# e² studio 7.6.0

Release Note

R20UT4627EE0100
Rev.1.00
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## Introduction

This document outlines the device support, new features added in 7.6.0, fixed issues and open issues in e² studio 7.6.0.

## Contents

# 1. Product Information

## 1.1 Supported Operating Systems

These operating systems are officially supported by e² studio:

- Windows 7 32-bit
- Windows 7 64-bit
- Windows 8.1 32-bit
- Windows 8.1 64-bit
- Windows 10 32-bit
- Windows 10 64-bit

## 1.2 Supported Toolchains

The following toolchains are supported in e² studio 7.6.0.

| | | Renesas | GNU Arm Embedded (*2) | Renesas GCC/ GNURZ/ARM (*3) | IAR (*4) | Green Hills (*5) |
|---|---|---|---|---|---|---|
| Device Family | RL78 | Yes (CC-RL) | No | Yes | Yes | No |
| | RX | Yes (CC-RX) | No | Yes | Yes | No |
| | RH850 | No | No | No | Yes | Yes |
| | RZ/ARM | No | No (*1) | Yes | Yes | No |
| | Synergy/ARM | No | Yes | No | Yes | No |

**Note:**

*1: Project converter is available to convert from GNUARM RZ/none to GNU ARM Embedded toolchain.

*2: The GCC toolchains for RZ Family and Renesas Synergy™ are distributed via Arm Developer at https://developer.arm.com/open-source/gnu-toolchain/gnu-rm or Launchpad.net at: https://launchpad.net/gcc-arm-embedded. They are also available using the "Additional components" page in the e² studio installer. Supported ARM GCC versions vary from device family to device family. Please see the following table for more information:

| Device Family | GCC distribution and version |
|---|---|
| RZ/A1, A2 | 6.3.1 (2017 q2) |
| RZ/G1, G2 | Linaro 7.3.1 |
| Synergy | SSP 1.6.x: 7.2.1<br>SSP 1.7.x: 8.2.1 |
| RA | FSP 0.8: 8.3.1 |

*3: Legacy GNUARM toolchains are available from https://gcc-renesas.com/. In addition, the latest RX and RL78 Renesas GCC toolchains are available from this website.

*4: The IAR toolchain plugins are available via the “Help”->” IAR Embedded Workbench plugin manager” menu in e² studio. These Eclipse plugins are provided by IAR and are not supported by Renesas.

*5: The Green Hills toolchain plugins are available within the e² studio product. These plugins are provided by Green Hills and are not supported by Renesas.

# 2. Device Support

## 2.1 Project Generator Support

Note: The Renesas SH device family is no longer supported in e² studio.

| Family | Group | Devices |
|---|---|---|
| EC-1 | EC-1 | R9A06G043 |
| RH850 | C1H | R7F701260, R7F701270,(Debug Support Only) |
| | C1M | R7F701263, R7F701271,(Debug Support Only) |
| | D1L1 | R7F701401, R7F701421,(Debug Support Only) |
| | D1L2 | R7F701402, R7F701422,(Debug Support Only) |
| | D1M1 | R7F701404, R7F701405,(Debug Support Only) |
| | D1M1-V2 | R7F701442, R7F701462,(Debug Support Only) |
| | D1M2 | R7F701408, R7F701410, R7F701428, R7F701430,(Debug Support Only) |
| | E1L | R7F701201, R7F701205,(Debug Support Only) |
| | E1M-S | R7F701202, R7F701204,(Debug Support Only) |
| | E1M-S2 | R7F701215, R7F701216,(Debug Support Only) |
| | - | R7F701Z05, R7F701Z06, R7F701Z07,(Debug Support Only) |
| | F1H | R7F701501, R7F701502, R7F701503, R7F701506, R7F701507, R7F701508, R7F701511, R7F701512, R7F701513,(Debug Support Only) |
| | - | R7F701521, R7F701522, R7F701524, R7F701525,(Debug Support Only) |
| | F1K | R7F701542, R7F701543, R7F701546, R7F701547, R7F701557, R7F701560, R7F701561, R7F701562, R7F701563, R7F701566, R7F701567, R7F701577, R7F701580, R7F701581, R7F701582, R7F701583, R7F701586, R7F701587, R7F701597, R7F701602, R7F701603, R7F701610, R7F701611, R7F701612, R7F701613, R7F701620, R7F701621, R7F701622, R7F701623,(Debug Support Only) |
| | F1KH | R7F701708, R7F701709, R7F701710, R7F701711, R7F701714, R7F701715,(Debug Support Only) |
| | F1KM | R7F701644, R7F701645, R7F701646, R7F701647, R7F701648, R7F701649, R7F701650, R7F701651, R7F701652, R7F701653, R7F701684, R7F701685, R7F701686, R7F701687, R7F701688, R7F701689, R7F701690, R7F701691, R7F701692, R7F701693, R7F701694, R7F701695,(Debug Support Only) |
| | F1L | R7F701002xAFP, R7F701003xAFP, R7F701006xAFP, R7F701007xAFP, R7F701008xAFP, R7F701009xAFP, R7F701010xAFP, R7F701011xAFP, R7F701012xAFP, R7F701013xAFP, R7F701014xAFP, R7F701015xAFP, R7F701016xAFP, R7F701017xAFP, R7F701018xAFP, R7F701019xAFP, R7F701020xAFP, R7F701021xAFP, R7F701022xAFP, R7F701023xAFP, R7F701024xAFP, R7F701025xAFP, R7F701026xAFP, R7F701027xAFP, R7F701028xAFP, R7F701029xAFP, R7F701030xAFP, R7F701032xAFP, R7F701033xAFP, R7F701034xAFP, R7F701040, R7F701041, R7F701042, R7F701043, R7F701044, R7F701045, R7F701046, R7F701047, R7F701048, R7F701049, R7F701050, R7F701051, R7F701052, R7F701053, R7F701054, R7F701055, R7F701056, R7F701057,(Debug Support Only) |

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|---|---|---|
| | F1M | R7F701544, R7F701545, R7F701548, R7F701549, R7F701552, R7F701553, R7F701564, R7F701565, R7F701568, R7F701569, R7F701572, R7F701573,(Debug Support Only) |
| | P1H-C | R7F701370AEEBG, R7F701371EABG, R7F701372EABG, R7F701396EABG,(Debug Support Only) |
| | P1L-C | R7F701388, R7F701389, R7F701390, R7F701391,(Debug Support Only) |
| | P1M | R7F701304, R7F701305, R7F701310, R7F701311, R7F701312, R7F701313, R7F701314, R7F701315, R7F701318, R7F701319, R7F701320, R7F701321, R7F701322, R7F701323,(Debug Support Only) |
| | P1M-C | R7F701373xABG, R7F701374xAFP, R7F701397xABG,(Debug Support Only) |
| | P1M-E | R7F701375, R7F701376, R7F701377, R7F701378, R7F701379, R7F701380, R7F701381, R7F701382, R7F701383, R7F701384, R7F701385, R7F701386,(Debug Support Only) |
| | - | R7F701060xAFP, R7F701062xAFP, R7F701064xAFP, R7F701065xAFP, R7F701067xAFP, R7F701069xAFP, R7F701071xAFP,(Debug Support Only) |
| RL78 | D1A | R5F10CGB, R5F10CGC, R5F10CGD, R5F10CLD, R5F10CMD, R5F10CME, R5F10DGC, R5F10DGD, R5F10DGE, R5F10DLD, R5F10DLE, R5F10DMD, R5F10DME, R5F10DMF, R5F10DMG, R5F10DMJ, R5F10DPE, R5F10DPF, R5F10DPG, R5F10DPJ, R5F10DPK, R5F10DPL, R5F10DSJ, R5F10DSK, R5F10DSL, R5F10TPJ |
| | F12 | R5F10968, R5F1096A, R5F1096B, R5F1096C, R5F1096D, R5F1096E, R5F109AA, R5F109AB, R5F109AC, R5F109AD, R5F109AE, R5F109BA, R5F109BB, R5F109BC, R5F109BD, R5F109BE, R5F109GA, R5F109GB, R5F109GC, R5F109GD, R5F109GE, R5F109LA, R5F109LB, R5F109LC, R5F109LD, R5F109LE |
| | F13 | R5F10A6A, R5F10A6C, R5F10A6D, R5F10A6E, R5F10AAA, R5F10AAC, R5F10AAD, R5F10AAE, R5F10ABA, R5F10ABC, R5F10ABD, R5F10ABE, R5F10AGA, R5F10AGC, R5F10AGD, R5F10AGE, R5F10AGF, R5F10AGG, R5F10ALC, R5F10ALD, R5F10ALE, R5F10ALF, R5F10ALG, R5F10AME, R5F10AMF, R5F10AMG, R5F10BAC, R5F10BAD, R5F10BAE, R5F10BAF, R5F10BAG, R5F10BBC, R5F10BBD, R5F10BBE, R5F10BBF, R5F10BBG, R5F10BGC, R5F10BGD, R5F10BGE, R5F10BGF, R5F10BGG, R5F10BLC, R5F10BLD, R5F10BLE, R5F10BLF, R5F10BLG, R5F10BME, R5F10BMF, R5F10BMG |
| | F14 | R5F10PAD, R5F10PAE, R5F10PBD, R5F10PBE, R5F10PGD, R5F10PGE, R5F10PGF, R5F10PGG, R5F10PGH, R5F10PGJ, R5F10PLE, R5F10PLF, R5F10PLG, R5F10PLH, R5F10PLJ, R5F10PME, R5F10PMF, R5F10PMG, R5F10PMH, R5F10PMJ, R5F10PPE, R5F10PPF, R5F10PPG, R5F10PPH, R5F10PPJ |
| | F15 | R5F113GK, R5F113GL, R5F113LK, R5F113LL, R5F113MK, R5F113ML, R5F113PG, R5F113PH, R5F113PJ, R5F113PK, R5F113PL, R5F113TG, R5F113TH, R5F113TJ, R5F113TK, R5F113TL |
| | F1A | R5F114GC, R5F114GD, R5F114GE, R5F114GF, R5F114GG |
| | F1E | R5F11KLE, R5F11KLF, R5F11KLG, R5F11LLE, R5F11LLF, R5F11LLG |
| | G10 | R5F10Y14, R5F10Y16, R5F10Y17, R5F10Y44, R5F10Y46, R5F10Y47 |

