

## EPSON RC+ 5.4.6 Release Notes

April 8, 2015

Thank you for using EPSON RC+ 5.4.6. This document contains the latest information for this release. Please read before using this software.

<b>DOCUMENTATION</b> .....	2
<b>GETTING STARTED</b> .....	2
<b>WHAT'S NEW IN VERSION 5.4.6</b> .....	2
<b>WHAT'S FIXED IN VERSION 5.4.6</b> .....	2
<b>PREFERENCES</b> .....	4
AUTO START AND AUTO LOGIN FOR 64 BIT WINDOWS.....	4
<b>SIMULATOR</b> .....	4
COLLISION MARGIN FOR ROBOT HAND CANNOT BE SET .....	4
ROBOT MOTION TIME MAY APPEAR TO BE INCORRECT.....	4
<b>VB GUIDE 5.0</b> .....	4
USING WITH VISUAL STUDIO 2010 AND .NET FRAMEWORK 4.0.....	4
CREATING 32 BIT APPLICATION ON 64 BIT WINDOWS .....	5
EXECUTING SPEL COMMANDS WITHIN A BUTTON CLICK EVENT .....	5
EXECUTING SPEL MOTION COMMANDS IN A SEPARATE THREAD.....	5
<b>VISION GUIDE 5.0</b> .....	7
IMAGEFILE PROPERTY .....	7
USING ONE CAMERA FROM TWO CONTROLLERS .....	7
OFFLINE MODE .....	7
IMPORTING FROM EPSON RC+ 3.X AND 4.X WITH VISION GUIDE.....	7
CAMERA CONNECTED TO ANOTHER PC WARNING MESSAGE .....	8

## 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 5.4.6

1. Supports Windows 8.1 32 bit and 64 bit.

The following features may require a controller firmware upgrade. Please refer to the EPSON RC+ 5.0 User's Guide section 1.3.2 for more information.

2. Added "Disable LJM in Teach Mode" controller preference.
3. Added "Use LJM" checkbox on Robot Manager Jog & Teach Execute Motion tab.
4. Added "Alive" remote input and output.

## What's Fixed in version 5.4.6

### General

1. Fixed a problem where if Tools | Controller | View Status was opened and programs were scrolled through, then the function names from the status programs would be added to the current project function list in Project Explorer after opening the Run window.
2. Added LimitTorque command to Spel+ language for the RC180 controller. Controller firmware v1.16.0.6 (v1.24.0.6) or greater is required to use this feature.
3. Fixed a problem for project synchronization. If program files were changed offline, and point files were changed with a teach pendant, then when the PC was connected, the project synchronization dialog was not being displayed, so the newer point file in the controller could not be transferred to the PC.

### VB Guide

4. Added Disconnected event. Now if the controller is disconnected, the Disconnected event fires and no message box displayed. To receive the Disconnected event, you must first enable it using the EnableEvent method.
5. Fixed the Disconnect method when ServerOutOfProcess is true.
6. Added LimitTorque and GetLimitTorque methods to VB Guide Spel class.

7. Fixed Out function for VB Guide. For example: `x = m_spel.Out(0)` did not return the correct value.
8. Fixed TaskState when a taskName is used. Sometimes it returned 1 even if the task did not exist.

### **Vision Guide**

9. Fixed a problem where if Auto Connect was unchecked in Setup | PC to Controller Communications, then Compact Vision or Smart Cameras connected to the controller LAN port could not be connected.
10. Installed CompactVision firmware v2.3.0.1 on the PC in the `\EpsonRC50\Vision\Firmware\CompactVision` folder along with release notes. To upgrade the firmware in the CV1, execute Upgrade Firmware from the Setup | Vision dialog.
11. Fixed problem where Show Model could cause a crash in the CV1 if the width and height in the model file did not match the model width and height property settings. This could happen if a model file of the same name was copied from another PC and the model size was not the same.

### **GUI Builder**

12. Fixed a problem where a TextBox would not display variable status if it was not configured at design time.
13. Fixed a problem where the TextBox Variable property drop down list did not show global preserve variables.
14. Now the click event fires for ListBox or ComboBox when an item is selected.
15. Fixed a problem where sometimes when a new control was created or copied, a memory access exception occurred.
16. Improved execution speed for GGet and GSet.
17. Fixed InputBox. It was not appearing when executed.
18. InputBox and MsgBox are now closed when all tasks are stopped.
19. Fixed a problem where if a VideoBox was used with graphics, then the Vision Guide window no longer displayed graphics.

## Preferences

### ***Auto start and auto login for 64 bit Windows***

Before version EPSON RC+ 5.0 v5.4.6, the auto start and auto login preferences did not work for 64 bit Windows. After upgrading to v5.4.6, you must re-apply the settings for auto start and auto login preferences to fix the problem.

1. Start EPSON RC+ 5.0
2. Open Setup | Preferences
3. Open the Startup section in the tree on the left.
4. Select Auto Start in the tree to view the Auto Start page.
5. If the "Start EPSON RC+ 5.0 after Windows start" checkbox was checked, then uncheck it and check it again.
6. Click Apply and confirm the permission for the setting if required.
7. Select Windows Login in the tree to view the Windows Login page.
8. If "Enable windows auto login" was checked, then uncheck it and check it again.
9. Click Apply and confirm the permission for the setting if required.
10. Click the Close button.

## 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.