EPSON RC+ 4.1.0 SP2 Release Notes
July 15, 2005

Thank you for using EPSON RC+ 4.1.0. This document contains the latest information for this release. Please read before using this software.

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+ User's Guide. This chapter will refer you to the RC520 / RC420 Controller manuals Installation chapter. This contains information for initial connections and start up.

Upgrading from Previous Versions of EPSON RC+

You may install EPSON RC+ 4.1.0 without uninstalling the previous version. This is recommended because the upgrade software will know which options were previously installed and your system configuration will be preserved.

1. If your current system is running on Windows NT 4.0, you must first upgrade to Windows 2000 Professional before upgrading to EPSON RC+ 4.1.0.
   a. Execute MKVER before upgrading to save your system configuration. Select Tools | Maintenance, then click MKVER. Enter a name and save it to floppy.
   b. Upgrade Windows NT 4.0 to Windows 2000.
      1) Boot Windows NT.
      2) Insert the Windows 2000 CD.
      3) When asked if you want to upgrade the current version of Windows, answer Yes.
      4) The Windows 2000 installation will preserve the registry and previous applications.
   c. Install Windows 2000 Service Pack 4. This service pack must be installed before you can install EPSON RC+ 4.1.0.

2. Install EPSON RC+ 4.1.0. During installation, the options that were installed previously should be checked. The previous robot and drive unit configurations will be restored.

Note: When upgrading Vision Guide systems, you may receive an error during vision driver installation concerning mtxdma drivers. These errors can be ignored. Also, the RC+ installer will first remove the previous vision system drivers and reboot the system. Then it will continue installation.

3. EPSON RC+ 4.1.0 ships with Abobe Reader 7.0. On new installations, the reader is automatically installed. When upgrading RC+, Adobe Reader is not upgraded. You can manually upgrade by running the Adobe Reader 7.0 installer found on the RC+ installer CD in the Adobe_Reader directory.

Changing memory size for systems using Vision Guide

If you want to change the size of memory used on your system and you are using Vision Guide, you must do a repair installation after upgrading memory. If you do not repair the RC+ installation, Windows will not recognize the memory changes and the vision system will not work properly. Follow these steps to upgrade memory:

1. Shutdown the system.
2. Upgrade the memory.
3. Start the system.
4. Run the RC+ installer.
5. Select the repair option and continue.

The repair installation will uninstall the vision drivers, reboot the system, then reinstall the vision drivers using the new memory size.

Installing Service Pack 2

EPSON RC+ 4.1.0 Service Pack 2 is included on the current 4.1.0 installation CD. It is not automatically installed with the 4.1.0 installation program. It must be installed separately. If your system was configured at the factory, the service pack will already be installed.

How to verify if Service Pack 2 is installed
1. Run EPSON RC+.
2. Select Help | About.
3. If the service pack is installed, the version number will be 4.1.0 SP2.

How to install Service Pack 2
To install Service Pack 2:
1. Navigate to the \Service_Packs directory on the installation CD.
2. Run the file **rc410sp2.exe** and follow the on screen instructions.

How to uninstall Service Pack 2
To uninstall Service Pack 2:
1. Open Add / Remove Programs in the Windows Control Panel.

2. Select EPSON RC+ 4.0 and run it.
3. Select Repair.
4. This will re-install 4.1.0 and remove the changes made by the service pack installation.
5. If a previous service pack exists, you can add it now.

Installing on Windows XP for offline development

EPSON RC+ 4.1.0 can be installed on a Windows XP system for offline development only. You can edit and compile your projects. You cannot install the SPEL drivers on a Windows XP system, so programs will not run. Also, if Vision Guide is installed, only VGA mode is supported.

RC+ Upgrade

Auto start does not work after upgrading from 3.x versions

If RC+ was configured to auto start after Windows start, it will no longer start up automatically after upgrading to a 4.x version. This is easily fixed.

