



Web Based Information Portal

Guide Form Specification

GFT-525

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1 Overview

1.1 Purpose

The purpose of this document is to provide the necessary description of the Web Information Portal” that will be a major component of the plant information management solution. This description will be used to qualify available products in terms of functionality, capability and other operating requirements. Ultimately this description will be sufficient to allow bidders to identify technology that match or exceed the desired capabilities.

1.2 Definitions

- Applet: A java client application run inside a web browser
- JRE: Java runtime environment, provides support for the browser to run java applets
- HMI: Human Machine Interface. Used to gather data from a wide variety of devices, animate the process/machine graphically based on the data, accept user requests and publish the data to a wide variety of other automation software. Also commonly referred to as HMI or Human Machine Interface.
- Network: An interconnected group of nodes, a series of devices, nodes or stations connected by communications channels.
- Operating System: A program that controls the entire overall operation of the system hardware / software.
- Project: Includes all of the hardware and software components needed for the application. This may include PLCs, Computers, operator interface panels, motion controllers, etc.
- Servlet: A java based server application based on a application server such as Tomcat
- TCP/IP: a protocol widely used across Ethernet networks for connecting computers and programmable controllers.
- Web Browser: A client application that provides a user interface via the World Wide Web. Netscape and Microsoft Internet Explorer are two popular examples.

2 Technical Requirements

2.1 System Architecture

The Web Information portal shall be a web based, thin client application written to the Sun java J2SE specification. All client functions including screen development, display, administration and query development shall be performed using a web browser from any location.

The web portal servlet shall connect to the web clients via Http or javaRMI using a commercially available webserver

2.1.1 Server System Software

The portal servlet shall be supported on Microsoft Windows 2000 (Professional or Advanced Server), Windows XP Professional, or Windows 2003 operating systems.

The web server for the application shall be either Microsoft IIS v5 or above, or Apache Httpd webserver 1.3 or above.

2.1.2 Client System Software

The portal client shall be supported on Microsoft Windows NT4 (SP6), 2000 (Professional or Advanced Server), Windows XP Professional, or Windows 2003 operating systems.

The web browser for the application shall be Microsoft IE v5.5 or above, or Apache Httpd webserver 1.3 or above.

All applets shall use the Sun JER 1.4.2 (any sub point version), and shall not require it's version to be the default version for the client

2.1.3 Hardware Requirements -- for server

The system shall be capable of operating on a minimum configuration of:

- 500 MHz Pentium-based workstation
- 128 MB RAM
- 750 MB hard disk space
- TCP/IP Network protocol-based workstation

Optionally, the system shall also be capable of supporting:

- Additional RAM memory
- Larger hard drive
- Support of multiple port serial add-on boards
- High-speed PLC communication cards
- Touch-screen monitor

2.2 Application Capabilities

2.2.1 Content Development

- 2.2.1.1 The portal shall generate the web site and its content in a configurable environment that requires no use of scripting, by using drag and drop and dialog boxes
- 2.2.1.2 Content shall be able to be build in “development mode”, or by the user through interactive drag and drop of data and components onto pages.
- 2.2.1.3 Content shall be developed directly within the web browser without requiring third party development tools.
- 2.2.1.4 Screens from iFIX HMI/SCADA systems shall be able to be used as the basis for portal content
- 2.2.1.5 External content shall be hosted in the portal via URLs.
- 2.2.1.6 Content development shall require no knowledge of HTML or typical web development environments.
- 2.2.1.7 Content shall be saved and made available on the site by the content developer, without a separate publishing process
- 2.2.1.8 The map of the web site and navigation between pages shall be automatically created and maintained when generating the content. Changes to the navigation tree shall be propagated and available to all users without changes to other displays or pages
- 2.2.1.9 The navigation tree shall be customized according to the user and their membership in roles

2.2.2 Connectivity

- 2.2.2.1 The portal shall be able to connect to real time data sources, including iFIX, FIX32, CIMPLICTY HMI, and OPC DA
- 2.2.2.2 The portal shall be able to connect to historical data sources, including Proficy Historian and CIMPLICTY HMI Logger and OSI PI
- 2.2.2.3 The portal shall be able to connect to SQL based data sources, with native connections to Oracle, SQL Server, DB2, ADO and ODBC.
- 2.2.2.4 The portal shall support the use of other jdbc drivers.

