

# FUJITSU Software INTARFRM Professional Edition Application Framework



Lifecycle-oriented Professional Edition

Application Framework of Fujitsu that achieves long-term operation of application corresponding to changes in business according to "Automated Development Process" and "Compatible Asset Management".

shaping tomorrow with you

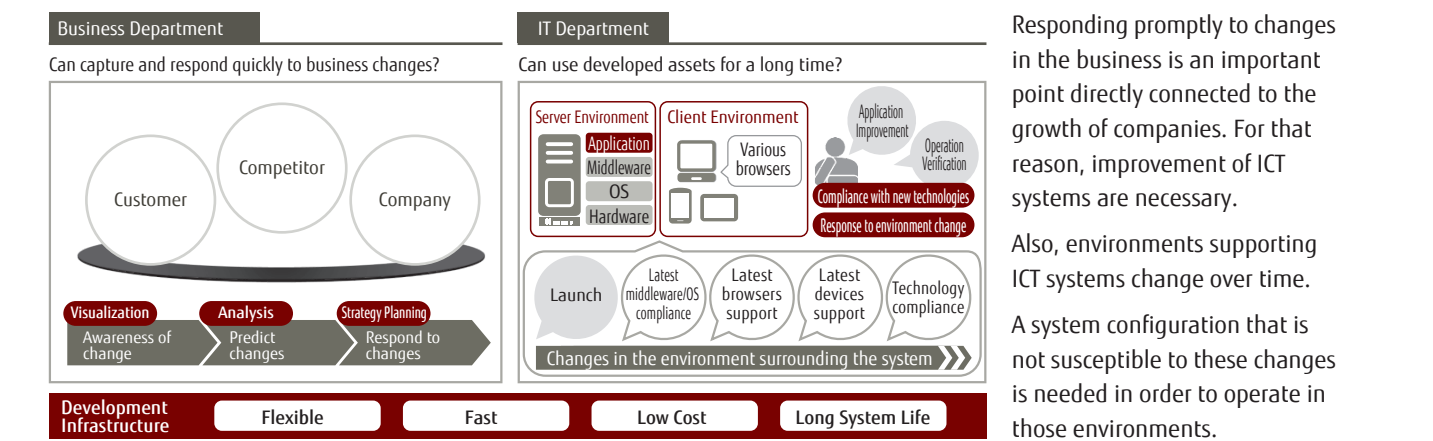
# To a growing system that can be used for a long time

## Application framework that supports ICT systems evolving with customer's business

FUJITSU Software INTARFRM (hereinafter referred to as INTARFRM) Professional Edition is an application framework that supports software design, development, operation, and maintenance. Consistently corresponds to the software lifecycle from design to maintenance and will certainly support customer's continuously growing ICT system.

### Strong ICT Infrastructure Necessary For "Business Change" and "Environment Change"

ICT systems must be able to respond quickly and flexibly to business and environmental changes. Moreover, being able to reuse previously developed assets is also an important point of an ICT system.

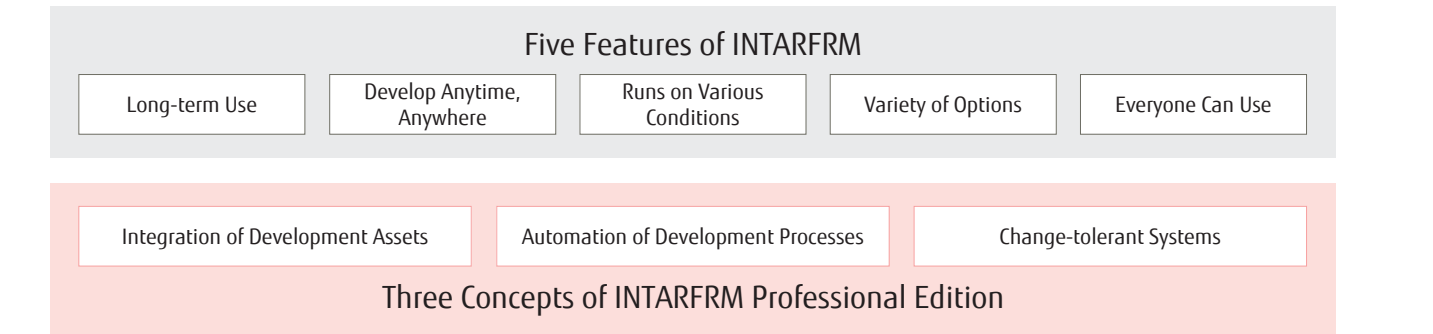


Responding promptly to changes in the business is an important point directly connected to the growth of companies. For that reason, improvement of ICT systems are necessary. Also, environments supporting ICT systems change over time. A system configuration that is not susceptible to these changes is needed in order to operate in those environments.

