

EPSON RC+ 5.4.4 Release Notes

December 13, 2012

Thank you for using EPSON RC+ 5.4.4. This document contains the latest information for this release. Please read before using this software.

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Documentation

All RC+ manuals are in PDF format and are installed on the PC hard disk. These manuals are accessible from the RC+ environment Help menu.

Getting Started

Read the Getting Started chapter in the EPSON RC+ 5.0 User's Guide. This chapter will refer you to the RC170/RC180 or RC90 Controller manual Installation chapter. This contains information for initial connections and start up.

What's New in version 5.4.4

1. Added extended I/O for remote control to support PLC interface.
2. Added singularity avoiding function.

What's Fixed in version 5.4.4

General

1. Fixed parameter display when executing a function other than main from the Run window.
2. Fixed a problem where sometimes a breakpoint would not stop execution if there was a comment below the function declaration statement that contained the word function followed by an existing function.
3. Fixed a problem where sometimes a "Queue empty" message was being displayed.

VB Guide

4. Now the Spel Call method can be used.
5. Fixed a problem where sometimes if a breakpoint was set and then Xqt was executed from the VB Guide application, the breakpoint did not stop execution.
6. Fixed WaitMem and WaitSw.
7. Fixed a problem where if the Simulator was displayed when ServerOutOfProcess = True, the Simulator window was not being updated.

Vision Guide

8. Fixed sizing of Polar object. Sometimes it could not be sized correctly, especially when zoomed.

GUI Builder

9. Fixed a problem for GUI Builder where sometimes an "out of memory" error occurred when enabling or disabling a button that uses an image.

Simulator

Collision margin for robot hand cannot be set

You cannot set the Collision Margin for robot hand in this version.

Robot motion time may appear to be incorrect

On some PCs, when you run a program that moves the robot, the speed may seem incorrect. There are settings you can change to help correct the problem. Select Setup | Controller | Simulator and increase the Performance setting to 16 and the Position Precision to 20. You may need to experiment with other values.

See *Simulator Specifications and Restrictions, Time progress difference by PC condition* in the manual or help for more details.

VB Guide 5.0

Using with Visual Studio 2010 and .NET Framework 4.0

If you create an application using Visual Studio 2010 and the target framework version is 4.0, then you need modify the project to allow SpelNetLib.dll to be used.

SpelNetLib.dll was created with .NET Framework 3.5. By default, applications that target .NET Framework 4.0 cannot load assemblies from previous .NET Framework versions. You must add and modify the app.config file for the solution and set the useLegacyV2RuntimeActivationPolicy property.

For VB and C#:

1. In Solution Explorer, check if app.config exists. If it does, go to step 4.
2. From the Project menu, select Add New Item.
3. Select Application Configuration File and click Add. The app.config XML file will appear.
4. In the app.config file, add the following XML code inside the configuration property.

```
<configuration>
  <startup useLegacyV2RuntimeActivationPolicy="true">
    <supportedRuntime version="v4.0"/>
  </startup>
</configuration>
```

For VC++:

1. Create a config file for the application that uses the same name as the exe file with ".config" appended. For example, if you exe file name is myapp.exe, then the config file would be named myapp.exe.config.
2. In the config file, add the configuration code:

```
<configuration>
  <startup useLegacyV2RuntimeActivationPolicy="true">
    <supportedRuntime version="v4.0"/>
  </startup>
</configuration>
```

3. Copy the config file to both the debug and release folders. You can use a post build event that performs this automatically. For an example, see the VB Guide 5.0 VC++ demo project.

Creating 32 bit application on 64 bit Windows

To successfully create a VB Guide 5.0 32 bit application on 64 bit Windows, you must set the Visual Studio build target to x86 (32 bit). When using Visual Studio Express versions, you will need to first create the x86 target after enabling Expert Mode.

Executing Spel commands within a button click event

In .NET, if you execute a method in a button click event, you cannot click another button to execute another method on the first click. For example, if you execute the Go method in a button click event, and attempt to click another button to execute the Abort method, the second button will not respond the first time. This is true even if VB Guide is not used. Instead, use the button MouseDown event to execute the Go method, or execute Spel commands in a separate thread as described in the following topic.

