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General

Release Information

The information should be considered as last minutes information and most up-to-date.

For more information please visit RRI Homepage:

http://prodapp2.se.abb.com/rri/

Introduction

This file contains release notes for FlexPendant SDK 5.13.

Previously PC SDK and FlexPendant SDK were distributed as the product Robot Application Builder (RAB). Starting with RobotWare 5.13, PC SDK and FlexPendant SDK are distributed together with RobotStudio. The SDKs are not affected by this change.

FlexPendant SDK 5.13 is included in the RobotStudio installer, which is distributed on the RobotWare 5.13 DVD and can be used for free by anyone who wants to develop a customized FlexPendant operator interface, for the IRC 5 controller. No license is required to develop applications using FlexPendant SDK. The end user of FlexPendant SDK application, however needs the RobotWare option FlexPendant Interface on the targeted robot controller.
The installation includes software, documentation and tools as specified below:

Software
FlexPendant SDK (5.13)

Documentation
Application manual – FlexPendant SDK (5.13), Rev - (Html Help and Pdf).
FlexPendant SDK Reference Documentation (5.13), documentation of class libraries with method signatures in C# and Visual Basic (Html Help).
FlexPendant Style Guide (Html Help)

Tools

ABB Compliance Tool - automatically run when compiling an FP SDK application, creating the *.gtpu.dll.

After installation the documentation can be launched from Windows Start Menu\Programs\ABB Industrial IT\Robotics IT\Robot Studio 5.13\SDK.

In no event shall ABB be liable for incidental or consequential damages arising from use of this product, of the software and hardware described in relating product documentation.

Visit our web site at http://www.robotstudio.com/community for information and updates. Click the Download symbol to the right in order to download RS 5.13, including FP SDK for free.

Click Developer Tools to learn more about the FP SDK and visit the User Forum, where developers discuss software problems and solutions online.

Installation

Visual Studio 2005 Express or better, or Visual Studio 2008 Express or better is required to be installed on the computer before you install FlexPendant SDK 5.13. FlexPendant SDK installs project and control templates to be used from inside Visual Studio. The templates can only be installed by FlexPendant SDK if If Visual Studio is installed.

To install FlexPendant SDK click RobotStudio on the RobotWare & RobotStudio DVD. If you select the default installation option **Full**, FlexPendant SDK will be installed. If you want to install only FlexPendant SDK and not RobotStudio select the installation option **Custom**. FlexPendant SDK will be installed side by side with any previous version. If you want further details about the installation click Browse DVD Contents on the RobotWare & RobotStudio DVD.

Before you start the installation you are recommended to read chapter 2, Installation and development environment, in the FlexPendant SDK Application Manual which is available on the Documentation DVD in PDF format.

Microsoft Visual Studio development environment is used to develop FlexPendant SDK applications. Visual Studio 2005 Express or better, or Visual Studio 2008 Express or better is required.

FlexPendant SDK 5.13 is installed side by side with any previous FlexPendant SDK version.

The default installation path is C:\Program Files\ABB Industrial IT\Robotics IT\SDK\FlexPendant SDK 5.13.

Before you start the installation you are recommended to read chapter 2, Installation and development environment, in the FlexPendant SDK Application Manual which is available on the DVD in PDF format.

Also make sure that you have administrator permissions on the computer that you are using.

Hardware and Software requirements

Software requirements

Microsoft Windows Vista SP1 or **Microsoft Windows XP SP3**

Microsoft Visual Studio 2005 or
The FlexPendant SDK requires Standard edition or better, whereas PC SDK application developers can manage with the Express edition for C# or VB. No separate installation of .NET Compact Framework 2.0 is needed.

Microsoft Visual Studio 2008

The Professional Edition or better is required to develop applications for Smart Devices, such as the FlexPendant. No separate installation of .NET Compact Framework 2.0 is needed.

Note! Robot Application Builder is developed and tested for the English version of Visual Studio.

