Readme.txt

Release Notes for EPSON RC+
Version 3.4.1 SP 4

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Installation Notes
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1. EPSON RC+ must be installed on Windows NT 4.0.
   NT 4.0 Service Pack 4, 5, or 6 must also be installed.
   Windows 2000 will be supported in a future release.

2. SeikoRCS users: Please refer to the upgrade notes found later in this file.

3. You must be logged in as Administrator to install.

4. To install:
   a. Insert the EPSON RC+ installation CD.
   b. The setup program will start automatically.
   c. If setup doesn't start, run e:\EpsonRC\setup.exe
      where e: is the CD drive.
   d. Follow the instructions on the screen.

5. When you reboot the system for the first time after
   installation, you must use the same login name that
   you used for installation. This is so that system
   files are updated properly.

6. In order run SPEL programs, you must install the
   SPEL Runtime Drivers. This is specified during installation.

7. To use EPSON RC+ on a PC that will not be running
   a robot, such as a laptop, do not install the SPEL Runtime
   Drivers option.

8. To use Vision Guide without a frame grabber, select VGA mode.

9. You can install EPSON RC+ on the same system
   where SPEL for Windows v1.xx or v2.xx is installed.
   The EPSON RC+ installation creates a new Windows program
   group and no files are shared with v1.xx or v2.xx versions.

10. When using the VB Guide option, you must install
    Visual Studio 6.0 Service Pack 4 or greater.

Getting Started
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After installation, there will be a program group called
"EPSON RC+". A desktop shortcut is also created.

To start EPSON RC+, either double click the desktop shortcut or click Start, then select EPSON RC+ from the EPSON RC+ program group.

The very first time you run EPSON RC+, no projects will be open. You must create a new project by selecting New Project from the Project menu. By default, the next time you run EPSON RC+, the last project you were working on will be opened automatically.

Getting Help
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EPSON RC+ has context sensitive help. Press the F1 key at any time to get help for the current operation, or click on the HELP button for the current dialog box, if available. You can get help for SPEL+ language keywords in the Edit window by placing the insertion point anywhere within a keyword and pressing the F1 key.

You can also select Contents from the Help menu to open the Help table of contents. First time users should review the Introduction in the help contents.

Upgrade Notes
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EPSON RC+ Users:

1. You may install a newer version of EPSON RC+ 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.

2. Execute MKVER before upgrading to save your system configuration. Select Tools | Maintenance, then click MKVER. Enter a name and save it to floppy. If you decide to uninstall the previous version of EPSON RC+, the robot setup information will be removed. After installing the new version, you can use SETVER from Tools | Maintenance to restore the system configuration.

3. Before you start installing the new version, ensure that the SPEL Runtime Drivers are shutdown. If you see the robot icon in your Windows system tray, then right click on the icon and select Shutdown SPEL Drivers. If you attempt to install when the drivers are running, you will receive a message to shutdown the drivers before you can proceed. In this case, you will have to start the setup program again by re-inserting the CD or double clicking on the CD icon in My Computer.

SeikoRCS Users:

1. The Seiko Instruments USA Factory Automation Robotics Division has been acquired by SEIKO EPSON CORPORATION and Epson America, Inc.
The SeikoRCS product is now EPSON RC+.

2. To upgrade from SeikoRCS to EPSON RC+:
   a. Start SeikoRCS.
   b. Execute MKVER from Tools | Maintenance.
   c. Uninstall SeikoRCS from Control Panel | Add/Remove Programs.
   d. Reboot the system.
   e. Install EPSON RC+.
   f. Execute SETVER from Tools | Maintenance.
   g. Set your preferences from Setup | Preferences.

3. One of the most important features of EPSON RC+ is complete ANSI/RIA 15.06-1999 support. You are encouraged to upgrade your systems to use EPSON RC+. Of course, as with all upgrades, you should test the upgrade on one cell first (offline, if possible) and check operation before committing to production. When you open a SeikoRCS project, it will be copied into the EPSON RC+ directory. The original project will be left unchanged.