1. Run EPSON RC+. Click **Change Startup Mode**. Select **Program / Debug**, then click **OK**.

2. Select Setup->System Configuration. On the **Start Up** tab, click the **Auto Start** tab. Uncheck **Start EPSON RC+ after Windows start**. Then check it again. Click **OK**.
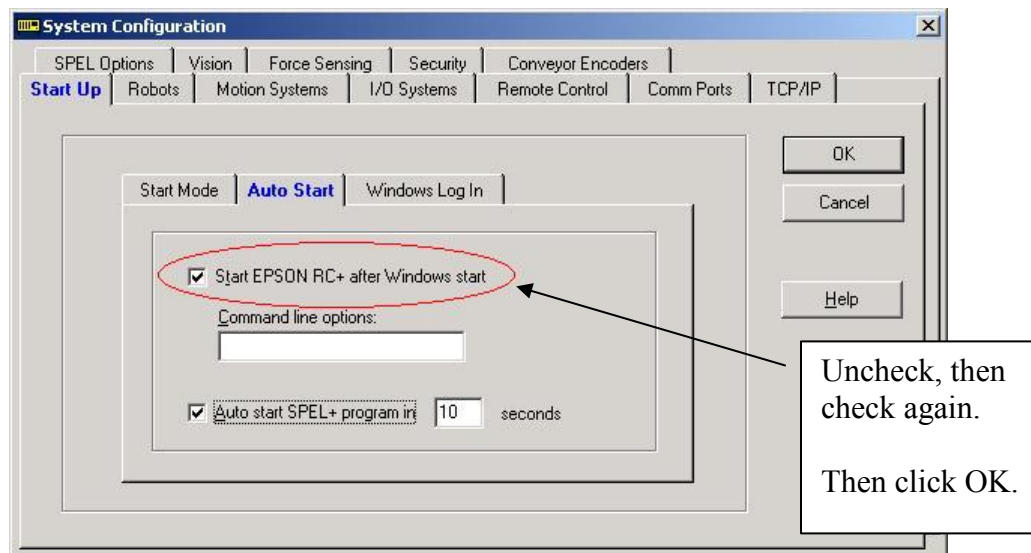
3. Continue working in RC+ or exit the application.

Syntax for memory I/O commands has changed

The $ identifier prefix for memory I/O is no longer needed.   If you open a previous project or enter a statement using $ memory I/O, the statements will be converted to the new commands and syntax. The new commands have the same names as the memory I/O commands used in the VB Guide SPELCom control.

The table below shows some examples.

Old memory I/O statement	New memory I/O statement
`On $1`	`MemOn 1`
`If Sw($1) = On Then`	`If MemSw(1) = On Then`

Syntax for direct point expression has changed

Now when you want to specify a direct point in a motion command, you must use the XY function. Previously, XY was implicit. If you open a previous project or enter a statement using a direct point expression, the statements will be converted to the new syntax.

The table below shows some examples.

Old direct point statement	New direct point statement
`Go 100, 200, -25, 0`	`Go XY(100, 200, -25, 0)`
`TLSet 1, 10, 10, 0, 0`	`TLSet 1, XY(10, 10, 0, 0)`

Brake release problem with Cont after safeguard closed

Note: This has been fixed in Service Pack 2

If Cont is executed immediately after the safeguard is closed, such as in an SGCLOSE trap or by remote, there is a possibility that all brakes will be released before motor power is restored.

To workaround the problem, add a one second delay before executing Cont.

Important: This problem can cause one or more joints to fall depending on the robot model and mounting orientation.

This problem occurs in EPSON RC+ 4.1.0 and 4.1.0 SP1 and affects all robot models.

⚠ CAUTION	■ **Avoid executing Cont immediately after safeguard is closed. Add a 1 second delay before Cont.**

E2H Robot Z axis brake problem

Note: This has been fixed in Service Pack 1

When using SFree and SLock, there are certain conditions where the Z axis brake is released when it should not be. When both J3 and J4 are free, and then J4 is locked, the J3 brake is no longer engaged. This is a problem when the payload is heavy enough to cause the Z axis to fall when the brake is released.

⚠ CAUTION	■ **Avoid locking J4 after both J3 and J4 are free, especially when using heavy payloads.**

Out of range error for SCARA J4 during continuous jog

At certain positions, you may receive error 4007, "The arm reached the limit of motion range" during continuous jogging, even though the robot is not near a range limit.

To work around this problem, increase the range for J4 (U axis) by about 2000 pulses (depending on model). For example, if the U axis range is -65536 to 65536, increase it to -68000 to 68000.

VB Guide

Upgrading from 3.x versions

After upgrading to EPSON RC+ 4.1.0 from 3.x versions, you must upgrade your
SPELCom and SPELVideo controls in your VB projects that use VB Guide.

Follow these steps:
1. Open your VB project.
2. Select Components from the Project menu.
3. Check the EPSON SPELCom 4.0 ActiveX Control and EPSON SPELVideo 4.0
   Active X Control (if required) and click OK.
4. For every form that has a SPELCom or SPELVideo control, delete the control,
   then replace it with the new control from the tool box.
5. Select Components from the Project menu.
6. Uncheck EPSON SPELCom 3.0 ActiveX Control and SPELVideo 3.0 ActiveX
   Control.
7. Save changes.
8. Compile your project.