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|---|---|
| G11 | R5F1051A, R5F1054A, R5F1056A, R5F1057A, R5F1058A |
| G12 | R5F10266, R5F10267, R5F10268, R5F10269, R5F1026A, R5F10277, R5F10278, R5F10279, R5F1027A, R5F102A7, R5F102A8, R5F102A9, R5F102AA, R5F10366, R5F10367, R5F10368, R5F10369, R5F1036A, R5F10377, R5F10378, R5F10379, R5F1037A, R5F103A7, R5F103A8, R5F103A9, R5F103AA |
| G13 | R5F1006A, R5F1006C, R5F1006D, R5F1006E, R5F1007A, R5F1007C, R5F1007D, R5F1007E, R5F1008A, R5F1008C, R5F1008D, R5F1008E, R5F100AA, R5F100AC, R5F100AD, R5F100AE, R5F100AF, R5F100AG, R5F100BA, R5F100BC, R5F100BD, R5F100BE, R5F100BF, R5F100BG, R5F100CA, R5F100CC, R5F100CD, R5F100CE, R5F100CF, R5F100CG, R5F100EA, R5F100EC, R5F100ED, R5F100EE, R5F100EF, R5F100EG, R5F100EH, R5F100FA, R5F100FC, R5F100FD, R5F100FE, R5F100FF, R5F100FG, R5F100FH, R5F100FJ, R5F100FK, R5F100FL, R5F100GA, R5F100GC, R5F100GD, R5F100GE, R5F100GF, R5F100GG, R5F100GH, R5F100GJ, R5F100GK, R5F100GL, R5F100JC, R5F100JD, R5F100JE, R5F100JF, R5F100JG, R5F100JH, R5F100JJ, R5F100JK, R5F100JL, R5F100LC, R5F100LD, R5F100LE, R5F100LF, R5F100LG, R5F100LH, R5F100LJ, R5F100LK, R5F100LL, R5F100MF, R5F100MG, R5F100MH, R5F100MJ, R5F100MK, R5F100ML, R5F100PF, R5F100PG, R5F100PH, R5F100PJ, R5F100PK, R5F100PL, R5F100SH, R5F100SJ, R5F100SK, R5F100SL, R5F1016A, R5F1016C, R5F1016D, R5F1016E, R5F1017A, R5F1017C, R5F1017D, R5F1017E, R5F1018A, R5F1018C, R5F1018D, R5F1018E, R5F101AA, R5F101AC, R5F101AD, R5F101AE, R5F101AF, R5F101AG, R5F101BA, R5F101BC, R5F101BD, R5F101BE, R5F101BF, R5F101BG, R5F101CA, R5F101CC, R5F101CD, R5F101CE, R5F101CF, R5F101CG, R5F101EA, R5F101EC, R5F101ED, R5F101EE, R5F101EF, R5F101EG, R5F101EH, R5F101FA, R5F101FC, R5F101FD, R5F101FE, R5F101FF, R5F101FG, R5F101FH, R5F101FJ, R5F101FK, R5F101FL, R5F101GA, R5F101GC, R5F101GD, R5F101GE, R5F101GF, R5F101GG, R5F101GH, R5F101GJ, R5F101GK, R5F101GL, R5F101JC, R5F101JD, R5F101JE, R5F101JF, R5F101JG, R5F101JH, R5F101JJ, R5F101JK, R5F101JL, R5F101LC, R5F101LD, R5F101LE, R5F101LF, R5F101LG, R5F101LH, R5F101LJ, R5F101LK, R5F101LL, R5F101MF, R5F101MG, R5F101MH, R5F101MJ, R5F101MK, R5F101ML, R5F101PF, R5F101PG, R5F101PH, R5F101PJ, R5F101PK, R5F101PL, R5F101SH, R5F101SJ, R5F101SK, R5F101SL |
| G14 | R5F104AA, R5F104AC, R5F104AD, R5F104AE, R5F104AF, R5F104AG, R5F104BA, R5F104BC, R5F104BD, R5F104BE, R5F104BF, R5F104BG, R5F104CA, R5F104CC, R5F104CD, R5F104CE, R5F104CF, R5F104CG, R5F104EA, R5F104EC, R5F104ED, R5F104EE, R5F104EF, R5F104EG, R5F104EH, R5F104FA, R5F104FC, R5F104FD, R5F104FE, R5F104FF, R5F104FG, R5F104FH, R5F104FJ, R5F104GA, R5F104GC, R5F104GD, R5F104GE, R5F104GF, R5F104GG, R5F104GH, R5F104GJ, R5F104GK, R5F104GL, R5F104JC, R5F104JD, R5F104JE, R5F104JF, R5F104JG, R5F104JH, R5F104JJ, R5F104LC, R5F104LD, R5F104LE, R5F104LF, R5F104LG, R5F104LH, R5F104LJ, R5F104LK, R5F104LL, R5F104MF, R5F104MG, R5F104MH, R5F104MJ, R5F104MK, R5F104ML, R5F104PF, R5F104PG, R5F104PH, R5F104PJ, R5F104PK, R5F104PL |
| G1A | R5F10E8A, R5F10E8C, R5F10E8D, R5F10E8E, R5F10EBA, R5F10EBC, R5F10EBD, R5F10EBE, R5F10EGA, R5F10EGC, R5F10EGD, R5F10EGE, R5F10ELC, R5F10ELD, R5F10ELE |
| G1C | R5F10JBC, R5F10JGC, R5F10KBC, R5F10KGC |
| G1D | R5F11AGG, R5F11AGH, R5F11AGJ |
| G1E | R5F10FLC, R5F10FLD, R5F10FLE, R5F10FMC, R5F10FMD, R5F10FME |