Release Notes v3.4.1
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1. If you are using TCP/IP, you will have to change your code by adding the Server | Client parameter to all OpenNet statements. If you do not add this parameter, the compile will fail.

   It is strongly recommended that all systems using TCP/IP to communicate with each other be upgraded to version 3.4.x. Avoid mixing with previous versions.

2. When using the force sensing option, make sure that you always match the serial number on the sensor with the serial number on the PC board. The calibration data for each sensor is stored on the corresponding PC board.

3. When using 1/2 and 3/4 video scaling, you may notice video tearing when the camera subject is moving. This does not affect vision searching. All vision searches are performed in a full scale off screen buffer. That buffer is then scaled in software for display.

Revision List v3.4.1 SP4
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What's Fixed in v3.4.1 SP4:
1. Fixed local variable problems when tasks were being Quit and no abort occurred. Sometimes local variable values could be changed after making a function call. This was more likely to happen when SPEL+ tasks are started from VB Guide.

2. Fixed problem with error 419. Previously, if one task was waiting to execute certain commands (including vision) and several other tasks were also executing these
commands, then after 3 seconds error 419 could occur.

   If an edge was found, and then not found for a few hundred cycles, an overflow error could occur. This exact not found count depends on the score when found.

4. FmtStr no longer appends a CRLF at the end of the formatted string.

Revision List v3.4.1 SP3
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What's Fixed in v3.4.1 SP3:

1. Fixed remote outputs for current robot. When the current robot is changed via remote inputs, the remote outputs related to robot status were not being updated.

2. Fixed Wait when used with the following functions:
   In, InW, Out, OutW, Ctr, Lof, Motor, MCcalComplete
   SPEL+ was not waiting for the expression to become true when these functions were used in a Wait statement.

3. Fixed text cursor for Vision Guide sequence and object properties. If you clicked on a result value, then clicked on a property that contains text, the text cursor (caret) did not appear.

Revision List v3.4.1 SP2
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What's Fixed in v3.4.1 SP2:

1. Fixed problem for quick pause. If QP OFF is executed in a program and QP ON is executed later, Pause did not work correctly.

2. Fixed error 4242 when safeguard was opened during Pass and Cont was executed.

3. Fixed crash condition that can occur when EXIT FUNCTION is used in a single line IF statement. For example:
   If a = 1 Then Exit Function
   In rare cases, this could cause RC+ to crash.

   In the Calibration dialog, only 4 cameras were allowed for Meteor2 frame grabber. This has been fixed to allow 12 cameras for Meteor2.

Revision List v3.4.1 SP1
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What's Fixed in v3.4.1 SP1:
1. The ES653S robot model can now be added.

2. Error 4103 was fixed when jogging to teach calibration points from Vision Guide.

3. The I/O type column was fixed for the I/O Label Editor when used with Ethernet I/O.

4. Fixed video update when strobe is used.

5. Fixed remote outputs for current robot.

6. Fixed problem for Error statement. If Error was used in a function without error handler, then variables in the calling function had incorrect values.

7. Fixed local variable initialization problem. If a program was aborted, then run again, the local variables in the aborted function were not being initialized.

8. Fixed error 76 when Setup | System Configuration was selected and Vision Guide was installed in VGA mode.

Revision List v3.4.1
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What's Fixed in v3.4.1:

1. Default points are now loaded after switching group using remote inputs.

2. First Print statement can now be seen on the Operator Window after starting a program using remote input.

3. Hofs and MCOfs can now use 8 digits from the Robot Configuration dialog.

4. Fixed auto start from Operator Window if mode was switched to Program / Debug during start up. Now auto start is correctly disabled in Program / Debug mode.

5. Fixed step through Restart and Chain statements.

6. Newly added point files are now displayed in the Jog & Teach dialog point file drop down.

7. Fixed problem with For...Next when used in a GoSub routine.

8. Fixed problem where sometimes the label for P0 was being deleted when switching point files from Jog & Teach.

9. CtrlDev function now returns correct values.

10. RobotModel$ and RobotType functions now work without the RobotNumber
parameter when used in an expression. In previous versions, you had to always use the RobotNumber argument.

