADA node you want the local View node to communicate with initially.

## Primary SCADA

The SCADA node from which the View node will initially try to read and write data.

## Process Database

A data file that holds all the data from your process hardware. It is the primary source of data for most iFIX applications.

## Program Block

A powerful means of running short programs to increase the degree of automation in your process or to assist in batch control.

## Project

A grouping of application files, such as pictures, databases, and tag groups, saved in a specific folder identified by the project name.

You define the project name and path from the Path Configuration dialog box in the System Configuration Utility (SCU).

## **Project Path**

Stores specific application files, such as pictures, databases, and tag groups. By using project paths you can manage application files on a project-by-project basis.

The default value for the Project Path is the base path.

## Q

### Qualifier Block

An optional database block, usually a Digital Input or Digital Output block, used to determine when the data collection state for the collection group is on or off. When the digital block goes from Open to Close, data collection starts for the group. When the digital block goes from Close to Open, data collection stops.

If the Qualifier block is not a digital block, then the block's current value is the start and stop qualifier. A value of 0 stops collection. Any value other than 0 starts collection.

**NOTE:** You cannot use a Digital Register block as a qualifier block.

### Query

A request to the Database Manager to display one or more blocks from the database.

# R

## Recipe

A set of rules for changing one or more process values to specific database blocks.

## Recipe Development Window

One of two windows that the Recipe Builder provides for displaying recipes. This window provides full access to all recipes and is intended for the process engineer who must create, modify, and maintain master recipes and control recipes.

## Recipe Item

A process value identified by a tagname or a symbol. Each recipe item contains nine fields. These fields define the item and include information such as the recipe item identifier, description, value, and unit of measure (UOM).

## Recipe Message

A broadcast of information generated whenever the Recipe application performs an operation, including uploading, downloading, or saving a recipe.

## Recipe Note File

A text file that can provide instructions, comments, version information, or any other data you want to save about the recipe. The name of each recipe note file matches the name of the recipe associated with it. The extension .RCN is appended to each recipe note file name. Recipe note files reside in the directory pointed to by the control recipe path.

## Recipe Operations Window

One of two windows that the Recipe Builder provides for displaying recipes. This window provides limited control recipe access and is intended for operators who must download control recipes or override a value.

## Recipe Package Command Line Parameters

Use the following parameters with the iFIX Recipe executable, RCP.EXE:

Parameter Name	Syntax
Batch Size	/bbatch_size
Control Recipe	/ccontrol_recipe
Error File	/e
Command Line File	/ffilename
Tag Group	/gtag_group_filename
Batch ID	/ibatch_id
Master Recipe	/mmaster_recipe
Download Remarks	/rremarks
Master Recipe Text	/xmaster_text_filename
Control Recipe Text	/ycontrol_text_filename
Override	variable=value

## Recipe Report

A text file that lists each column present in the recipe and the data in each column.

## Recipe Variable

A user-defined string or numeric parameter used to represent an internal value. In a recipe, variables are never downloaded to the database. Variables can be used in formulas of recipe items or other variables to represent the necessary process values.

## Rectangle Selector

The visible line that appears when a group of objects is selected. Also known as a bounding outline.

## Reentrance Functionality

A property of certain Experts that allows you to exit the Expert in the iFIX WorkSpace and then go back and use the Expert later, without having to reopen the Expert.

## Refresh

To redraw the screen.

## Register:Bit

Register or Register:Bit addresses are used to select I/O addresses provided by the SIM Driver. The SIM driver provides 2000 sixteen-bit registers which can be accessed from database blocks as I/O addresses. They can also be addressed from parts of certain blocks, such as STEPS of the Program or Device Control blocks. The data in the registers can be addressed a word at a time (as Analog data) or a bit at a time (as Digital data).

For...	The ranges are...
Analog Values	Register: 0 to 1999, Bit: not used
Digital Values	Register: 0 to 1999, Bit: 0 to 15

## Examples

The following specifies SIM register number 42:

42

The following register:bit specifies the 13th bit (starting with Bit 0) in the 10th register:

10:12

## Relational Database

Standard database, such as Microsoft SQL Server or Oracle.