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|---|---|---|
| | G1F | R5F11B7C, R5F11B7E, R5F11BBC, R5F11BBE, R5F11BCC, R5F11BCE, R5F11BGC, R5F11BGE, R5F11BLC, R5F11BLE |
| | G1G | R5F11EA8, R5F11EAA, R5F11EB8, R5F11EBA, R5F11EF8, R5F11EFA |
| | G1H | R5F11FLJ, R5F11FLK, R5F11FLL |
| | G1K | R5F11VBG, R5F11VLG |
| | H1D | R5F11NGF, R5F11NGG, R5F11NLF, R5F11NLG, R5F11NME, R5F11NMF, R5F11NMG, R5F11PLF, R5F11PLG, R5F11RMG |
| | I1A | R5F1076C, R5F107AC, R5F107AE, R5F107DE |
| | I1B | R5F10MME, R5F10MMG, R5F10MPE, R5F10MPG |
| | I1C | R5F10NLE, R5F10NLG, R5F10NME, R5F10NMG, R5F10NMJ, R5F10NPG, R5F10NPJ |
| | I1D | R5F11768, R5F1176A, R5F11778, R5F1177A, R5F117A8, R5F117AA, R5F117AC, R5F117BA, R5F117BC, R5F117GA, R5F117GC |
| | I1E | R5F11CBC, R5F11CCC |
| | L12 | R5F10RB8, R5F10RBA, R5F10RBC, R5F10RF8, R5F10RFA, R5F10RFC, R5F10RG8, R5F10RGA, R5F10RGC, R5F10RJ8, R5F10RJA, R5F10RJC, R5F10RLA, R5F10RLC |
| | L13 | R5F10WLA, R5F10WLC, R5F10WLD, R5F10WLE, R5F10WLF, R5F10WLG, R5F10WMA, R5F10WMC, R5F10WMD, R5F10WME, R5F10WMF, R5F10WMG |
| | L1A | R5F11MMD, R5F11MME, R5F11MMF, R5F11MPE, R5F11MPF, R5F11MPG |
| | L1C | R5F110ME, R5F110MF, R5F110MG, R5F110MH, R5F110MJ, R5F110NE, R5F110NF, R5F110NG, R5F110NH, R5F110NJ, R5F110PE, R5F110PF, R5F110PG, R5F110PH, R5F110PJ, R5F111ME, R5F111MF, R5F111MG, R5F111MH, R5F111MJ, R5F111NE, R5F111NF, R5F111NG, R5F111NH, R5F111NJ, R5F111PE, R5F111PF, R5F111PG, R5F111PH, R5F111PJ |
| RX | 110 | R5F51101, R5F51103, R5F51104, R5F51105, R5F5110H, R5F5110J |
| | 111 | R5F51111, R5F51113, R5F51114, R5F51115, R5F51116, R5F51117, R5F51118, R5F5111J |
| | 113 | R5F51135, R5F51136, R5F51137, R5F51138 |
| | 130 | R5F51303, R5F51305, R5F51305B, R5F51306, R5F51306B, R5F51307, R5F51308 |
| | 13T | R5F513T3, R5F513T5 |
| | 210 | R5F52103, R5F52104, R5F52105, R5F52106, R5F52107, R5F52108, R5F5210A, R5F5210B |
| | 21A | R5F521A6, R5F521A7, R5F521A8 |
| | 220 | R5F52201, R5F52203, R5F52205, R5F52206 |
| | 230 | R5F52305, R5F52306 |
| | 231 | R5F52315, R5F52316, R5F52317, R5F52318 |
| | 23E-A | R5F523E5A, R5F523E6A |
| | 23T | R5F523T3, R5F523T5 |
| | 23W | R5F523W7, R5F523W8 |
| | 24T | R5F524T8, R5F524TA, R5F524TB, R5F524TC, R5F524TE |
| | 24U | R5F524UB, R5F524UC, R5F524UE |

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| | 610 | R5F56104, R5F56106, R5F56107, R5F56108 |
| | 621 | R5F56216, R5F56217, R5F56218 |
| | 62G | R5F562G7, R5F562GA |
| | 62N | R5F562N7, R5F562N8 |
| | 62T | R5F562T6, R5F562T7, R5F562TA |
| | 630 | R5F56307, R5F56308, R5F5630A, R5F5630B, R5F5630D, R5F5630E |
| | 631 | R5F56316, R5F56317, R5F56318, R5F5631A, R5F5631B, R5F5631D, R5F5631E, R5F5631F, R5F5631G, R5F5631J, R5F5631K, R5F5631M, R5F5631MF, R5F5631N, R5F5631P, R5F5631PF, R5F5631W, R5F5631Y, R5S56310 |
| | 634 | R5F5634B, R5F5634B_5V, R5F5634D, R5F5634D_5V, R5F5634E, R5F5634E_5V |
| | 63N | R5F563NA, R5F563NB, R5F563ND, R5F563NE, R5F563NF, R5F563NK, R5F563NW, R5F563NY |
| | 63T | R5F563T4, R5F563T5, R5F563T6, R5F563TB, R5F563TB_5V, R5F563TC, R5F563TC_5V, R5F563TE, R5F563TE_5V |
| | 64M | R5F564MF, R5F564MG, R5F564MJ, R5F564ML |
| | 651 | R5F56514, R5F56517, R5F56519, R5F5651C, R5F5651C_DUAL, R5F5651E, R5F5651E_DUAL<br><br>R5F56519DMB, R5F5651EDMB, R5F5651EDMB_DUAL,(Debug Support Only) |
| | 65N | R5F565N4, R5F565N7, R5F565N9, R5F565NC, R5F565NC_DUAL, R5F565NE, R5F565NE_DUAL<br><br>R5F565N9DMB, R5F565NEDMB, R5F565NEDMB_DUAL,(Debug Support Only) |
| | 66T | R5F566TA, R5F566TE, R5F566TF, R5F566TK |
| | 71M | R5F571MF, R5F571MG, R5F571MJ, R5F571ML |
| | 72M | R5F572MD, R5F572MD_DUAL, R5F572MN, R5F572MN_DUAL |
| | 72T | R5F572TF, R5F572TK |
| | null | R0E5571MLDMBXX,(Debug Support Only) |
| RZ | A1 | R7S721000, R7S721000_DualSPI, R7S721001, R7S721001_DualSPI, R7S721010, R7S721010_DualSPI, R7S721011, R7S721011_DualSPI, R7S721020, R7S721020_DualSPI, R7S721021, R7S721021_DualSPI, R7S721030, R7S721030_DualSPI, R7S721031, R7S721031_DualSPI, R7S721034, R7S721034_DualSPI |
| | A2 | R7S921040, R7S921041, R7S921042, R7S921043, R7S921045, R7S921046, R7S921047, R7S921048, R7S921051, R7S921052, R7S921053, R7S921056, R7S921057, R7S921058 |
| | G1C | R8A77470 |
| | G1E | R8A77450<br><br>R8A77450_Core1,(Debug Support Only) |
| | G1H | R8A77420 |

| | | |
|---|---|---|
| | G1M | R8A77430<br><br>R8A77430_Core1,(Debug Support Only) |
| | G1N | R8A77440 |
| | G2D | R8A774D |
| | G2E | R8A774C |
| | G2H | R8A7748 |
| | G2M | R8A774A |
| | G2N | R8A774B |
| | T1 | R7S910001, R7S910002, R7S910006, R7S910007, R7S910011, R7S910013, R7S910015, R7S910015_M3, R7S910016, R7S910016_M3, R7S910017, R7S910017_M3, R7S910018, R7S910018_M3, R7S910025, R7S910026, R7S910027, R7S910028, R7S910035, R7S910036, R7S910101, R7S910102, R7S910106, R7S910107, R7S910111, R7S910113, R7S910115, R7S910115_M3, R7S910116, R7S910116_M3, R7S910117, R7S910117_M3, R7S910118, R7S910118_M3, R7S910125, R7S910126, R7S910127, R7S910128, R7S910135, R7S910136 |
| Synergy | S1JA | R7FS1JA783A01CFM, R7FS1JA783A01CNE, R7FS1JA783A01CNF, R7FS1JA782A01CBT, R7FS1JA783A01CFJ |
| | S124 | R7FS124762A01CLM, R7FS124763A01CFL, R7FS124763A01CFM, R7FS124772A01CLM, R7FS124773A01CFL, R7FS124773A01CFM, R7FS124773A01CNB, R7FS124773A01CNE, R7FS124773A01CNF |
| | S128 | R7FS128782A01CLM, R7FS128783A01CFJ, R7FS128783A01CFL, R7FS128783A01CFM, R7FS128783A01CNE, R7FS128783A01CNG |
| | S3A1 | R7FS3A17C2A01CLK, R7FS3A17C3A01CFB, R7FS3A17C2A01CBJ, R7FS3A17C2A01CLJ, R7FS3A17C3A01CFM, R7FS3A17C3A01CFP, R7FS3A17C3A01CNB |
| | S3A3 | R7FS3A37A2A01CLK, R7FS3A37A3A01CFB, R7FS3A37A2A01CBJ, R7FS3A37A2A01CLJ, R7FS3A37A3A01CFP, R7FS3A37A3A01CFM, R7FS3A37A3A01CNB |
| | S3A6 | R7FS3A6782A01CLJ, R7FS3A6783A01CFL, R7FS3A6783A01CFM, R7FS3A6783A01CFP, R7FS3A6783A01CNB, R7FS3A6783A01CNE, R7FS3A6783A01CNF |
| | S3A7 | R7FS3A77C2A01CLK, R7FS3A77C3A01CFB, R7FS3A77C2A01CBJ, R7FS3A77C3A01CFP, R7FS3A77C2A01CLJ, R7FS3A77C3A01CFM, R7FS3A77C2A01CNB, R7FS3A77C3A01CNB |
| | S5D3 | R7FS5D37A2A01CLJ, R7FS5D37A3A01CFP, R7FS5D37A3A01CFM, R7FS5D37A3A01CNB |
| | S5D5 | R7FS5D57A2A01CLK, R7FS5D57A3A01CFB, R7FS5D57A3A01CFP, R7FS5D57C2A01CLK, R7FS5D57C3A01CFB, R7FS5D57C3A01CFP |
| | S5D9 | R7FS5D97C2A01CBG, R7FS5D97C3A01CFC, R7FS5D97C2A01CLK, R7FS5D97C3A01CFB, R7FS5D97C3A01CFP, R7FS5D97E2A01CBG, R7FS5D97E3A01CFC, R7FS5D97E2A01CLK, R7FS5D97E3A01CFB, R7FS5D97E3A01CFP |