11. Fixed Run Window title when CtrlDev is remote.

12. You can no longer change the group on the Run window when tasks are running.

13. The Point number column is now displayed correct when opening the I/O label editor for Ethernet I/O.

14. Fixed ByRef variables when used on right side of statement inside a function other than the main function.

15. Fixed memory access violation errors that sometimes occurred with ParseStr or Redim string.

16. Fixed variable display using mouse hover for function parameters.

17. Fixed password for Administrator in Security option. It was not functioning.

18. Fixed TCPIP PortNumber parameter for SetNet. Now an expression can be used.

19. Fixed problem for Jog and Teach and P* when safeguard is open. Now when safeguard is open, robot XYZU coordinates are updated correctly and the Teach button for Jog and Teach and P* in user programs now works correctly.

20. Fixed Homeset GUI. If Homeset was not defined, and you view the Homeset tab from Projects | Robot Parameters and click OK, then the Homeset values were changed to -999999999. Now they are not changed.

21. Fixed Strobe for Vision Guide. At run time, the vision system was not waiting for the strobe input to occur. For the Vision Guide GUI, the graphics were not displayed if the sequence was aborted before the strobe input fired. Also, the Step button did not work correctly.

22. Fixed compile error for point statement with negative number for U axis and point attribute is specified. For example: P1 = 1, 2, 3, -4 /L

23. Fixed video update problem for Run window when Vision Guide window was also open.

Revision List v3.4.0
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What's New in v3.4.0:

1. Support for ANSI/RIA 15.06-1999 has been added.
Robot motors will now turn off when the safeguard is open. Attend Mode has been added to allow jogging and slow motion with the safeguard open while holding a dead man three position enable switch. Refer to the Safety chapter in the EPSON RC+ User's Guide for more information.

2. Now the default installation drive is D, if it is available. When configured at the factory, drive D is used for EPSON RC+ because it is formatted as an NTFS drive, which is more reliable. It is recommended that you always install on drive D when not using EPSON RC+ off line.

3. I/O labels can now be used in expressions. This allows you to pass a label to a function or use it in an integer expression.

4. During stepping through code, if the step line is the last line in the window, the step line is centered in the window.

5. Now there is a message box stating when a Find has been completed, instead of wrapping around to the first search result.

6. The OCR object Character Constraints dialog was improved. Now the font characters are displayed and can be copied and pasted into the constraint column.

7. A pop up menu has been added to the Jog and Teach dialog for Free Axes. If you right click anywhere in the Free Axes group, a menu is displayed to Free All or Lock All.

8. Improved connection time for OpenNet. A new parameter has been added to specify Server or Client.

9. Added new operation modes:
   Production / Debug
   Production / Operator
   Production / Remote

   See the on line help for details.

10. Added status bar to Operator Window to show emergency stop, safe guard, and date/time.

11. Added the following remote outputs:
    AtHome: This output is only on when the robot is at the home position.

    EnableOn: This output is on when the dead man switch is engaged during attend mode.
MotorMode: Current user motor mode setting.

PowerMode: Current user power mode setting.

See on line help for details.

12. Now remote input and output names can be used in I/O status functions Sw and Oport. For example:
   If Sw(AtHome) = Off Then
       Home
   EndIf

13. Now the Run Window function list displays function names in sorted order after the main function.

What's Fixed in v3.4.0:

1. Fixed CX, CY, CZ, CU, POrient, and PLocal when used with P(expr) or Pnumber.

2. Added EStop and Safety status to the main window status bar.

3. Added new SPEL+ function called JT. JT returns the status of the last Jump command for the current robot. See help for details.

4. Fixed import for user errors. User errors could not be imported from other projects.

5. Fixed font change for editor. If monitor window was open when editor font was changed, the monitor window used the editor font until the next session.