A stable development infrastructure (application framework) is necessary to create an ICT system that can cope with "Business Change" and "Environment Change".

### Five Features of INTARFRM and the Professional Edition Concept

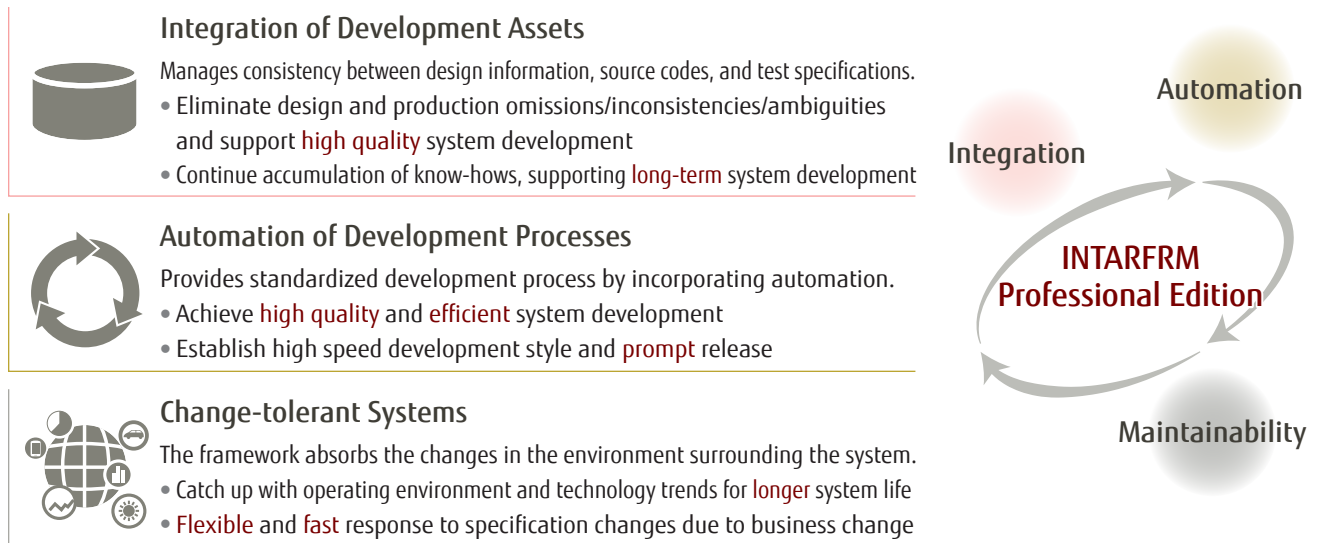
INTARFRM Professional Edition supports five features of INTARFRM by three concepts. Based on these three concepts, a mechanism that comprehensively covers the customer's system lifecycle is provided.