| | | |
|---|---|---|
| | S7G2 | R7FS7G27H2A01CBD, R7FS7G27G2A01CBD, R7FS7G27H2A01CBG, R7FS7G27G2A01CBG, R7FS7G27H2A01CFC, R7FS7G27H3A01CFC, R7FS7G27G2A01CFC, R7FS7G27G3A01CFC, R7FS7G27H2A01CLK, R7FS7G27G2A01CLK, R7FS7G27H3A01CFB, R7FS7G27G3A01CFB, R7FS7G27G3A01CFP |
| RA | RA2A1 | R7FA2A1AB2CBT, R7FA2A1AB3CFJ, R7FA2A1AB3CFM, R7FA2A1AB3CNE, R7FA2A1AB3CNF |
| | RA4M1 | R7FA4M1AB2CLJ, R7FA4M1AB3CFL, R7FA4M1AB3CFM, R7FA4M1AB3CFP, R7FA4M1AB3CNB, R7FA4M1AB3CNE, R7FA4M1AB3CNF |
| | RA6M1 | R7FA6M1AD2CLJ, R7FA6M1AD3CFM, R7FA6M1AD3CFP, R7FA6M1AD3CNB |
| | RA6M2 | R7FA6M2AD2CLK, R7FA6M2AD3CFB, R7FA6M2AD3CFP, R7FA6M2AF2CLK, R7FA6M2AF3CFB, R7FA6M2AF3CFP |
| | RA6M3 | R7FA6M3AF2CBG, R7FA6M3AF2CLK, R7FA6M3AF3CFB, R7FA6M3AF3CFC, R7FA6M3AF3CFP, R7FA6M3AH2CBG, R7FA6M3AH2CLK, R7FA6M3AH3CFB, R7FA6M3AH3CFC, R7FA6M3AH3CFP |

## 2.2 Code Generator & Smart Configurator Support

| Family | Group | Devices |
|---|---|---|
| RL78 | D1A | R5F10CGB, R5F10CGC, R5F10CGD, R5F10CLD, R5F10CMD, R5F10CME, R5F10DGC, R5F10DGD, R5F10DGE, R5F10DLD, R5F10DLE, R5F10DMD, R5F10DME, R5F10DMF, R5F10DMG, R5F10DMJ, R5F10DPE, R5F10DPF, R5F10DPG, R5F10DPJ, R5F10TPJ |
| | F12 | R5F10968, R5F1096A, R5F1096B, R5F1096C, R5F1096D, R5F1096E, R5F109AA, R5F109AB, R5F109AC, R5F109AD, R5F109AE, R5F109BA, R5F109BB, R5F109BC, R5F109BD, R5F109BE, R5F109GA, R5F109GB, R5F109GC, R5F109GD, R5F109GE, R5F109LA, R5F109LB, R5F109LC, R5F109LD, R5F109LE |
| | F13 | R5F10A6A, R5F10A6C, R5F10A6D, R5F10A6E, R5F10AAA, R5F10AAC, R5F10AAD, R5F10AAE, R5F10ABA, R5F10ABC, R5F10ABD, R5F10ABE, R5F10AGA, R5F10AGC, R5F10AGD, R5F10AGE, R5F10AGF, R5F10AGG, R5F10ALC, R5F10ALD, R5F10ALE, R5F10ALF, R5F10ALG, R5F10AME, R5F10AMF, R5F10AMG, R5F10BAC, R5F10BAD, R5F10BAE, R5F10BAF, R5F10BAG, R5F10BBC, R5F10BBD, R5F10BBE, R5F10BBF, R5F10BBG, R5F10BGC, R5F10BGD, R5F10BGE, R5F10BGF, R5F10BGG, R5F10BLC, R5F10BLD, R5F10BLE, R5F10BLF, R5F10BLG, R5F10BME, R5F10BMF, R5F10BMG |
| | F14 | R5F10PAD, R5F10PAE, R5F10PBD, R5F10PBE, R5F10PGD, R5F10PGE, R5F10PGF, R5F10PGG, R5F10PGH, R5F10PGJ, R5F10PLE, R5F10PLF, R5F10PLG, R5F10PLH, R5F10PLJ, R5F10PME, R5F10PMF, R5F10PMG, R5F10PMH, R5F10PMJ, R5F10PPE, R5F10PPF, R5F10PPG, R5F10PPH, R5F10PPJ |
| | F15 | R5F113GK, R5F113GL, R5F113LK, R5F113LL, R5F113MK, R5F113ML, R5F113PG, R5F113PH, R5F113PJ, R5F113PK, R5F113PL, R5F113TG, R5F113TH, R5F113TJ, R5F113TK, R5F113TL |
| | F1E | R5F11KLE, R5F11KLF, R5F11KLG, R5F11LLE, R5F11LLF, R5F11LLG |
| | G10 | R5F10Y14, R5F10Y16, R5F10Y17, R5F10Y44, R5F10Y46, R5F10Y47 |
| | G11 | R5F1051A, R5F1054A, R5F1056A, R5F1057A, R5F1058A |
| | G12 | R5F10266, R5F10267, R5F10268, R5F10269, R5F1026A, R5F10277, R5F10278, R5F10279, R5F1027A, R5F102A7, R5F102A8, R5F102A9, R5F102AA, R5F10366, R5F10367, R5F10368, R5F10369, R5F1036A, R5F10377, R5F10378, R5F10379, R5F1037A, R5F103A7, R5F103A8, R5F103A9, R5F103AA |