## Remote Access Service (RAS)

Software developed by Microsoft and distributed with Windows that allows a modem to act like a network card so that a remote machine can dial in and participate in a local area network.

## Remote Node

Any node on the network that is not the local node.

## Replacement String



A user-defined piece of text that the Database Manager inserts into a cell when searching and replacing data.

## Reshape

To move a point in a polyline or polygon.

## Resolve

A method of updating the tag definitions in a picture or schedule without querying the database. Database information for each tag in a picture is saved as part of the file on disk. When a picture or schedule is displayed in the run-time environment, and the database information is not up to date, the iFIX WorkSpace has to query the database and resolve the tag definitions; a time consuming process.

Resolving in the configuration environment eliminates the need for the iFIX WorkSpace to query the database. The end result is that the picture or schedule opens faster in the run-time environment.

# S

## SCADA Failover

SCADA failover occurs when the active SCADA node changes to standby and the standby SCADA changes to active. SCADA failover can be initiated automatically or manually.

## SCADA Node

A SCADA (Supervisory, Control, And Data Acquisition) server is a node that loads a process database in memory and collects process information from one or more control devices. A SCADA server can return process information to the control devices to automate and control a process. All SCADA servers run the Scan, Alarm, and Control (SAC) program in order to process the database.

## Scan Time

A user-defined interval at which the Scan, Alarm, and Control (SAC) program processes a block and any blocks chained to it.

## Scan, Alarm, and Control (SAC)

A program that retrieves process information from an I/O driver or OPC server. Using the data it receives, SAC updates blocks in the database and process alarms. SAC also returns corrective values from the database to a control device.

## Scientific Notation

The scientific notation format displays measurements according to the following ranges:

### Low Limit

+/-3.4E-38

### High Limit

+/-3.4E+38

### Numeric Type

Exponential

**NOTE:** Use this format to display very large or very small numbers. Only the first seven digits are accurate. If you prefer, you can also use scientific notation for numbers that iFIX can display in decimal notation. Using decimal notation with scientific notation, you can specify up to six places after the decimal point.

## Screen Saver

Pattern or animated image that displays on a computer's desktop after a user-configured period of mouse or keyboard inactivity.

## SCU File

The SCU file contains information that the iFIX Startup program needs to configure your node. When you run Startup, it reads the SCU file and uses the information to run several system tasks. iFIX only uses the SCU file during startup, so most changes you make to the file while the system is running will not take effect until you stop and restart iFIX.

## Search String

A user-defined piece of text that you want the Database Manager to locate.

## Secondary Block

A block that receives input from an upstream block and performs a specific function with the input. For example, a secondary block can perform a calculation or store several successive inputs.

## Security Area

A physical or functional division of your process that allows you to restrict access to schedules, recipes, operator displays, and write-protect database blocks. Security areas can be process hardware (such as pumps or ovens) or utilities (such as fuel, water, or steam), or maintenance functions.

You can define up to 254 security areas, which are identified by number. Associated with each number is a name of up to 20 alphanumeric characters. By default, iFIX names the first 16 security areas A through P.

## Shared Threshold

A threshold that is shared in either a global data source or in another picture.

## Simulation (SIM) Driver

A matrix of addresses where values are written to and read from. If one block writes to a specific address, other blocks can read the same value from the same address. SIM points are saved in the process database itself but are cleared when SAC is started or when you reload the database. Refer to the *Building a SCADA System* manual for more information.

## SIN Function

Calculates the sine of the specified number. The number must be specified in radians.

### **Syntax**

SIN (number)

## **Site-Specific Authentication**

Provides security for a network and prevents non-certified iFIX installations from communicating in that network.

Site-specific passwords are used to validate and authenticate network transmissions allowing you to set up multiple secure networks with different certificates, thus isolating iFIX networks from each other. Non-configured, or default installations, cannot be used to intercept or initiate communications in a secure network.

## **Slider**

A scroll bar used to adjust a value along a range.

## **Snap to Grid**

A grid that forces the top left-hand corner of a new or moved object to line up with a grid point.

## **Sort Order**

The order in which the Database Manager organizes and displays spreadsheet data.