# INTARFRM Professional Edition Concepts

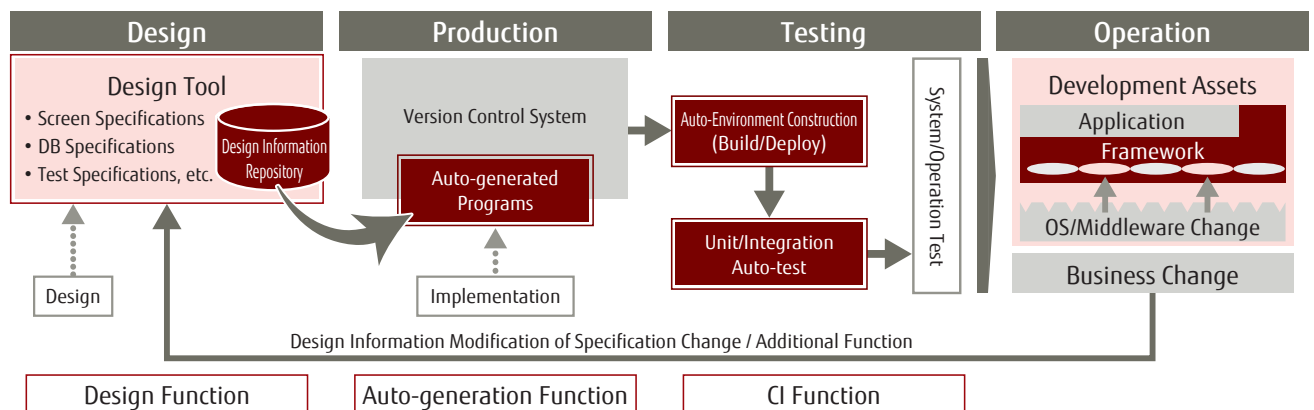
## Three Concepts of INTARFRM Professional Edition

An application framework that supports ICT infrastructure with high quality and high speed development process.



## Development Process of INTARFRM Professional Edition that achieves Three Concepts

Maximize automation of design, production and test phases and provide a development process with enhanced development quality and efficiency.



### Guarantee design information integrity and completeness

Efficiently manage assets and perform design using the design tool. Improve the design quality by creating designs without omissions, inconsistencies and ambiguities.



### Respond to changes in the environment

The framework absorbs environmental changes (OS/middleware/browsers), thereby achieving long-term operation.



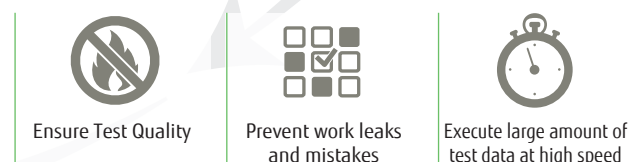
### Improve development quality and efficiency

Auto-generate programs based on the design information. Perform systematic and high quality asset management by connecting to a VCS<sup>\*1</sup>.



### Automation of test execution

Provide support for CI<sup>\*2</sup> to achieve test automation. Automation enables fast and high-quality tests.



\*1 VCS: Version Control System \*2 CI: Continuous Integration

# Professional Edition's Design Function

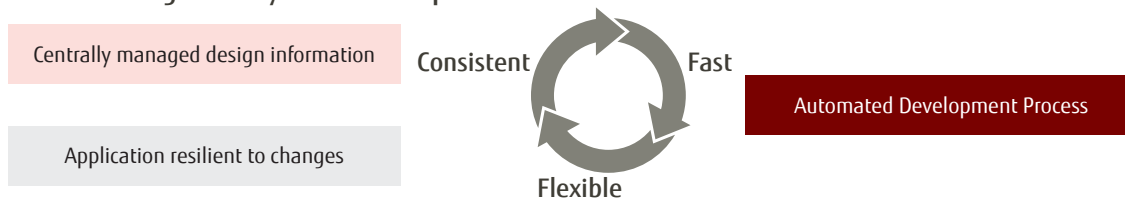
INTARFRM Professional Edition Design Facility Base aids the application design process and manages the design information throughout the software lifecycle.

## Long-term System Development Support by Managing Design Information in Repository

In an enterprise system development, maintainability of developed assets is an important requirement.

- By keeping the design information necessary for application development centralized in the repository, **design information can be managed continuously while maintaining its integrity over time.**
- By auto-generating source codes based on the design information and automatically creating and executing the test environment, **the development process can be executed quickly.**
- By having a centrally managed design information and automated development process, **developed systems can be used for a long time** and can quickly and flexibly respond to business change while maintaining integrity of data.