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|---|---|
| G13 | R5F1006A, R5F1006C, R5F1006D, R5F1006E, R5F1007A, R5F1007C, R5F1007D, R5F1007E, R5F1008A, R5F1008C, R5F1008D, R5F1008E, R5F100AA, R5F100AC, R5F100AD, R5F100AE, R5F100AF, R5F100AG, R5F100BA, R5F100BC, R5F100BD, R5F100BE, R5F100BF, R5F100BG, R5F100CA, R5F100CC, R5F100CD, R5F100CE, R5F100CF, R5F100CG, R5F100EA, R5F100EC, R5F100ED, R5F100EE, R5F100EF, R5F100EG, R5F100EH, R5F100FA, R5F100FC, R5F100FD, R5F100FE, R5F100FF, R5F100FG, R5F100FH, R5F100FJ, R5F100FK, R5F100FL, R5F100GA, R5F100GC, R5F100GD, R5F100GE, R5F100GF, R5F100GG, R5F100GH, R5F100GJ, R5F100GK, R5F100GL, R5F100JC, R5F100JD, R5F100JE, R5F100JF, R5F100JG, R5F100JH, R5F100JJ, R5F100JK, R5F100JL, R5F100LC, R5F100LD, R5F100LE, R5F100LF, R5F100LG, R5F100LH, R5F100LJ, R5F100LK, R5F100LL, R5F100MF, R5F100MG, R5F100MH, R5F100MJ, R5F100MK, R5F100ML, R5F100PF, R5F100PG, R5F100PH, R5F100PJ, R5F100PK, R5F100PL, R5F100SH, R5F100SJ, R5F100SK, R5F100SL, R5F1016A, R5F1016C, R5F1016D, R5F1016E, R5F1017A, R5F1017C, R5F1017D, R5F1017E, R5F1018A, R5F1018C, R5F1018D, R5F1018E, R5F101AA, R5F101AC, R5F101AD, R5F101AE, R5F101AF, R5F101AG, R5F101BA, R5F101BC, R5F101BD, R5F101BE, R5F101BF, R5F101BG, R5F101CA, R5F101CC, R5F101CD, R5F101CE, R5F101CF, R5F101CG, R5F101EA, R5F101EC, R5F101ED, R5F101EE, R5F101EF, R5F101EG, R5F101EH, R5F101FA, R5F101FC, R5F101FD, R5F101FE, R5F101FF, R5F101FG, R5F101FH, R5F101FJ, R5F101FK, R5F101FL, R5F101GA, R5F101GC, R5F101GD, R5F101GE, R5F101GF, R5F101GG, R5F101GH, R5F101GJ, R5F101GK, R5F101GL, R5F101JC, R5F101JD, R5F101JE, R5F101JF, R5F101JG, R5F101JH, R5F101JJ, R5F101JK, R5F101JL, R5F101LC, R5F101LD, R5F101LE, R5F101LF, R5F101LG, R5F101LH, R5F101LJ, R5F101LK, R5F101LL, R5F101MF, R5F101MG, R5F101MH, R5F101MJ, R5F101MK, R5F101ML, R5F101PF, R5F101PG, R5F101PH, R5F101PJ, R5F101PK, R5F101PL, R5F101SH, R5F101SJ, R5F101SK, R5F101SL |
| G14 | R5F104AA, R5F104AC, R5F104AD, R5F104AE, R5F104AF, R5F104AG, R5F104BA, R5F104BC, R5F104BD, R5F104BE, R5F104BF, R5F104BG, R5F104CA, R5F104CC, R5F104CD, R5F104CE, R5F104CF, R5F104CG, R5F104EA, R5F104EC, R5F104ED, R5F104EE, R5F104EF, R5F104EG, R5F104EH, R5F104FA, R5F104FC, R5F104FD, R5F104FE, R5F104FF, R5F104FG, R5F104FH, R5F104FJ, R5F104GA, R5F104GC, R5F104GD, R5F104GE, R5F104GF, R5F104GG, R5F104GH, R5F104GJ, R5F104GK, R5F104GL, R5F104JC, R5F104JD, R5F104JE, R5F104JF, R5F104JG, R5F104JH, R5F104JJ, R5F104LC, R5F104LD, R5F104LE, R5F104LF, R5F104LG, R5F104LH, R5F104LJ, R5F104LK, R5F104LL, R5F104MF, R5F104MG, R5F104MH, R5F104MJ, R5F104MK, R5F104ML, R5F104PF, R5F104PG, R5F104PH, R5F104PJ, R5F104PK, R5F104PL |
| G1A | R5F10E8A, R5F10E8C, R5F10E8D, R5F10E8E, R5F10EBA, R5F10EBC, R5F10EBD, R5F10EBE, R5F10EGA, R5F10EGC, R5F10EGD, R5F10EGE, R5F10ELC, R5F10ELD, R5F10ELE |
| G1C | R5F10JBC, R5F10JGC, R5F10KBC, R5F10KGC |
| G1D | R5F11AGG, R5F11AGH, R5F11AGJ |
| G1E | R5F10FLC, R5F10FLD, R5F10FLE, R5F10FMC, R5F10FMD, R5F10FME |
| G1F | R5F11B7C, R5F11B7E, R5F11BBC, R5F11BBE, R5F11BCC, R5F11BCE, R5F11BGC, R5F11BGE, R5F11BLC, R5F11BLE |

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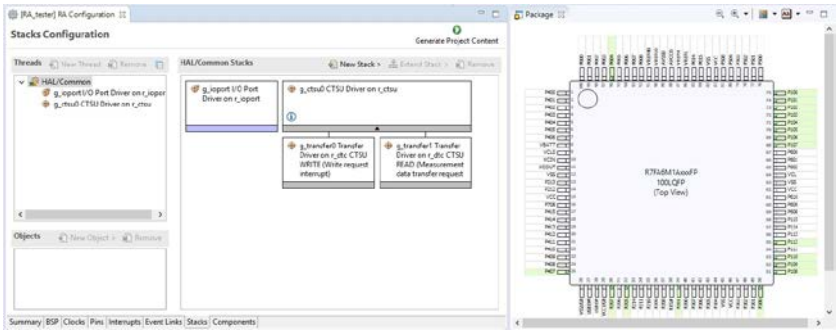
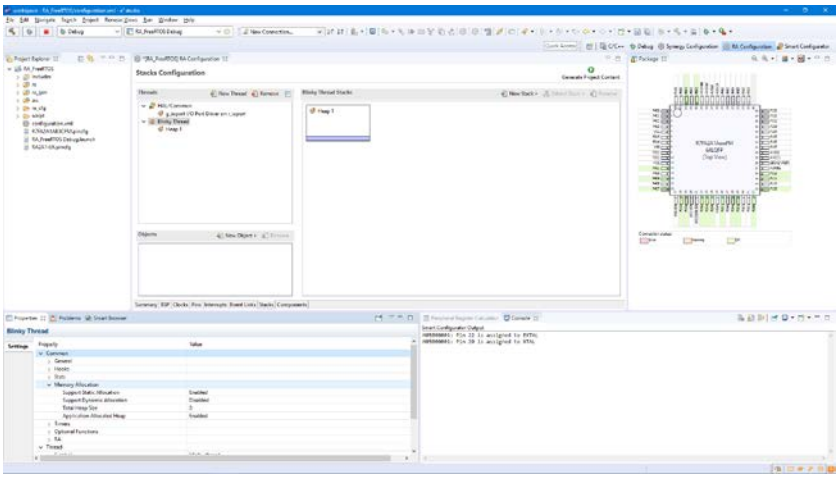
|---|---|---|
| | G1G | R5F11EA8, R5F11EAA, R5F11EB8, R5F11EBA, R5F11EF8, R5F11EFA |
| | G1H | R5F11FLJ, R5F11FLK, R5F11FLL |
| | H1D | R5F11NGF, R5F11NGG, R5F11NLF, R5F11NLG, R5F11NME, R5F11NMF, R5F11NMG, R5F11PLF, R5F11PLG, R5F11RMG |
| | I1A | R5F1076C, R5F107AC, R5F107AE, R5F107DE |
| | I1B | R5F10MME, R5F10MMG, R5F10MPE, R5F10MPG |
| | I1C | R5F10NLE, R5F10NLG, R5F10NME, R5F10NMG, R5F10NMJ, R5F10NPJ |
| | I1D | R5F11768, R5F1176A, R5F11778, R5F1177A, R5F117A8, R5F117AA, R5F117AC, R5F117BA, R5F117BC, R5F117GA, R5F117GC |
| | I1E | R5F11CBC, R5F11CCC |
| | L12 | R5F10RB8, R5F10RBA, R5F10RBC, R5F10RF8, R5F10RFA, R5F10RFC, R5F10RG8, R5F10RGA, R5F10RGC, R5F10RJ8, R5F10RJA, R5F10RJC, R5F10RLA, R5F10RLC |
| | L13 | R5F10WLA, R5F10WLC, R5F10WLD, R5F10WLE, R5F10WLF, R5F10WLG, R5F10WMA, R5F10WMC, R5F10WMD, R5F10WME, R5F10WMF, R5F10WMG |
| | L1A | R5F11MMD, R5F11MME, R5F11MMF, R5F11MPE, R5F11MPF, R5F11MPG |
| | L1C | R5F110ME, R5F110MF, R5F110MG, R5F110MH, R5F110MJ, R5F110PE, R5F110PF, R5F110PG, R5F110PH, R5F110PJ, R5F111ME, R5F111MF, R5F111MG, R5F111MH, R5F111MJ, R5F111PE, R5F111PF, R5F111PG, R5F111PH, R5F111PJ |
| RX | 110 | R5F51101, R5F51103, R5F51104, R5F51105, R5F5110H, R5F5110J |
| | 111 | R5F51111, R5F51113, R5F51114, R5F51115, R5F51116, R5F51117, R5F51118, R5F5111J |
| | 113 | R5F51135, R5F51136, R5F51137, R5F51138 |
| | 130 | R5F51303, R5F51305 |
| | 230 | R5F52305, R5F52306 |
| | 231 | R5F52315, R5F52316, R5F52317, R5F52318 |
| | 23T | R5F523T3, R5F523T5 |
| | 24T | R5F524T8, R5F524TA, R5F524TB, R5F524TC, R5F524TE, R5F524T, R5F524T8 |
| | 24U | R5F524UB, R5F524UC, R5F524UE |
| | 23W | R5F523W7, R5F523W8 |
| | 64M | R5F564MF, R5F564MG, R5F564MJ, R5F564ML |
| | 651 | R5F56514, R5F56517, R5F56519 |
| | 65N | R5F565N4, R5F565N7, R5F565N9 |
| | 66T | R5F566TA, R5F566TE, R5F566TF, R5F566TK |
| | 71M | R5F571MF, R5F571MG, R5F571MJ, R5F571ML |
| | 72M | R5F572MD, R5F572MD_DUAL, R5F572MN, R5F572MN_DUAL |
| | 72T | R5F572TF, R5F572TK |
| RZ | T1 | R7S910001, R7S910002, R7S910006, R7S910007, R7S910011, R7S910013, R7S910015, R7S910016, R7S910017, R7S910018, R7S910025, R7S910026, R7S910027, R7S910028, R7S910035, R7S910036, R7S910101, R7S910102, R7S910106, R7S910107, R7S910111, R7S910113, R7S910115, R7S910116, R7S910117, R7S910118, R7S910125, R7S910126, R7S910127, R7S910128, R7S910135, R7S910136 |