2.2.3 Security

- 2.2.3.1 Authentication of user passwords shall be via the operating system, either locally, or through a domain
- 2.2.3.2 Administration, SQL building and the client applet shall all support security privileges which allow a user to access the applet and perform specific features
- 2.2.3.3 Users shall be grouped into roles. Each role also has application privileges assigned to it.
- 2.2.3.4 A user shall inherit all the rights from a role that they do not already have.

2.2.3.5 A special navigation tree shall be available for each role

2.2.3.6 Credentials passed to a data source shall be either default, based on role membership, or be the currently logged in users credentials

2.3 Applicable Standards

2.3.1 Where appropriate the offering must be compliant with OPC, OLE DB, SQL or other stated industry standards.

2.3.2 Where appropriate the offering must be compliant with web based standards.

2.4 Documentation

2.4.1 The system shall provide complete user documentation, including examples of how to operate the various modules within the system. The documentation must be in electronic format, HTML based with the ability to search for topics by keyword or search for specific text.

2.4.2 The online help system in the product needs to be context sensitive such that immediate help is available for the selected functionality.

2.4.3 Product Documentation must be available on the vendor's web site for users to download.

2.5 Sample System

The vendor shall provide a set of samples to assist a user in using the software for the first time.

3 Functional Capabilities

3.1 System Development Capability

3.1.1 Display Components

3.1.1.1 The portal shall include the following components for building content and applications

- Text object
- Image Object
- Shapes
 - Line
 - Polyline
 - Polygon
 - Rectangle
 - Rounded Rectangle
 - Oval
 - Arc
 - Chord
 - Pie
- Charts
 - Time Chart
 - XY Chart
- Category Charts
 - Line Chart
 - Bar Chart
 - Pie Chart
- Variable SPC charts
 - X-Bar Chart
 - Range Chart
 - Sigma Chart
 - XBar-R Chart
 - XBar-S

- Moving XBar
 - Moving Range
 - Individual Chart
 - Histogram
- Attribute Charts
 - Pareto Chart
 - P Chart
 - NP Chart
 - C Chart
 - U Chart
- Correlation Chart
- Event Chart
- Controls
 - Combo Box
 - List Box
 - Text Box
 - Time Control
 - Button
- Links
 - Data Link
 - Hyperlink
 - Time Link
- Grid
- Historian Grid
- Hierarchical Tree
- iFIX Alarm Analysis

3.1.1.2 Each component can be formatted to set properties such as color, font etc

3.1.1.3 The time chart shall allow the selection of multiple pens, with each pen coming from an independent data source, with separate X and Y axis settings

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3.1.2 Application Building

3.1.2.1 Components shall be graphically positioned on the screen by dragging and resizing them

3.1.2.2 Component properties may be connected together via a simple dialog box, without requiring the use of scripts

Connected properties shall include

- Current Selection in the component
- Start and end times for the component or pens
- Parameters for SQL statements
- Select properties of the component

3.1.2.3 Components shall be able to perform actions. The following command actions shall be supported

Close Digital	Close a digital tag by sending a one to the specified data source.
Close Picture	Close an open display.
Load Event Group	Load an event group.
Load Pen Group	Load a pen group.
Load Symbols Command	Load a symbols file.
Login	Log into Proficy Portal. Logs out the current user and logs in the user set in the Login Command dialog box.
Logout	Log out of Proficy Portal.
Open Digital	Open a digital tag by sending a zero to the specified data source.
Open Picture	Open an analysis display or URL, or loads a symbols file.
Print	Print the current analysis display.
Replace Picture	Replace the current analysis display with the specified display or URL.
Toggle Digital	Toggle the value of a digital tag.
Write Value	Send data to the specified data source. The value written can be a fixed value, obtained from the property of the current object, or from the user at run-time.

3.1.2.4 The follow events shall be configured to trigger actions

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mouseClicked	The user clicks an object with the mouse.
actionPerformed	The user performs an action on the object. For example, a selection is made from a combo box.
valueChanged	A value has changed. For example, a value is updated in a list box.
enterKeyPressed	The user presses the enter key.
chartTimeChanged	The user updates the time on a Time chart.
timeDateChanged	The user updates the time/date on a Time Component object.
gridCellSelectionChanged	The user selects a cell on a grid.
gridColumnSelectionChanged	The user selects a column on a grid.
gridRowSelectionChanged	The user selects a row on a grid.
gridDataChanged	The data on a grid has changed.
gridTimeChanged	

3.1.3 SQL Support

3.1.3.1 The portal shall support connection to SQL data sources through jdbc

3.1.3.2 Jdbc drives shall be pre-installed for Oracle, SQL Server, DB2, and ADO/ODBC. Additional drivers shall be able to be added to the system