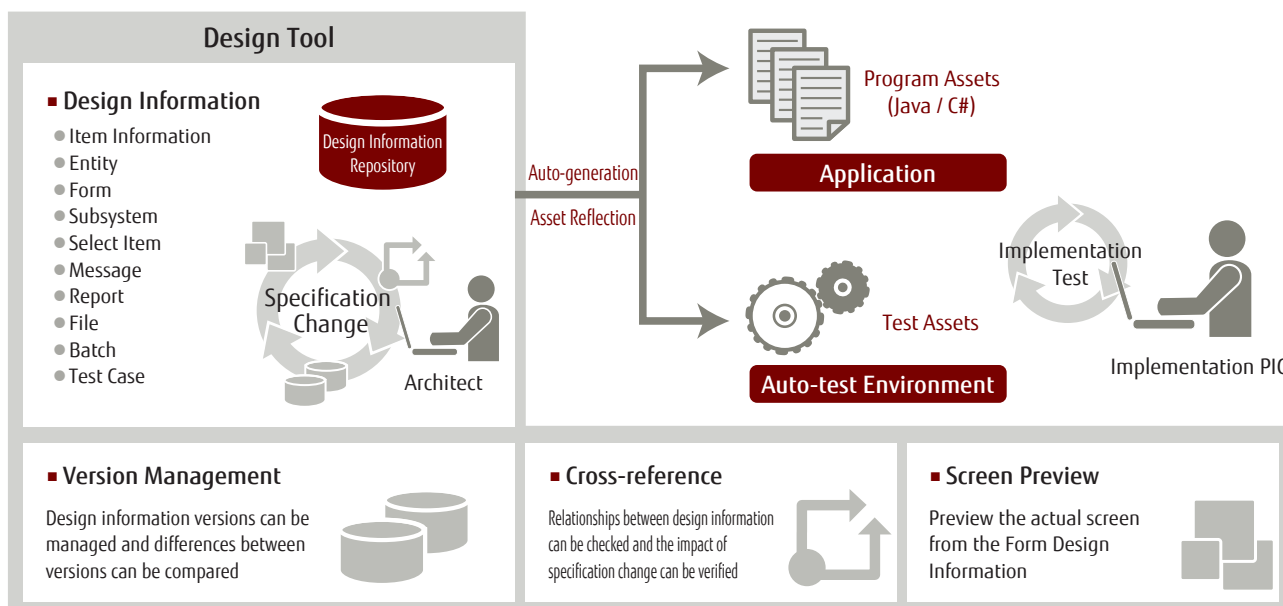
### Mechanism for Long-term System Development



## Flexibility of Specification Change by Maintaining Integrity of Design Information

The integrity of design information and program assets / test assets is guaranteed by the Design Tool and the Development Process.

- Investigation of the impact in the specification change is enabled with the Design Tool. This prevents work leaks and mistakes, thereby improving the development quality.
- Changes are immediately reflected to the application and the test environment by the automated development process, and can take the integrity of the entire development assets.