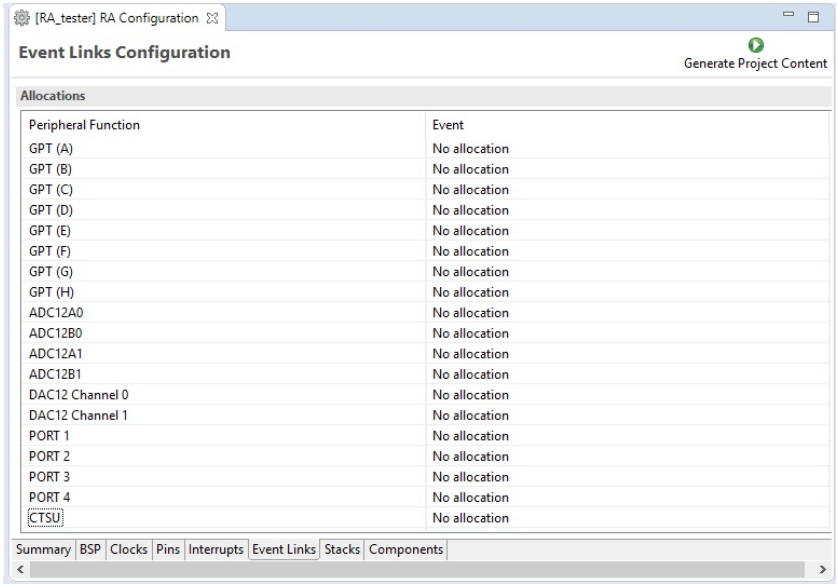
## 3. Smart Manual Support

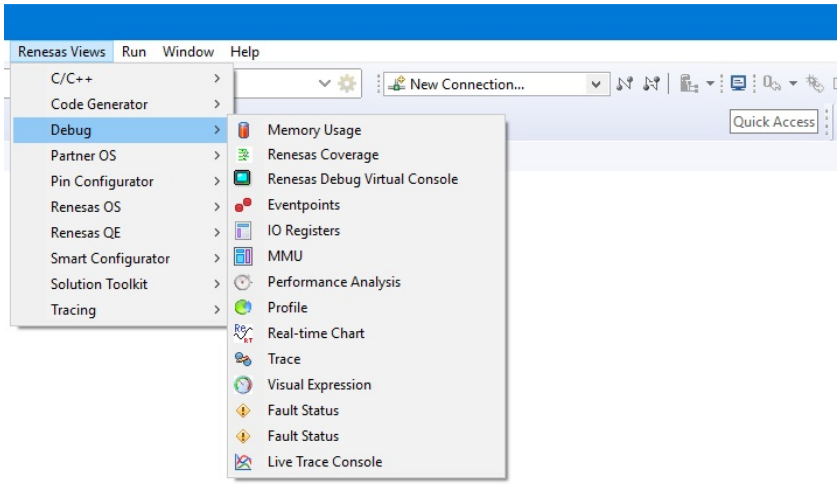
Smart manual support is delivered independently of e² studio releases when available. The following devices are available as of October 2019:

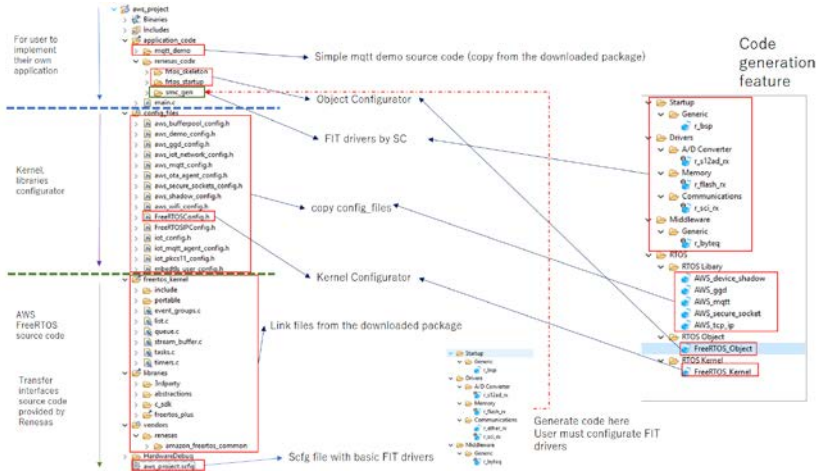
- RX62G
- RX62T
- RX63N
- RX63T
- RX64M
- RX71M
- RX72M
- RX110
- RX111
- RX113
- RX210
- RX220
- RX631
- RX651
- RX65N
- RX24U
- RX24T
- RX66T
- RL78/L12
- RL78/L13
- RL78/G14
- RL78/G13
- RL78/G12
- RL78/G11
- RL78/G10
- RL78/G1F
- RZ/A2M

## 4. What is new in 7.6.0?

| Component | Device | Description |
|---|---|---|
| RA Project Configuration | RA | The RA device family has been added into e2 studio. This family has advanced project generation and code configuration capabilities. This allows you to configure clocks, pins, interrupts along with adding software components supported by the Flexible Software Package (FSP).<br><br>Software components are added via the Stacks page. You do this by pressing the New Stack button.<br><br>  <br><br>The configurator allows you to configure the FreeRTOS operating system if in use.<br><br>  <br><br>It also has advanced features for configuring the event link control (ELC) for optimization of your application. ELC is setup on the stacks page and a visual representation show on the Event Links tab. |
| | | The Event Link Control (ELC) page shows a read only view of the configured settings for the ELC for your project.<br><br>These connections are made on the Stacks page to make best use of the ELC hardware for optimization purposes. This view helps understand the settings made for this hardware. |

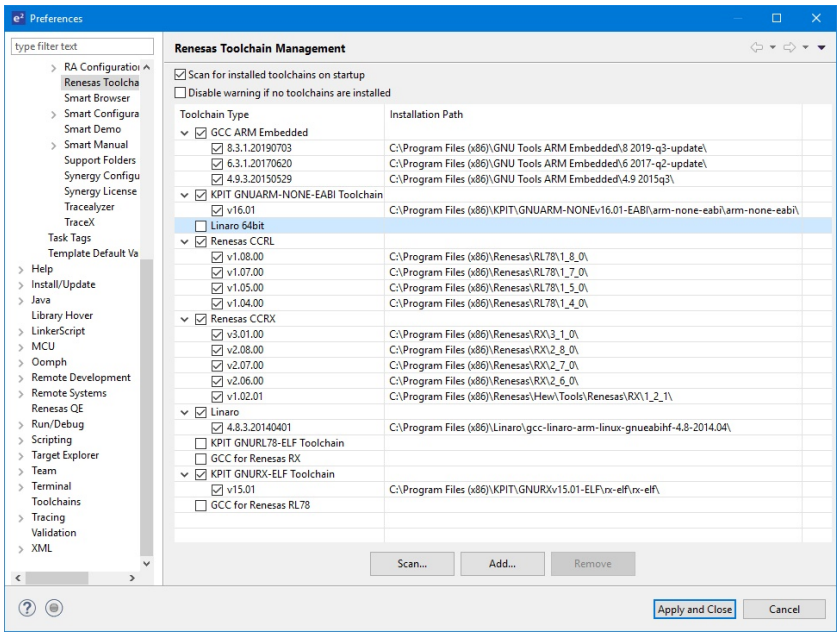



| | | |
|---|---|---|
| Application | All | The user interface in e2 studio has been cleaned up in this release to reduce the amount of open views on initial start-up.<br>The Renesas views in the C/C++ perspective and the Debug perspective are not opened by default.<br>When you need these views please open them via the "Renesas Views" menu item or the Quick Access toolbar.<br>  |
| Amazon FreeRTOS Support | RX | Amazon FreeRTOS is updated with new structure, to support this, RTOS Configurator for Kernel, Libraries and Object Configurations are also updated. |