Executing Spel motion commands in a separate thread

If you will be executing Spel motion commands from your .NET application, it is recommended that you execute them in a separate thread. This will allow other methods such as Abort to be executed from other buttons. The example below shows a separate thread for Spel motion commands.

```
private void btnStartCycle_Click(object sender, EventArgs e)
{
    btnStartCycle.Enabled = false;
    btnStopCycle.Enabled = true;
    m_stop = false;
    m_spel.ResetAbort();

    // Start the robot cycle
    System.Threading.Thread t = new System.Threading.Thread(RobotCycle);
    t.Start();
}

private void btnStopCycle_Click(object sender, EventArgs e)
{
    m_stop = true;
    m_spel.Abort(); // Optional. This will immediately stop the cycle
    btnStopCycle.Enabled = false;
    btnStartCycle.Enabled = true;
}
```

```
private void RobotCycle()
{
    try
    {
        do
        {
            m_spel.Jump("pick");
            m_spel.On("GripOn");
            m_spel.Delay(100);
            m_spel.Jump("place");
            m_spel.Off("GripOn");
            m_spel.Delay(100);
        } while (!m_stop);
    }
    catch (SpelException e)
    {
        // If the error is not "Command aborted by user",
        // then show the error message
        if (e.ErrorNumber != 10101)
            MessageBox.Show("Spel error occurred\r\n\r\n" + e.Message);
    }
}
```

Vision Guide 5.0

ImageFile Property

The EPSON Smart Camera supports one image file stored in each camera project. When an ImageFile is specified for a sequence, it is copied to the camera when the sequence is selected from the Vision Guide GUI.

You can use the SaveImage property to save an unlimited number of images on the PC.

Using one camera from two controllers

The EPSON Smart Camera supports two vision projects. Each vision project can be used by one controller, so two controllers can use the same camera. Project 1 is used by default. To use project 2, change the camera project number from RC+ Project | Properties | Vision.

Offline Mode

When you open the Vision Guide window, RC+ attempts to communicate with the Smart Cameras configured in Setup | Vision. If communication cannot be initiated, a message box is displayed stating that one or more Smart Cameras cannot be connected and asking if you would like to open Vision Guide in offline mode. Answer Yes to enter Offline Mode. In Offline Mode, you can edit Sequences, Objects, and Calibrations. To enter Online Mode, close the Vision Guide window, then open it again.

Importing from EPSON RC+ 3.x and 4.x with Vision Guide

You can import projects that were created in EPSON RC+ 3.x and 4.x that used the Vision Guide option.

To import a project:

1. In EPSON RC+ 5.0, select Project | Import.
2. Select PC and click Next.
3. Select EPSON RC+ 3.x / 4.x for the Project Type.
4. Select the drive and project to import and continue with the wizard.

Please review the following information regarding imported EPSON RC+ 4.x projects:

- Vision calibrations are imported, but the associated calibration data is not imported. You will need to run your calibrations after import.
- the RobotU vision result is changed. In EPSON RC+ 4.x, RobotU was reported with 0 degrees aligned with the robot world Y axis. Now RobotU is reported with 0 degrees aligned with the robot world X axis.
- Maximum NumberToFind is changed. In Vision Guide 5.0, the maximum NumberToFind for any multi-result object is 100. During import, NumberToFind is reduced to 100 if necessary.
- Calibration properties cannot be set at runtime.
- VCalPoints and VCal are not supported. Vision calibrations cannot be executed at runtime.
- Vision model properties cannot be set at runtime.
- VTeach is not supported. Vision models cannot be taught at runtime.
- OCR and Code Reader objects are currently not supported in Vision Guide 5.0. During import, OCR objects are converted to Correlation objects, and Code Reader objects are converted to Blob objects.

Camera connected to another PC warning message

Normally, if one PC tries to connect to a Smart Camera that is already connected to another PC or controller, you will see a message box stating this.

However, sometimes if the Ethernet cable is disconnected or if the RC+ process is terminated while connected to a Smart Camera, then on the next connection attempt, you may receive the message described above. In this case, reset the camera from Setup |

Vision, or power cycle the camera. Then rebuild the current project using Project | Rebuild. Smart Camera firmware v1.0.0.4 reduces the occurrence of this problem.