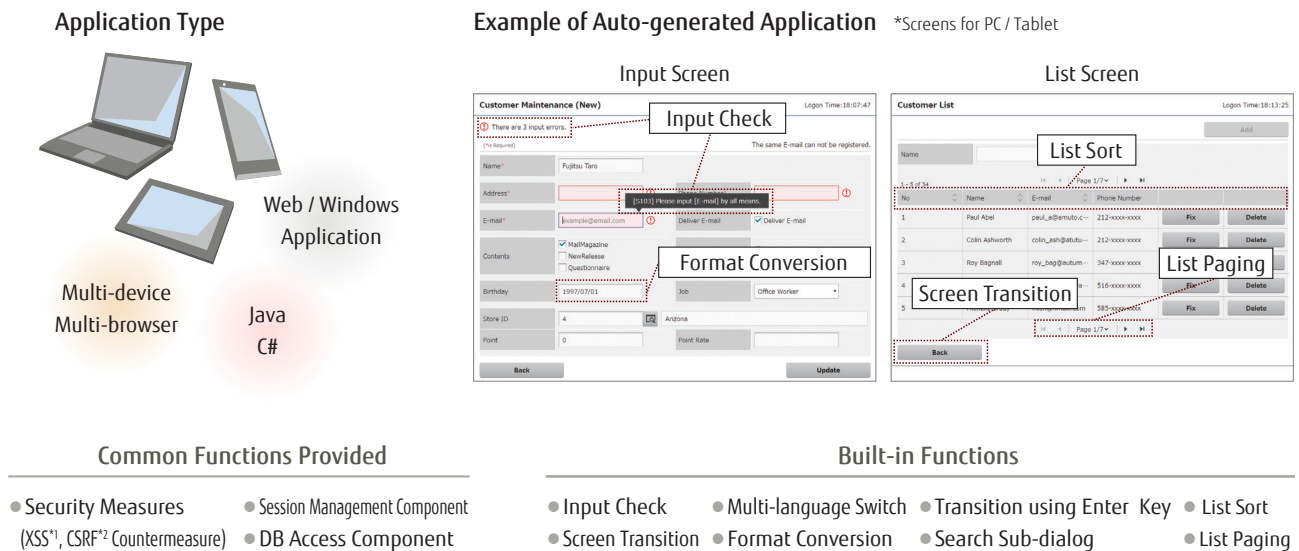


# Auto-generation Function and Development Process

In INTARFRM Professional Edition Development Facility, source codes are automatically generated based on the entered design information in the design tool.

## Create an Application With Functions Necessary For Enterprise Systems

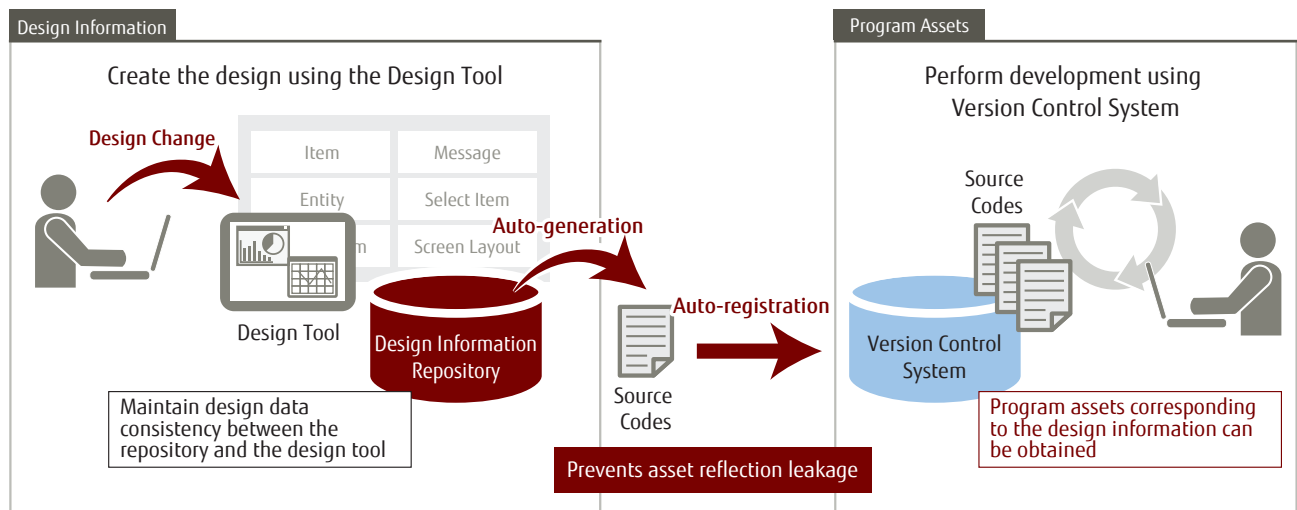
Auto-generate source codes contain necessary functions (input check, format conversion, etc.) for an enterprise system and developers can easily develop applications by adding business logic.



## Manage Development Assets by Connecting to a Version Control System

Professional Edition's asset management not only controls design information managed by the repository but also manages auto-generated program assets linked to a version control system.

- Automatically registering auto-generated program assets in the version control system prevents reflection of the design information for the program asset from being omitted. This make it possible to maintain consistency between design information and program assets, thereby improving the quality of asset management.