Note! *PC SDK requires Robot Communications Runtime to be installed on your PC. It comes with the RobotStudio installation, but can also be installed separately from C:\Program Files\ABB Industrial IT\Robotics IT\Robot Application Builder 5.12\redistributable\RobotCommunicationRuntime after you have installed RAB.*

Note! *Debugging the FlexPendant device*
Depending on the OS, Visual Studio version and FlexPendant version you are using there may be different requirements for setting up and using the Visual Studio debugger on the FlexPendant device. See the section Debugging the device *for further information.*

Recommended hardware

50 MB free disk-space on the installation hard disk

Supported FlexPendant device versions

SxTPU-1 (executes with .NET CF 2.0 and WinCE 4.2)
SxTPU-2 (executes with .NET CF 2.0 and WinCE 5.0)
SxTPU-3 (executes with .NET CF 3.5 and WinCE6.0)

IRC5 requirements

- RobotStudio 5.13 for building a test system and for debugging and testing in the virtual environment

- For PC SDK applications - RobotWare option "PC Interface" for communication with a real IRC5 controller.
- For FlexPendant SDK applications - RobotWare option "FlexPendant Interface" for communication with a real IRC5 controller.
- RobotWare version 5.13

Note! *PC applications developed with RAB 5.13 require RobotWare version 5.07 or higher on the IRC5 controller. FlexPendant applications developed with RAB 5.13 should be used with RobotWare 5.13.*

Compatibility

FlexPendant SDK 5.13 and 5.12 are compatible, there are no breaking changes.

FlexPendant SDK compatibility between RobotWare releases cannot be absolutely guaranteed. The goal is to be 100% compatible and the development team tries hard to achieve this. Due to necessary upgrades in the Microsoft platforms or new demands breaking changes sometimes cannot be avoided. There is more specific information on compatibility issues further down in this document.

Note! *No guarantee is given for backward compatibility. Compatibility between RobotWare revisions is however guaranteed (FP SDK 5.13 will be compatible with RW 5.13.01 etc).*

Compatibility with other products:

Use RobotStudio 5.13

FlexPendant SDK

Debugging the device

Depending on the OS, Visual Studio version and FlexPendant version you are using there may be different requirements for setting up and using the Visual Studio debugger on the FlexPendant device. To debug with VS 2008 (as well as VS 2005 without SP1) you must follow a procedure presented on the RAB User Forum. The procedure will be different for each RobotWare release.
XP and VS 2005 with SP1 is the required platform for debugging the FlexPendant without any adaptations. In case you are using this, the procedure described in User's Guide will work.

Service Pack 1 or 2 for .NET Compact Framework 2.0 (.NET CF 2.0 SP2) is required for setting up and using the Visual Studio debugger on the FlexPendant device. These can be downloaded from http://www.microsoft.com/downloads.

If your PC is running under Windows Vista "Windows Mobile Device Center" needs to be installed in order to connect to the device.

Further information and updates concerning this topic will be published on the RAB User Forum.

Compatibility

Compatibility FlexPendant SDK 5.09 vs. 5.08:

· FlexPendant SDK 5.09 is compatible with FP SDK 5.08.

Compatibility FlexPendant SDK 5.10 vs. 5.09:

· FlexPendant SDK 5.10 is compatible with FP SDK 5.09.

Compatibility FlexPendant SDK 5.11 vs. 5.10:

· FlexPendant SDK 5.11 is compatible with FP SDK 5.10.

Compatibility FlexPendant SDK 5.12 vs. 5.11:

· FlexPendant SDK 5.12 is compatible with FP SDK 5.11.

Compatibility FlexPendant SDK 5.13 vs. 5.12:

· FlexPendant SDK 5.13 is compatible with FP SDK 5.12.

Updates in FP SDK 5.10 vs. 5.09

New features:

New domain:

SystemInfoDomain (New functionality for retrieving information about the active robot system, e.g. RobotWare version, system name, release and system paths, existing system options and installed additional options.

New classes:

SystemInfo
Option
SystemOption
AdditionalOption

Miscellaneous (new classes, events, methods and properties):

Controller.IpAddress (IP address, gateway and subnet mask)
Controller.IsVirtual (Checks whether the targeted controller is real or virtual.)
Controller.CurrentUser (Returns the current logged on user.)

RapidDomain.Routine.TextRange (Enables launch of the Rapid Editor at a specified RAPID routine.)
RapidDomain.Module.PersInSync (Checks if the data of a Module object is still in sync with the real values in the controller.)
RapidDomain.Module.SyncPers (Updates the data of the Module object in case they are no longer in sync with the real values in the controller.)

RapidDomain.Task ProgramChanged event (triggered when a module is edited, loaded, added or removed)

Changed behavior in the Controller API:
A System.ObjectDisposedException is thrown when an attempt is made to access an already disposed object.