## **Special Purpose Link**

A special object that allows you to add push buttons or alarming information to your displays. Special purpose links generally behave like grouped graphic objects even though they can't be ungrouped. These links include the Push Button and Alarm Summary links.

## **Spin**

To rotate around a center point that is inside the rotating object.

## **SQL Data**

An data that you want to display in a chart from a relational database. The data is retrieved using the Open Database Connectivity (ODBC) interface. SQL data can be displayed in the same chart with historical or lab data.

## SQL Library Table

Contains the SQL commands to be executed.

## SQL Login Account

Allows the iFIX node to connect to a relational database. This account, defined in the system Configuration Utility (SCU), identifies the following elements:

- Database Identifier, or Open Database Connectivity (ODBC) data source, that specifies the name of the relational database.
- User name for login purposes.
- Password for login purposes.

The iFIX SQL system task does not need to be running to create an SQL login account.

## SQRT Function

Calculates the square root of the specified number.

### Syntax

SQRT (number)

## Stacking

A technique for creating complex objects. In an object-oriented environment, moving one object on top of another does not erase the object underneath. You can stack many objects on top of each other. In this way, you can stack simple shapes to create a complex shape. When you select and group the stack, it becomes a new object.

## Standard Integer Format

The standard integer format displays measurements according to the following ranges:

Low Limit	High Limit	Numeric Type
-32768	32767	Signed Integer
0	65535	Unsigned Integer
0	999	3BCD

0	9999	4BCD
0	4095	12 Binary
0	32767	15BN

## Startup Profile Manager

Utility that allows you to associate a Windows user with a specific iFIX Project Configuration.

An iFIX Project Configuration is the SCU file and node name combination that you want the iFIX Startup dialog box to display when the specified user launches it. In the iFIX Project Configuration, you can also define whether the user can modify these fields.

## Subsecond Scan Time

The Scan, Alarm, and Control (SAC) program is automatically set to run subsecond scan time processing (.05 to .95 seconds). No additional changes are required.

## Symbol

Placeholders for data sources or text in a picture. If entering a symbol in a picture, type an at sign (@) at the beginning and end of the symbol name to allow the iFIX software to differentiate tag group symbols from ordinary text. If defining symbols in the Symbol column of the Tag Group Editor, you only need to enter the symbol name.

## System Alert Message

A message that pops-up to inform operators of an error. For example, if an alarm queue overflows, a system alert message appear to warn the operator that one or more alarms have been lost.

## System Configuration Utility

The System Configuration Utility (SCU) is a tool for creating a file that contains specific information about programs and options, including:

- Where to find files.
- Which nodes to establish network connections with.
- Where to send alarm and operator messages.
- Which I/O drivers to load.
- Which SCADA options to use.

- Which database to load.
- Which programs to execute.

## **System Extension Toolkit (STK)**

A software module that puts a tag.field interface on an arbitrary data source.

## **System Menu**

The menu located in the currently opened picture's title bar with controls that allow you to perform such window-related actions as Restore, Move, Size, Minimize, Maximize, Close, and Next. The system menu can be disabled or enabled (if the picture's title bar is also enabled) in the Picture dialog box.

# T

## Tag

Individual units of instructions stored in the database that are capable of receiving, verifying, manipulating, and outputting process values. Tags can also compare a process value against an alarm limit and perform calculations based on a specific process value.

## Tagname

The information needed to access database data. A tagname consists of a node name, database block (tag) name, and field name in this format:

NODE:TAG.FIELD

## TAN Function

Calculates the tangent of the specified number. The number must be specified in radians.

### Syntax

TAN (number)

## Task Wizard

An organizer that allows you to access, customize, and run iFIX Experts by choosing a category and a task specific to that category.

## Threshold

A range of values or an alarm state associated with a particular color.

## Time

In a time-based processing entry, the time parameter can be:

If the range is...	SAC scans the block every...
.05 to .95 seconds	.05 seconds (.05, .10, .15 and so on)
1 to 60 seconds	1 second
1 to 60 minutes	1 minute
1 to 24 hours	1 hour

## Time-Based Processing



Time-based processing instructs the Scan, Alarm, and Control (SAC) program to process blocks at a set time.