\*1 XSS: Cross-site Scripting \*2 CSRF: Cross-site Request Forgery

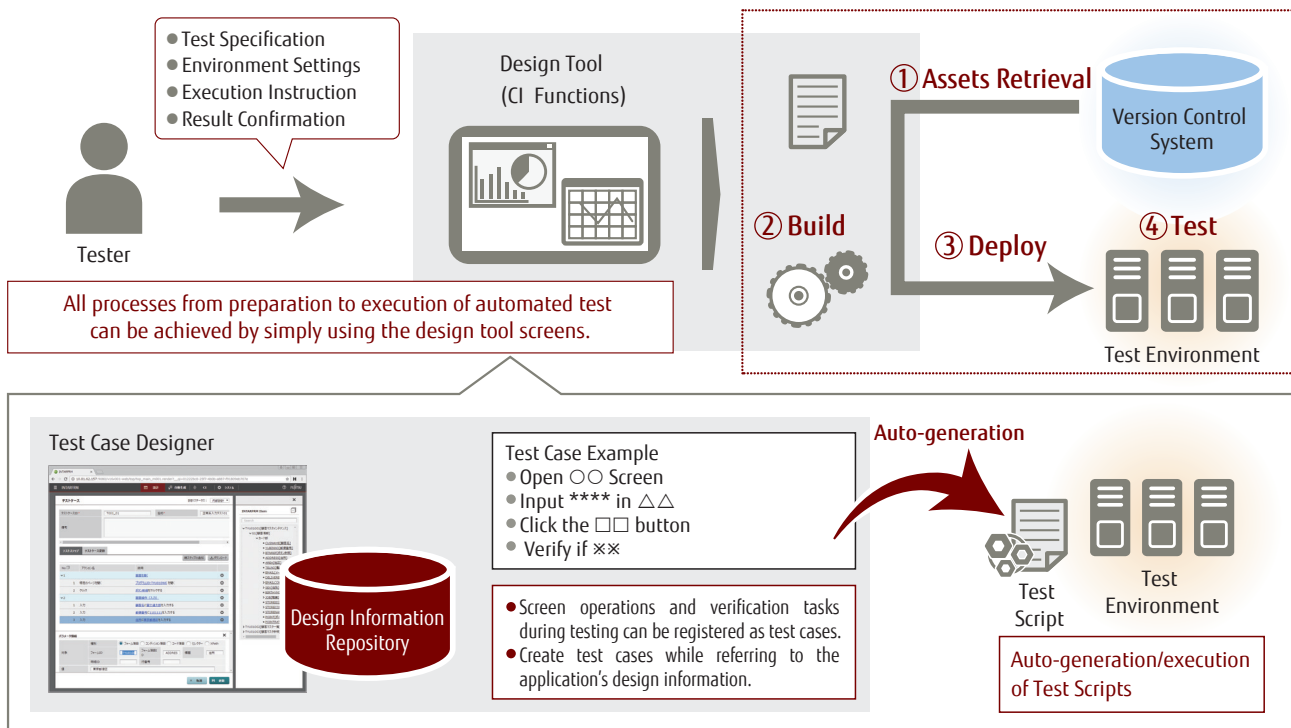
# Professional Edition's CI Functions

CI functions support "Build", "Deploy" and "Test" automations.

Build	Automatically retrieve and build latest program assets from the linked version control system.
Deploy	Deploy built assets to the specified test environment.
Test	Automatically generate test scripts from test cases created using the design tool and execute these scripts in the test environment.

## Improve Development Speed and Quality by Automated Development Process

Create efficient development process by automating the process from test environment creation to test execution.



- ✓ By automatically retrieving program assets in the linked version control system, a test environment free of mistakes and omissions can be created.
- ✓ By creating test cases using the design tool, consistency of data between the application and tests can be achieved.
- ✓ By automatically generating test scripts from the created test cases, script creation tasks can be reduced.

## INTARFRM CI Implementation Support

To implement CI, necessary preparation for environment construction such as selection of tools to use, study of the link control, and creation of work process for each tool becomes a big hurdle. INTARFRM not only makes it unnecessary to select and study the tools to be used, but also have construction procedures and work processes in place to support CI implementation.

	Investigation/Verification	Automation	Implementation Preparation
<b>CI Implementation Hurdles</b>	<ul style="list-style-type: none"> <li>• Study and evaluation of implementation method</li> <li>• Selection of Various Tools</li> <li>• Tool Operation Verification</li> </ul>	<ul style="list-style-type: none"> <li>• Learning the scripting language</li> <li>• Creation of test scripts</li> </ul>	<ul style="list-style-type: none"> <li>• Learning the skill for each tool</li> <li>• Standardization of work process</li> </ul>
<b>INTARFRM CI</b>	Environment can be created quickly since it has already been studied and evaluated	No need to learn the scripting language since test scripts can be created using the design tool	No need to learn the tools since each tool is controlled by INTARFRM

## Other Functions

### Optimize Development Using Various Functions

The design tool has necessary functions for developing an application, thereby improving the efficiency of the development process and the quality of the application.