Updates in FP SDK 5.11 vs. 5.10

New features:

Development environment:

Changed installation (Robot Application Builder 5.11 is installed side by side with any previous RAB version. It includes PC SDK 5.11 and FlexPendant SDK 5.11)

Support for Windows Vista

Support for VS 2008 (*Professional Edition* is required to develop applications for Smart devices, such as the FlexPendant)

Note! *RAB 5.11 has not yet been fully tested with Visual Studio 2008.*

Localization:

Support for localizing a FP SDK application to Russian (Ru).

New GUI controls:

- BarGraph
- CheckBox
- Graph
- Led
- NumEditor
- NumericUpDown
- PictureBox
- RadioButton
- DataEditor
- Switch

Note! *The new GUI controls are not yet completely tested, further information in the section* "Known Limitation".

New properties in existing UI controls:

-TpsLabel

- WordWrap: multiline instead of tooltip
- MultiStates
  - AllowMultipleStates
  - SelectedStateIndex
  - SelectedStateValue
  - States
  - BaseValue

-Button

- Image, grays out a button that is disabled
- BorderStyle
- MultiStates
  - AllowMultipleStates
  - SelectedStateIndex
  - SelectedStateValue
  - States
  - BaseValue

Miscellaneous (new classes, events, methods and properties):

- Task.Enabled (get/set the status of the task on the task selection panel on the FlexPendant, i.e. whether the task should be started when the user presses the start button of the FP.
- Task.CallRoutine, Task.CancelCallRoutine (calls and starts a service routine or an ordinary RAPID routine without parameters with kept execution stack)
- Task.SearchRapidSymbol, Task.GetRapidData (possibility to access RAPID data declared in SHARED module (but not in SHARED HIDDEN).

Not yet any support to do this from the Designer (using RapidDataBindingSource)

- Controller.Restart
- Support for preventing users from unintentionally closing FP SDK applications launched automatically at warm start. Automatic views have become visible in the ABB menu to allow the user to relaunch in the normal way. Also, a named parameter "Closeable" can be used to disable the close button of a view (see examples below).

VB:

<Assembly: ABB.Robotics.Tps.Taf.TpsView("VB", "xyz32.gif", "xyz16.gif", "TpsViewXyz.dll", "TpsViewXyz.TpsViewXyz", StartPanelLocation.Left, TpsViewType.Static, TpsViewStartupTypes.Manual, Closeable:=False)>

C#:

[assembly: TpsView("Xyz", "xyz32.gif", "xyz16.gif", "TpsViewXyz.dll", "TpsViewXyz.TpsViewXyz", StartPanelLocation.Left, TpsViewType.Static, TpsViewStartupTypes.Manual, Closeable = false)]

- Support for closing an FP SDK application programmatically by calling CloseMe from the view class (the first view). Limitation: Client views will be removed from TAC when first view is a TpsForm, not when it is a TpsControl.

Updates in FP SDK 5.12 vs. 5.11

Miscellaneous (new classes, events, methods and properties):

- The wizard for creating FlexPendant projects has been improved in terms of flexibility and ease-of-use. (See User's Guide)

Note! Be aware that FP SDK applications that use the new property StartPanelLocation.None CANNOT be run on RobotWare released before 5.11.01

- Improved performance at controller access, e.g. when reading Controller.State or RapidData.Value.

- RapidData properties: IsTaskPers (whether data is declared as PERS or TASK PERS), IsLocal (declared in a module that is not globally visible), TypeUrl (path to the declaration of the RAPID type), RapidType (e.g. “num”)

- Possibility to use the databinding feature of the Designer to access RAPID data declared in shared module; in the RapidDataBindingSource supply the name of the data but no task or module. (This also works for –Shared –*Hidden* module.)

- Task methods: GetRobTarget, GetJointTarget

Updates in FP SDK 5.13 vs. 5.12

No changes

Information 5.11.01

Documentation for RAB FlexPendant SDK has to be rebuilt (DSE8261)
The reference documentation for the FP SDK 5.11 has been updated.

NumEditor causes NullReferenceException on FlexPendant (DSE8270)
When using the NumEditor control in a TpsControl, the ClickEvent raises a NullReferenceException in Taf.exe that requires the FlexPendant to be restarted. When using the DataEditor control in a TpsControl, it does not display an alpha pad when it is clicked. This has now been corrected.

PictureBox control not available in toolbox (DSE8358)
The FP SDK PictureBox control was missing among the FP SDK controls added to the Visual Studio toolbox. It has now been added.