7. Fixed vision graphics when OCR tool is in use. Sometimes when stepping through a sequence, some objects were being drawn with dotted lines instead of solid lines.

8. If a comment included two or more apostrophes, then during debug stepping, the debugger would step through the line containing the comment.

9. The vision Correlation object no longer moves to it's CenterPointObject position during teach.

10. If User Errors are changed, the event is now logged in security audit database.

11. Fixed User Errors. If a label was removed, the project programs were not being recompiled.
12. Fixed OCR frame problem. If an OCR object was in a frame and the frame step was changed because an object with a lower step number was deleted, a type mismatch error was occurring when the sequence was run.

13. Fixed problem for Correlation object. After starting a session, the search parameters were set internally to the values at each time.

14. Fixed Display Variables dialog for local strings. When the string value was changed, the new value was not being retained.

15. Fixed bad identifier error when using mixed data types with Input. For example, the following statement was causing an error: Input a, b$

16. User function names can no longer have the same name as a DLL function name. Now an error will occur.

17. Fixed problem for point labels that were maximum length (16 characters). In 3.3.0, internal errors were occurring during point file save or project build. In previous versions, point labels with 16 characters were causing memory corruption.

18. Fixed line numbers when errors are reported and program has been numbered.

19. Fixed bug for CameraBrightness and CameraContrast properties. They were not being loaded when a new session of EPSON RC+ was started. This only affects vision systems with Meteor2 frame grabbers.

20. Fixed error 231, 'MCAL has not been completed' during VRRun at runtime if robot is not robot 1 and MCAL is executed at runtime.

21. Fixed PDef function so it handles point labels and Pxxx.

22. Fixed Point object when used with Frame. If the point location is not in the video image, it is considered not found.

23. Fixed VGet when some arguments are an array variable but the last argument is not. Error 416, "Not an array", was occurring.

24. Fixed problems for nested #ifdef statements.

25. Fixed XYLim, Local functions. These functions return a point.
   p1 = XYLim(1)
   p2 = Local(1)

26. Fixed TlSet when used with a point.
   TlSet 1, p1
27. Fixed macros that defined multi-statements when defined in an include file.
   #define PRN_DATA(a, b) Print "Data a = ", a; Print "Data b =", b

28. Fixed build problem for include files. If an include file had a statement with a syntax error, then the compiler would not catch it.

29. Fixed For...Next problems:
   A. When Exit For or Exit Function was used to abort a loop in a called function from another For...Next, the loop would not terminate.
   
   B. If the For...Next variable value was already outside the range of the loop, the loop was executing one time. Now it does not.

30. Fixed single line If problem when multi-statements are used. Multi-statements were not all attached to the if condition. For example, in the following code, b was printed, even though the If condition was false.

   a = 0
   If a = 1 Then b = 2; Print b

   Now all multi-statements on a single line If statement are only executed when the If condition is true.

31. An expression can now be used in the Pallet function for the palletNumber parameter. For example:
   P1 = Pallet(a + 1, 1, 1)

32. Improved Select TRUE for certain Case statements to be more compatible with the SPEL language used on SRC-3** controllers. Since TRUE is -1 in SPEL+, but 1 in SPEL, the following statements were not executing properly, because Sw(xxx) or Oport(xxx) evaluate to On (1) or Off (0), instead of -1 or 0. Now this code will work in SPEL+, too.

   Select TRUE
   Case Sw(1)
       Print "case 1 is true"
   Case Sw(1) And Sw($2)
       Print "case 2 is true"
   Case Oport(3)
       Print "case 3 is true"
   Send

   However, we recommend adding a Boolean expression to make it read more clearly:

   Select TRUE
   Case Sw(1) = On
       Print "case 1 is true"
Case Sw(1) = On And Sw($2) = On
    Print "case 2 is true"
Case Oport(3) = On
    Print "case 3 is true"
Send

33. Fixed problem for robot point file on Jog & Teach after changing the current robot outside of Jog & Teach. The wrong point files were shown in the Point File drop down list.