No error when Xqt is executed with emergency stop on
Note: This has been fixed in Service Pack 1

If emergency stop status is on, SPELCom.Xqt does not return an error. To workaround
this problem, check emergency stop status before executing Xqt:

```
Sub btnStart_Click()
  With SPELCom1
    If .EStopOn Then
      MsgBox "Emergency Stop is ON"
    Else
      .Xqt 1, "main"
    EndIf
  End With
End Sub
```

Error 5 or 91 can sometimes occur when using design mode
Note: This has been fixed in Service Pack 1

Under certain conditions, error 5 or error 91 can occur if RC+ is minimized in design
mode with the run window open. If this error occurs, you cannot quit RC+ and the
process must be terminated from the Windows task manager. To workaround this
problem, close RC+ to hide it instead of minimizing it.

Vision Guide

Mobile calibration with upward camera

When using an upward camera for a mobile calibration reference point, the RobotLocal property must be the same for the upward camera calibration and the mobile camera calibration.

V and W jog buttons do not function for teaching points
Note: This has been fixed in Service Pack 1

When teaching calibration points for a 6-axis robot, the V and W jog buttons have no affect on the Vision Guide Teach Points dialog. Normally for 6-axis camera calibration, V and W should not be changed when teaching camera points. Position V and W before opening the Teach Points dialog.

Vision calibration not saved if run after previous save
Note: This has been fixed in Service Pack 1

The following steps show how this can happen:
1. Create a vision calibration and save the project.
2. Run the calibration again.
3. The Project->Save menu item is still disabled. The new calibration will work until RC+ is restarted. Then the old calibration values are used.

To workaround, change any calibration property to a different value and then back to the original value, then run the calibration and save.

Robot orientation flags not always used during calibration
Note: This has been fixed in Service Pack 1

If any orientation attribute is default for a calibration point, it will not be used when moving to the point during calibration. For example, if a SCARA robot calibration uses Righty orientation for the calibration points, then if the calibration is started when the robot is in Lefty orientation, it will not be changed to Righty during calibration. Also, J4Flag and J6Flag for calibration points were not being restored after opening the project.

TCP/IP Communications

SetNet with no ports configured causes error 2906
Note: This has been fixed in Service Pack 1

On a new system where no TCP/IP ports have been configured, if the SetNet command is executed, error 2906, "The Registry cannot be opened". will occur. You must configure at least one TCP/IP port in System Configuration -> TCP/IP before using SetNet.

Standalone mode

Outputs are not turned off when Reset is executed
Note: This has been fixed in Service Pack 1

This applies to when "RESET command turns off outputs" is checked in SPEL Options and the standalone MIB is being used. When Reset is executed at runtime, outputs are not turned off. This applies to any kind outputs, ISA, Ethernet I/O, Fieldbus I/O. Reset executes from the Monitor window works correctly. To workaround this problem, create a function that turns off all outputs used by your application.

Fieldbus

applicomIO v2.2 Service Pack 1 required for Profibus slave only
If you are using your system as a Profibus slave only (not Master/Slave), you need to install applicomIO v2.2 Service Pack 1 after installing the applicomIO software that came with your Profibus board. You can obtain this service pack from the Internet. Go to www.applicom-int.com, then navigate to Support, Patches & Updates.

RC+ GUI

Toolbars missing after upgrade
Note: This has been fixed in Service Pack 1

After upgrading from a previous 4.x version, there was a situation where all toolbar shortcuts are missing when using VB Guide. If RC+ was upgraded but not run from the desktop, then when it was opened by SPELCom, the toolbars were saved without shortcuts.

To restore the shortcuts:
1. Start RC+.
2. Right click on the main toolbar.
3. Select Customize...
4. Click the Reset... button and answer Yes to the confirmation message.

Pre-processing takes longer than required
Note: This has been fixed in Service Pack 1

If some cases, files are being pre-processed again during build, but this is not indicated in the status window. This is noticeable on large projects.

After changing one program, all programs are compiled
Note: This has been fixed in Service Pack 1

After making a change in one file of a multi-file project, sometimes all programs are recompiled even though they don't need to be. This is more noticeable on large projects.

If wrong parameters are used for a function from Run Window, RC+ hangs

Note: This has been fixed in Service Pack 1

When you run a function from the Run window that takes parameters, a dialog is displayed asking for the parameter values. If the wrong number of parameters or wrong data types are used for the parameter list, RC+ will hang - the hourglass will remain on and you cannot exit RC+.

Maintain robot parameters does not support ECP

Note: This has been fixed in Service Pack 1

When the project preference "Maintain robot parameters" is checked, ECP values are not saved or restored when opening a project.

Maintain robot parameters does not restore TLSET V and W

Note: This has been fixed in Service Pack 1

When the project preference "Maintain robot parameters" is checked, TLSET V and W values are not restored when opening a project.

Undefined error after Input is aborted

Note: This has been fixed in Service Pack 1

If more than 2000 lines are output to the run window or operator window text area and then an Input statement is executed and aborted, and undefined error message box is displayed.