FP SDK application - unwanted entry in ABB menu (DSE8450)
In RAB 5.10 an FP SDK application using TpsViewStartupTypes.Automatic in the TpsView attribute did not have an entry in the ABB menu of the FlexPendant. In RAB 5.11 this error was corrected. But no solution was provided for users who relied on the previous behavior and *do not want* an entry in the ABB menu for applications that are launched automatically at start-up.

In this revision (5.11.01) a new TpsView argument, StartPanelLocation.None, can be used to prevent *Automatic* and *Invisible* applications from showing up in the ABB menu. Note, however, that the FlexPendant project wizard has not yet been changed, so StartPanelLocation.None has to be applied directly in the code (instead of StartPanelLocation.Left /Right).

Note! *Be aware that FP SDK applications that make use of StartPanelLocation.None using RAB 5.11.01 CAN NEVER be run on RobotWare 5.11, but only on RobotWare 5.11.01 and later!*

Information 5.12

FP SDK - Error in designer when creating new VB project (DSE8267)
When creating an FPSDK project for VB using an empty form (the default) as the startup view, an error message may be displayed in the designer the first time the viewer is opened. The problem does not occur when the startup type is *Form*, or in C#.
Work around: Close and re-open the designer.

FPRapidData creates data object that cannot be disposed (DSE8273)
When creating new instances of FPRapidData, FPToolCalibration and FPWorkObjectCalibration, some objects were created internally that could not be disposed by the SDK user. These appeared in the log as possible memory leaks. This has been corrected. The user must dispose the returned RapidDataType object returned by RapidData.DataType (See FP SDK Ref Help.)

Data binding with FP SDK controls caused unexpected updates in the controller (DSE8274)
Before 5.12, the use of data binding with FlexPendant SDK controls could cause the value of a connected RAPID variable or signal to be changed unexpectedly at instantiation of the GUI control. This could happen if "Data Source Update Mode" of the binding source was set to OnPropertyChanged and a non-default value, not matching the actual value of the connected data/signal, was assigned to the control. For example, if the text of a label was set to "1" in design time and the label bound to an I/O signal with the value "0", the signal would be set to "1" once the label was created.

This error has now been corrected. The erratic behavior was first discovered in the new FP SDK controls 'Led' and 'Switch'. For security reasons, their data binding property was disabled in the designer in 5.11. The designer support for data binding for these controls has now been enabled.

DataEditor displays unwanted quotation marks with data (DSE8276)
Text data, read through the FlexPendant SDK data binding components, does not contain any surrounding quotation marks.

No Start Menu link to Compliance tool in RAB Installation (DSE8325)
From RAB 5.11 the compliance tool is found in the installation folder. SDK users who frequently use it can manually add the link to the start menu, quick launch, or desktop.

FPRapidData returns Cancel when OK button is pressed (DSE8326)
The dialogs for RAPID data, tool calibration and work object calibration now return the correct result from user interaction (Cancel or OK).

Undocumented output from memShow command (DSE8327)
Documentation changed.

Console command fpcmd -a output does not match documentation (DSE8328)
Documentation changed.

Closable property in FP SDK doesn't work correctly (DSE8528)
FlexPendant SDK applications that were launched automatically and had the property Closable set to false, were still launched with the close button activated. Applications that were launched on operating mode change were always opened with the close button enabled even if the property Closable was set to false. These problems have now been fixed.

FontName warning with RAB 5.12 (DSE8749)
The property FontName of type ABB.Robotics.Tps.Windows.Forms.TpsControl has been marked as obsolete in the FP SDK 5.12 release.
If the FontName property is used, a compiler warning will generated, that informs the user that the property Font should be used instead (see below). VB: Me.Font = ABB.Robotics.Tps.Windows.Forms.TpsFont.Font10b C#: this.stBackupFolder.Font = ABB.Robotics.Tps.Windows.Forms.TpsFont.Font10b;

Data binding source causes errors in Visual Studio (DSE8780)
In intermediate builds of FP SDK 5.12, version numbers where not updated correctly for its data binding components.
This caused Visual Studio to fail to generate code for any SignalBindingSource or RapiDataBindingSource components added to a view.
This is now corrected.

RS does not support older FP app (DSE8844)
There is a remaining problem on the Virtual FlexPendant resulting in a CustomAttributeFormatException exception. The problem occurs when the SDK application is built towards a different revision compared to the one running. The problem is related to embedded images.