3.1.3.3 The portal shall provide a graphical environment for building SQL statements so that detailed knowledge of SQL is not needed, just an understanding of the data table

3.1.3.4 Joins between tables shall be able to be made graphically

3.1.3.5 A wizard shall be provided for building WHERE and HAVING criteria, and for defining expressions

3.1.3.6 The SQL connector shall be able to access Tables, View and stored procedures

3.1.3.7 SQL Statements shall be able to be parameterized

3.1.3.8 The results of a SQL statement shall be able to be cached on the server

3.1.3.9 SQL statement support shall be customized to the specific data base but shall include

SELECT	SELECT statement.
SELECT DISTINCT	Omit Duplicate Records

INSERT	INSERT statement.
UPDATE	UPDATE statement.
DELETE	DELETE statement.
CALL	CALL statement.
WHERE	Set a filter condition
SUM	Sum a Group column
MAX	Return the maximum from a Group column
MIN	Return the minimum from a Group column
AVG	Return the average from a Group column
GROUP BY	Group a column
COUNT (*)	Return the number of records in a group column
HAVING	Filter for column grouping

3.2 Runtime / Execution Capability

3.2.1 Interactive Analysis

3.2.1.1 The user shall be able to create new content, or modify existing content by adding, changing or removing data sources while in runtime mode

3.2.1.2 Modified displays shall be able to be saved, depending on security

3.2.2 Run time substitutions

3.2.2.1 At run time sets of data sources, parameters and properties shall be able to be loaded, or reloaded with symbol substitutions

3.2.2.2 Symbol files shall be able to be loaded prior to the display being opened, or interactively from the display

3.2.3 Data Export

3.2.3.1 Display components shall be able to export data for use by other applications

3.2.3.2 Data export shall be to CSV file, to the server, the client or the clipboard

3.2.3.3 SPC charts shall be able to export data directly to Minitab

3.2.4 Printing and Reporting

- 3.2.4.1 Displays shall be able to be either printed, previewed or saved as reports
- 3.2.4.2 Any page shall also be able to be a report
- 3.2.4.3 When creating a report a header and footer page shall be able to be defined that are linked at report generation time
- 3.2.4.4 Horizontal page breaks, invisible on the screen shall further format the output
- 3.2.4.5 Grids shall be configurable to expand horizontally and vertically when part of a report
- 3.2.4.6 Reports shall be previewed and saved in Adobe PDF format
- 3.2.4.7 Displays shall be able to be captured as screenshots
- 3.2.5 Loading Data sources
 - 3.2.5.1 Chart components shall be able to load or save preconfigured sets of data sources as pen groups directly from the display during runtime
 - 3.2.5.2 The event chart shall also be able to load and save events as event groups
- 3.2.6 Setting Time
 - 3.2.6.1 Time based components shall be able to set individual time ranges for each data source, or use component wide time
 - 3.2.6.2 Components on a display shall be configurable to synchronize to display time
 - 3.2.6.3 Time shall be able to be set using time short cuts such as “1 hour ago”
 - 3.2.6.4 Named time ranges shall be configurable for the application

3.3 Networking

- 3.3.1 The system shall support TCP/IP network protocol
- 3.3.2 The Portal shall communicate to its clients using a mixture of TCP/IP, Http, SOAP/RMI and JaveRMI
- 3.3.3 The Portal shall be firewall friendly and require only port 80 to be open

3.4 Scalability

- 3.4.1 Client Scalability

A single server shall be able to support up to 100 clients

3.5 Multi-language Support

- 3.5.1 Where appropriate the system must support multiple languages with a minimum of re-configuration or user adaptation.
- 3.5.2 Language Support shall include both single byte and double byte languages
- 3.5.3 Language shall be configurable per user

3.6 Diagnostic Tools

3.6.1 Runtime system diagnostics must be provided.

4 System Acquisition & Management

4.1 Licensing

- 4.1.1 It shall be possible to license all components from a single hardware dongle connected to the server
- 4.1.2 The licensing mechanism shall be per concurrent user connections. It shall be possible to reserve sessions for specific users

4.2 Security

- 4.2.1 The security system shall control access to the applets based on the user and there role membership
- 4.2.2 Access to applet functions shall be defined as follows