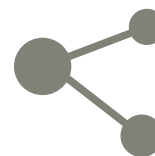
#### Auto-generation of Design Documents

Design information can be printed out in an Excel file.



#### ER Diagram

Entity relationships can be visually designed and confirmed.



#### WebAPI

Design information can be registered from an external program.



#### Status Management

Status of the design information can be set and confirmed.



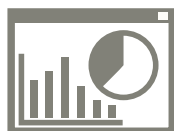
#### Change History Of Design Information

Change history of the design information can be viewed.



#### Layout Design

Application's screen layout can be visually designed.



#### Dashboard

Work progress and test execution results can be confirmed.



#### Internationalization

Screen resources for each language can be managed.



#### Backup

Design information can be backed up and restored.

## About the Product

### Products

Function	Product	License Unit	Development Language
Design Support Function (Design Facility)	Base V16	1 User	-
	Base PLUS V16 *1	1 User	
Development Support Function (Development Facility)	Web Application Java Servlet V16	1 Client	Java
	Web Application Visual C# V16	1 Client	C#
	Smart Client Visual C# V14	1 Client	
Execution Function (Runtime)	Web Application Java Servlet V16	1 Processor (CPU Core)	-
	Web Application Visual C# V16	1 Processor (CPU Core)	
	Smart Client Visual C# V14	1 Processor (CPU Core)	

\*1 Base PLUS V16 is only supported in Web Application Java Servlet and Web Application Visual C#.

# Required Software/Operating Environment <sup>\*1</sup>

Required Software		OS / Hardware <sup>*2</sup>
<b>Base V16</b>		
Design Support Function (INTARFRM Design Facility Base / Base PLUS)		
Repository Server	<ul style="list-style-type: none"> <li>Java SE SDK 8 (1.8.0 and above)</li> <li>GlassFish 4.1.1 and above</li> <li>PostgreSQL 9.4.4 and above</li> <li>A separate software is required to use CI Support Functions (Base PLUS) <sup>*1</sup></li> </ul>	<ul style="list-style-type: none"> <li>OS : Windows Server 2012 SP1 / 2012 R2 / 2016</li> <li>Memory : 8GB or more is recommended</li> <li>HDD : 2GB or more available hard disk space</li> </ul>
Design Client	<ul style="list-style-type: none"> <li>Microsoft Internet Explorer 11 (Desktop version)</li> <li>Microsoft Edge 38 <sup>*3</sup></li> <li>Google Chrome 42 <sup>*3</sup></li> <li>Mozilla Firefox ESR 45.4 <sup>*3</sup></li> </ul>	<ul style="list-style-type: none"> <li>OS : Windows 7 SP1 / 8.1 / 10</li> <li>Memory : 2GB or more is recommended</li> <li>HDD : 150MB or more available hard disk space</li> <li>Recommended Resolution : 1364 x 768 or more</li> </ul>