Kernel and AWS libraries configurations will be generated to [config_files folder] * Object code generation will be generated inside [application_code/renesas_code folder] * *(linked or actual folder will both works with old and new structure)

| | | |
|---|---|---|
| Toolchain integration | RZ | Support has been added for the 64-bit Linaro toolchain (aarch64-linux-gnu). This has been added to support the new RZ/G2 device family. |

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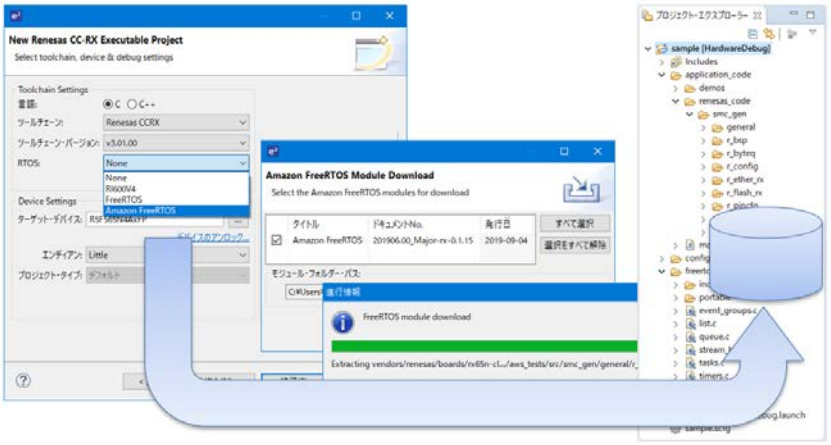
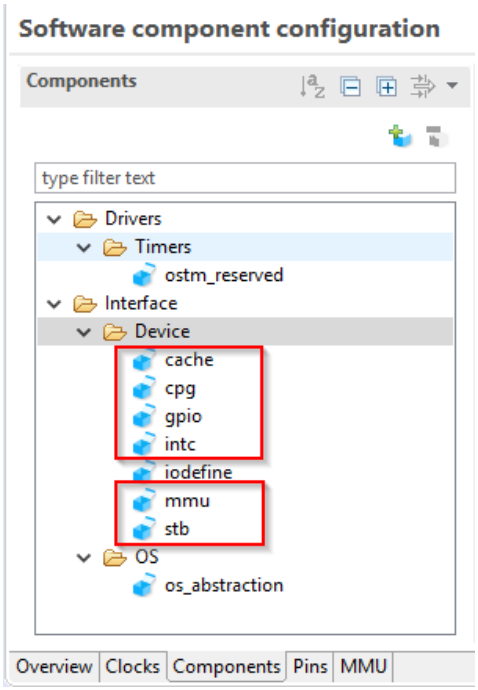
|---|---|---|
| RX Project Generator | RX | When using the RX device family and the CCRX toolchain we have provided a new feature to allow you to create a "Hello World" project with Amazon FreeRTOS. |



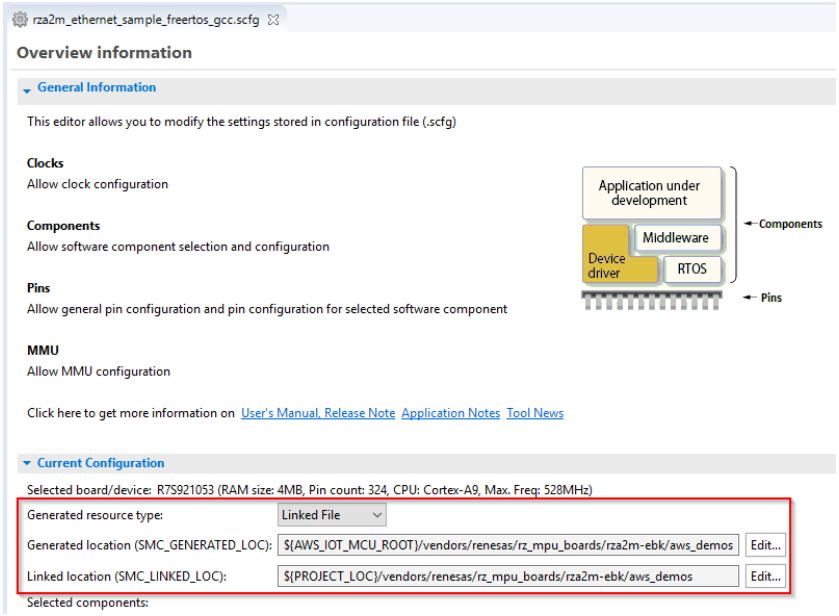

Following the new project wizard, you can create a project for Amazon FreeRTOS easily and immediately.

Smart Configurator RZ

When creating a new RZ/A2M project with Smart Configurator, "cache", "cpg", "gpio", "intc", "mmu", and "stb" are added to the Software Components Configuration.



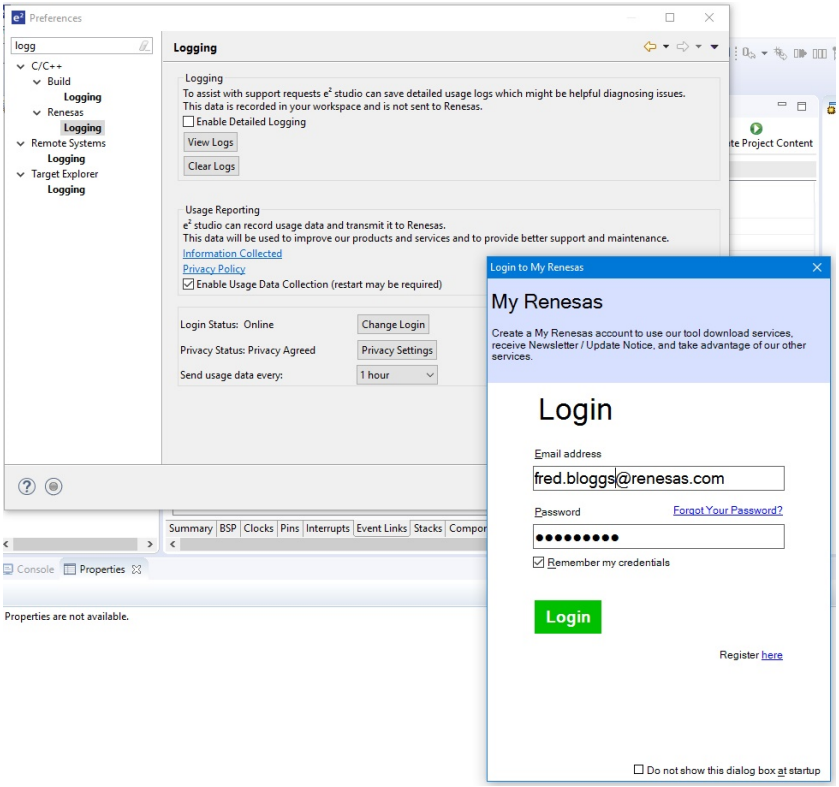

When opening Smart Configurator for an Amazon FreeRTOS project configuration, there is a new setting in Overview tab to allow user to specify generated location.




In addition, there are other improvements in the provided driver xml/mdf to allow the software to control number of configuration and generate code with linked folder or normal folder

Application All

Renesas have added in usage data and logging into e2 studio. This is only enabled when you agree to logging and the privacy agreement. Following logging into your MyRenesas account your usage data is analyzed by Renesas and will be used to improve the e2 studio product and services offered by Renesas. To enable logging, you will be prompted by e2 studio when starting a new workspace.