There are a number of work-arounds:
1. Recompile the SDK application towards a Robot Application Builder with the same revision number as the running system.
2. Remove the StartupType assembly attribute assignment in the SDK TpsView header, i.e., for the TpsView remove StartupType = TpsViewStartupTypes.....)
3. Use one of the new TpsView constructors the contain the TpsViewStartupTypes setting.

The original problem cannot be solved by the ABB development team because it is in software developed by Microsoft. A workaround is now implemented by adding constructors containing the start-up type (see work-around 3). The wizards creating new FlexPendant applications are updated and now use one of the new constructors.

Information 5.12.01

No new info.

Information 5.12.02

No new info.

Information 5.13

FP SDK: PictureBox multiple states
The design time behaviour of property AllowMultipleStates of type ABB.Robotics.Tps.Windows.Forms.PictureBox has been corrected.
A dialog that lists its options, is now presented when the property is changed.

FP SDK: Rapid.GetRapidData
The method Rapid.GetRapidData now returns null if the requested data does not exist. This agrees with the documentation. Previously, the method incorrectly threw a NullReferenceException if the data did not exist.

FP SDK: SetProgramPointer(Module,row)
The method in FP SDK SetProgramPointer(Module,row) is now working according to description.

GTPUMessageBox could disable view
This information applies to the ABB.Robotics.Tps.Windows.Forms.GTPUMessageBox class of the FlexPendant SDK.
If a view modal message box was shown while a system modal dialog was active, e.g. when changing to auto mode or using a system modal message box, the view would be disabled after the message box was closed. The only way to correct this was to close the view and open it again.
This has now been corrected.
Note:

GTPUMessageBox.Show(null, ...) shows a system modal message box
GTPUMessageBox.Show(view, ...) shows a view modal message box

Conversion of VS 2005 solution to VS 2008
The post build step must be manually modified if a VS 2005 project is converted to a VS 2008 project.

Below are examples of the post build commands for a VS 2008 project. Note that the VS 2008 installation path as well as the FP SDK install location is used in the command.

5.12:

call "c:\Program Files\Microsoft Visual Studio 9.0\\VC\vcvarsall.bat" x86 "C:\Program Files\ABB Industrial IT\Robotics IT\Robot Application Builder 5.12\FlexPendant SDK\abbct.exe " "$(TargetDir)$(TargetName).dll" 5.13:

call "C:\Program Files\Microsoft Visual Studio 9.0\\VC\vcvarsall.bat" x86 "C:\Program Files\ABB Industrial IT\Robotics IT\SDK\FlexPendant SDK 5.13\abbct.exe " "$(TargetDir)$(TargetName).dll"

Corrected "Product Defect Document" 5.12	*PDD*
FPRapidData creates a copy of data object that cannot be disposed	DSE8273
DataEditor displays unwanted quotation marks with data	DSE8276
RAB Installation no longer creates Start Menu link to Compliance	DSE8325
FPRapidData returns a Cancel result when OK button is pressed	DSE8326
Undocumented output from memShow command	DSE8327
Console command fpcmd -a output does not match documentation	DSE8328
FontName warning with RAB 5.12	DSE8749
Data binding source causes errors in Visual Studio	DSE8780

Corrected "Product Defect Document" 5.12.01	*PDD*

Corrected "Product Defect Document" 5.12.02	*PDD*

Corrected "Product Defect Document" 5.13	*PDD*

Known Limitations

- There may be trouble debugging the first generation of FlexPendant device (SXTPU1) with VS 2008.
- When creating an FPSDK project for VB using an empty form (the default) as the startup view, an error message may be displayed in the designer the first time the viewer is opened. The problem does not occur when the startup type is *Form*, or in C#. Work around: Close and re-open the designer
- Due to a Microsoft bug the ImageList.Dispose method does not work, causing a memory leak. Microsoft's advice is to set the ImageList to null instead of calling Dispose. This way the memory will correctly be reclaimed by the garbage collector.

  avoid:
  imageList.Dispose();

  use:
  imageList = null;

- In FlexPendant SDK the property IsLocal on the class RapidData, returns true for shared data, even though such data is visible from all modules.

  The declarations of default zonedata and speeddata has been moved from module BASE.SYS in each task, and are now installed as shared data.

  If an application used to create a RapidData object representing for example "v1000", the IsLocal property returned false in RobotWare 5.12, but will return true in RobotWare 5.13."

The GUI controls introduced in FlexPendant SDK 5.12 are not documented in FlexPendant SDK Application Manual.

Product Support

If you need help or advice while using the product please visit the User Forum referred to in the introduction. For product support please turn to your local ABB office.