Web Application Java Servlet V16 / Visual C# V16			
Java Servlet V16		Visual C# V16	
Development Support Function (INTARFRM Development Facility)			
Development Client <sup>*4</sup>	<ul style="list-style-type: none"><li>• Java SE JDK 7 (1.7.0_21 and above), Java EE 6 / Java SE JDK 8 (1.8.0_51 and above), Java EE 7</li><li>• jQuery 1.10.2 / 1.11.2</li><li>• jQuery UI 1.10.3 / 1.11.2</li><li>• jQuery Mobile 1.4.0 / 1.4.5</li><li>• Globalize 0.1.1</li></ul>	<ul style="list-style-type: none"><li>• Microsoft .NET Framework 4.5</li><li>• ASP.NET MVC 4</li><li>• jQuery 1.10.2 / 1.11.2</li><li>• jQuery UI 1.10.3 / 1.11.2</li><li>• jQuery Mobile 1.4.0 / 1.4.5</li><li>• Globalize 0.1.1</li><li>• Microsoft VisualStudio 2012 / 2013 / 2015</li></ul>	<ul style="list-style-type: none"><li>• OS : Windows 7 SP1 / 8.1 / 10</li><li>• Memory : 2GB or more is recommended</li><li>• HDD : 150MB or more available hard disk space</li></ul>
Execution Function (INTARFRM Runtime)			
Operation Server	<ul style="list-style-type: none"><li>• Java SE JDK 7 (1.7.0_21 and above), Java EE 6 / Java SE JDK 8 (1.8.0_51 and above), Java EE 7</li><li>• jQuery 1.10.2 / 1.11.2</li><li>• jQuery UI 1.10.3 / 1.11.2</li><li>• jQuery Mobile 1.4.0 / 1.4.5</li><li>• Globalize 0.1.1</li><li>• Any of the following application servers:<ul style="list-style-type: none"><li>- Fujitsu Interstage Application Server V11.1</li><li>- GlassFish Server 3.x / 4.x</li><li>- Apache Tomcat 7.0x / 8.0x</li><li>- Oracle WebLogic Server 12c (12.1.3)</li><li>- IBM WebSphere Application Server V8.5</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Microsoft .NET Framework 4.5</li><li>• ASP.NET MVC 4</li><li>• jQuery 1.10.2 / 1.11.2</li><li>• jQuery UI 1.10.3 / 1.11.2</li><li>• jQuery Mobile 1.4.0 / 1.4.5</li><li>• Globalize 0.1.1</li><li>• Microsoft Internet Information Services 7.5 / 8.0 / 8.5 / 10.0</li></ul>	<p>Comply with the hardware requirements of each application server.</p> <p>The following cloud environment is also supported:</p> <ul style="list-style-type: none"><li>• FUJITSU Cloud Service K5 / S5</li></ul> <p>Visual C# V16 Only</p> <p>The following cloud environment is also supported:</p> <ul style="list-style-type: none"><li>• FUJITSU Cloud Service A5 for Microsoft Azure<sup>*5</sup></li></ul>
Operation Client	Microsoft Internet Explorer 10		• OS : Windows 7 SP1
	Microsoft Internet Explorer 11 (Desktop version)		• OS : Windows 7 SP1 / 8.1 / 10
	Microsoft Internet Explorer 11 (ModernUI version)		WindowsPC or tablet running on the following OS: <ul style="list-style-type: none"><li>• OS : Windows 8.1 / RT 8.1</li></ul>
	Microsoft Edge 38 <sup>*3</sup>		• OS : Windows 10
	Google Chrome 51.0 <sup>*3</sup>		• OS : Windows 7 SP1 / 8.1 / 10
	Mozilla Firefox ESR 45.1 <sup>*3</sup>		
	Android Standard Browser <sup>*3</sup>		Tablet or smartphone running on the following OS: <ul style="list-style-type: none"><li>• OS : Android 4.0 - 4.4 / 5.0</li></ul>
Mobile Safari <sup>*3</sup>		iPhone or iPad <ul style="list-style-type: none"><li>• OS : iOS 8.1 / 8.4 / 9.0</li></ul>	

<sup>\*1</sup> For the details on the required software and OS/hardware support period of each product, please refer to their corresponding product support policies. Please contact Fujitsu Sales or refer to "INTARFRM Operating Environment" section in the "Trial Version" page of the INTARFRM website for the latest information on the required software and operating environment of each Professional Edition's product.

<sup>\*2</sup> Client PC's memory and HDD (Disk Capacity) of a Windows 7 operating environment is described.

For HDD (disk capacity), it is the disk space required for product installation. A separate disk capacity is required to accommodate design-related information and developed assets.

<sup>\*3</sup> The browser version during operation check.

<sup>\*4</sup> Please prepare the integrated development environment (Interstage Studio, Eclipse, Visual Studio, etc.) as necessary.

<sup>\*5</sup> Only covers Cloud Services out of all the computing services available in FUJITSU Cloud Service A5 for Microsoft Azure.

## Product Support

INTARFRM will support the product up to 10 years after product shipment so that customers can use it worry-free.

INTARFRM Introduction site



<http://www.fujitsu.com/jp/solutions/infrastructure/dynamic-infrastructure/afw/>  
Check out the product features, operating environment, etc.

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