SAC bases hour and minute scan times on the system clock of the node on which the chain exists. Scan times are set relative to midnight (00:00:00 hours). SAC bases second and subsecond scan times on the system startup time. Keep this in mind when you enter times for phasing.

To use time-based processing, define the blocks time-based scan time in the Scan Time field in the following format:

```
time unit
```

**NOTE:** When you use time-based processing in chains that include multiple primary blocks, enter 0 in the Scan Time field and clear the Start Block on Scan field of primary blocks that are not the first block in the chain.

## Time Stamp

The time and date the alarm was generated.

## Time Unit

Used with time-based processing to define how often the Scan, Alarm, and Control (SAC) program scans the block and retrieves values. Valid entries for a time unit are as follows:

- .05 to .95S (sub-seconds)
- 1 to 60S (seconds)
- 1 to 60M (minutes)
- 1 to 24H (hours)

If you enter a time unit without an S (seconds/sub-seconds), M (minutes), or H (hours), SAC assumes the entry is in seconds.

## Tolerance

The allowable deviation from a value when evaluating an expression, data source, or other animation.

## Tool Box

Contains buttons that execute iFIX WorkSpace menu commands. You can customize the contents of the Tool Box, the order of the buttons, and the size of the Tool Box.

## ToolTips

When enabled, each button on the Tool Box displays a ToolTip. The ToolTip appears when the cursor rests on a Tool Box button. It displays the command that the button performs. By default, ToolTips are enabled. You can enable and disable ToolTips by selecting the Tool Box Setup command on the Tools menu.

## **Trend Area**

The area of the chart where the trend lines and grids display.

## **Trend Line**

Displays historical process data collected on a tagname.

## **Trusted Computing**

Trusted computing means that connection authentication is enabled for the communications server receiving the incoming connections. All incoming connections on a secure communications IP address must meet the secure communications requirements.

# U

## Unit

In a time-based processing entry, the unit parameter can be:

Unit	Entry
Seconds	S (default)
Minutes	M
Hours	H

For example: 20S or 15M or 2H

The time that you assign to a unit must be a valid time range for the unit. For example, the seconds unit accepts a range of 1 to 59 seconds. Anything beyond 59 seconds is in the minute range. Units cannot be combined. You must enter a valid time followed by an S, M, or an H.

## UOM

The unit of measure used by a recipe item.

## Update Window Location

A picture operation that allows you to preserve the current view of the picture so that, after being saved and then reopened, it will look exactly the same way it did when created.

## Upload

The transfer of data from process databases on any SCADA node to a recipe.

## User Account

Provides individual access to group accounts, security areas, and application features. Each user account is identified by a full name, login name, optional password and optional timeout specification.

The Security Configuration program lets you specify a user account to automatically log in an operator or you can have each user log in manually with the Security Login program.

## User Profile

A user profile identifies the SCU and node name that you want to load when the specified user attempts to start iFIX.

You define user profiles in the Startup Profile Manager, which you can access from the iFIX WorkSpace system tree.

# V

## Variable

A user-defined string or numeric parameter used to represent an internal value. In a recipe, variables are never downloaded to the database. Variables can be used in formulas of recipe items or other variables to represent the necessary process values.

## Viewport

When a window cannot display the entire contents of a picture file, the window is said to be the viewport. The viewport allows you to see part of the file. You use scroll bars to move to other parts of the file into the viewport.

# W

## Wizard

A process assistant that consists of a series of dialog boxes that, when completed, performs a task.

# X

## X Axis

The X axis (time axis) is the horizontal line at the bottom of the chart that displays the times associated with the data displayed in the chart.

## Y-Z

### Y Axis

The vertical line on the left side of the chart. The Y axis has labels that display EGU limits assigned to each tagname displayed in the chart.

### Y Axis Label

The Y axis label on a Multi-Pen chart displays the limit range associated with one of the eight pens displayed in the link. For example, pen 1 may have a limit range of 1 to 100, while pen 2 may have a range of 1 to 120. The label on the Y axis, when included in the chart, displays the limit range of pen 1 when pen 1 is selected.





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