Administration	<ul style="list-style-type: none"> • Run - allows the user (or users belonging to the role) to view the Administration application, but not make changes to it. • All - allows the user (or users belonging to the role) full access (view and make changes) to the Administration application. Selecting this option automatically selects the Run option.
Proficy Portal Client	<ul style="list-style-type: none"> • Run - allows the user (or users belonging to the role) to run, but not configure displays in the Portal client. • Access Application Preferences - allows the user (or users belonging to the role) to set Application-level preferences. • Switch to Configuration - allows the user (or users belonging to the role) to switch to the configuration environment, to edit displays. • Save Run-time Configuration - allows the user (or users belonging to the role) to save changes made to a display in the run-time environment. • Save Pen Groups - allows the user (or users belonging to the role) to save any changes to the display's pen groups and to create new pen groups. • Save Event Groups - allows the user (or users belonging to the role) to save any changes to the display's event groups and to create new event groups. • Manage Folders - allows the user (or users belonging to the role) to manage folders in the system tree. • Manage Web Links - allows the user (or users belonging to the role) to add, remove, or modify web links in the system tree. • Allow Export of Data - allows the user (or users belonging to the role) to export data from a Proficy Portal display. • Allow Data Writes - Allows user (or users belonging to the role) to write to data sources. • Access Data sources From System Tree - allows the user (or users belonging to the role) to access data sources from the system tree. • Run-time Object Creation - allows the user (or users belonging to the role) to create objects in the run-time environment. • All - allows the user (or users belonging to the role) to access all options within the Portal client. Selecting this option automatically selects all the options.
Statement Builder	<ul style="list-style-type: none"> • Run - allows the user (or users belonging to the role) to view, but not make changes in the Statement Builder.

- | | |
|--|---|
| | <ul style="list-style-type: none">• All - gives the user (or users belonging to the role) full access (view and make changes) to the Statement Builder. Selecting this option automatically selects the Run option. |
|--|---|

4.3 Administration

- 4.3.1 Administration functions shall be available only to those users belonging to the administrator role, or to those granted permission for the specific administrative function.
- 4.3.2 Administration of the system needs to be possible from any client. The user must have appropriate permissions to access these functions.

5 Service and Support

5.1 Training

5.1.1 Both on-site and off-site training may be required for x number of personnel. The manufacturer of the equipment/software or an authorized training partner of the supplier must provide trainers and training material.

5.2 Installation Services

5.2.1 The vendor shall have the ability to provide qualified consulting and installation services. These services need to be provided either by the vendor or via certified partners. Services include:

- Site Assessment
- Consultation
- Implementation
- Assistance and turnkey
- Validation services

5.2.2 Global Services

5.2.3 Vendor needs to be able to provide service and support the installations locally worldwide.

5.3 On-line Support Contact

5.3.1 The manufacturer or its authorized representative shall provide complete technical support for all of the products. This shall include headquarters or local training, regional application centers, and local or headquarters technical assistance. A toll-free (800) number shall be available for technical support.

5.4 Warranty

5.4.1 Vendor shall provide the option to purchase support contract. This contract is to include:

- Telephone and Email support Mon-Fri 8:00AM to 8:00PM EST
- 24x7 Emergency Support
- Software Upgrades
- 24x7 Access to web based technical and support information

5.4.2 The vendor shall have a location on their web site where users can download software improvements, bug fixes, add-ons, components and so forth.

5.4.3 The vendor shall provide an easy mechanism for upgrading and installing software improvements and for allowing a user to quickly ascertain what improvements have been installed.

6 Vendor Requirements

6.1 Approved Vendor / Manufacturer

6.1.1 Products supplied by GE Fanuc Automation and their associated subsidiaries have been pre-approved for this application. Specifically Proficy Real-Time Information Portal. Additional products can be provided assuming that they meet the equivalent functional and commercial criteria described in this document.

6.2 Development Life Cycle

6.2.1 The vendor must have an established documented development procedure. This procedure must track customer requirements, development risk, and corrective action. The procedure must include a product validation cycle.

6.2.2 The vendor must have a formal and documented set of quality assurance procedures that are applied to the engineering design, development, and documentation of the software. The presence of a formal quality assurance department shall be required.

6.2.3 The vendor must also demonstrate that it's source code for the product is regularly archived with suitable backup.

6.2.4 The vendor must follow a documented configuration management system.

6.3 Product Life Cycle / Obsolescence

6.3.1 The vendor must have an established product life cycle policy. Documentation of the product life cycle shall be available.

6.3.2 The vendor of the supplied product must have a formal obsolescence policy that describes the expected life cycle of product life cycle. This needs to include a declaration of time period between product maturity and ultimately last buy opportunities.