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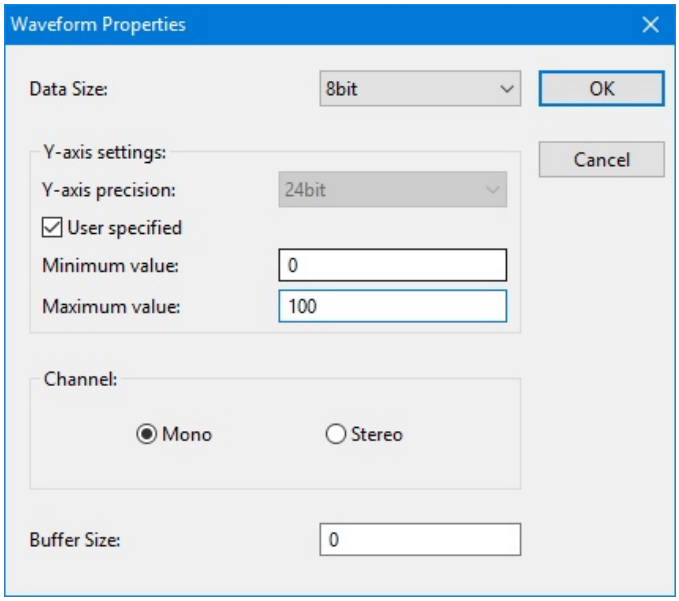
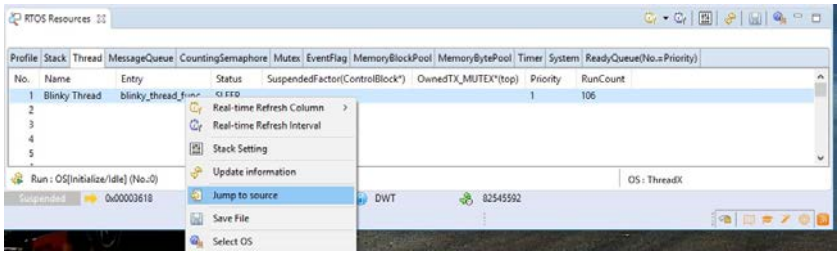
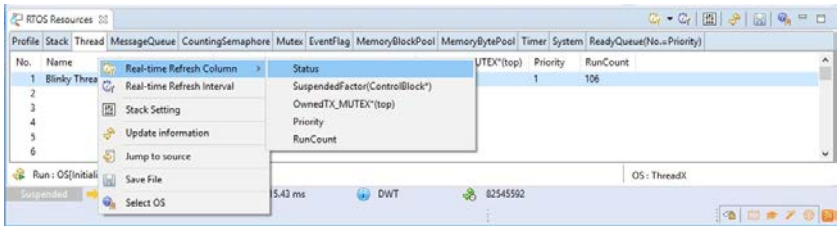
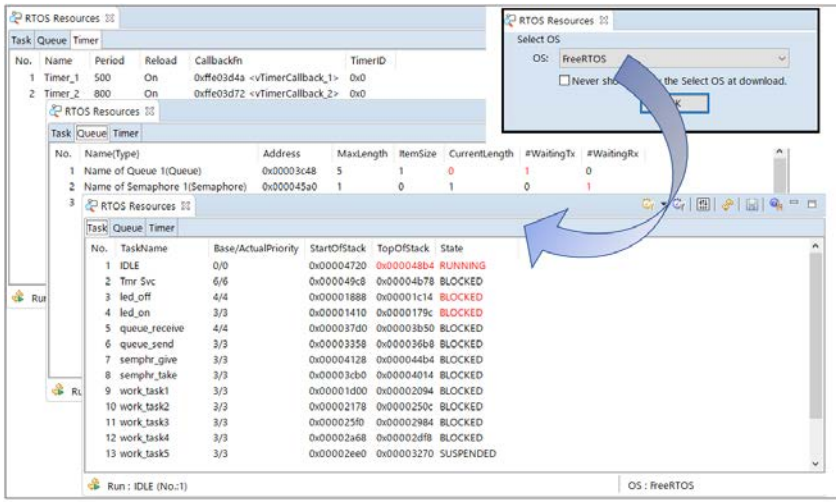
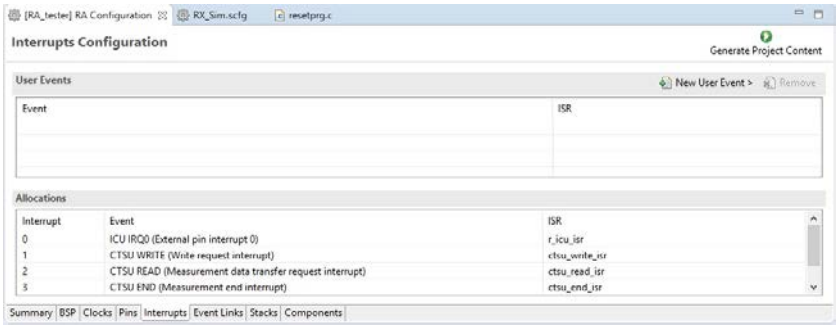
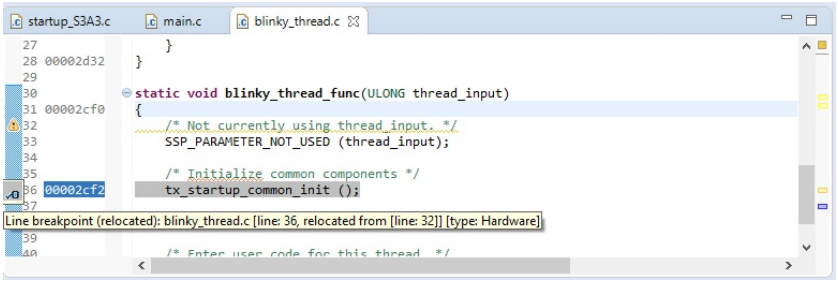
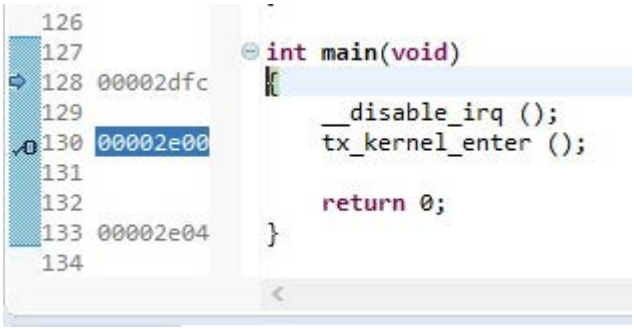
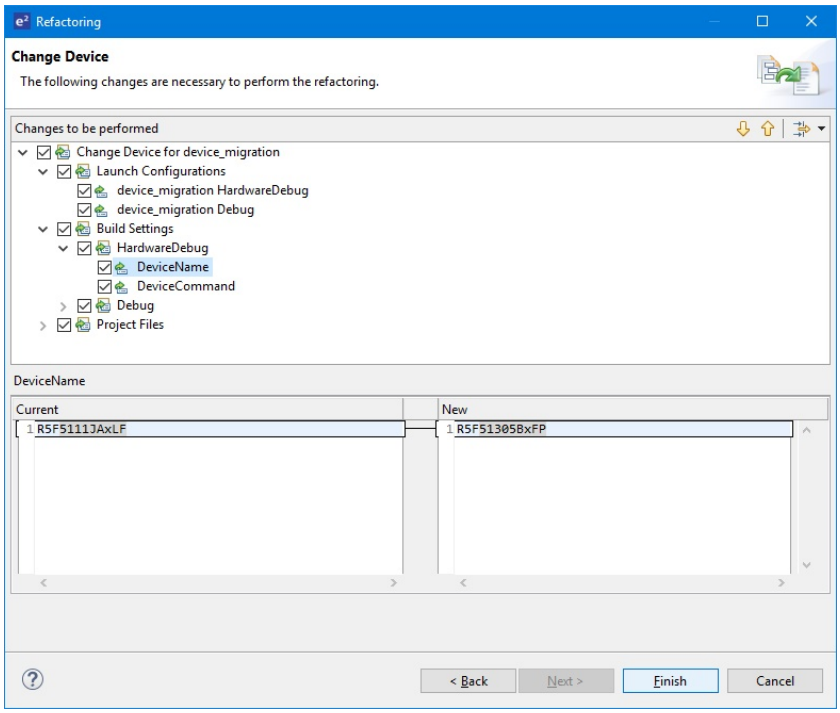
|---|---|---|
| Waveform plugin | All | When the waveform chart's value is difficult to observe (e.g.: 10bit/12bit A/D signal is drawn with 24-bit scaling), users can specify the minimum/maximum value of Y-axis so that it is easy to observe this chart.<br>  |
| Partner OS | All | The RTOS Resources view (Partner OS) now supports a Jump to Source context menu from the thread list. This will open the source editor at the correct location for the thread entry point.<br>  |
| Partner OS | All | The RTOS Resources view (Partner OS) now supports the Real-time Refresh function. It is available from the context menu. It offers the ability to change the refresh interval and which data is being refreshed.<br>You can select which column should be updated. Either Status, SuspendedFactor, OwnedTX_MUTEX, Priority and RunCount. It is possible to select more than one selection to update in real-time.<br>  |
| Partner OS | RX | Partner OS aware debugging plug-in added support for FreeRTOS including Amazon FreeRTOS. |

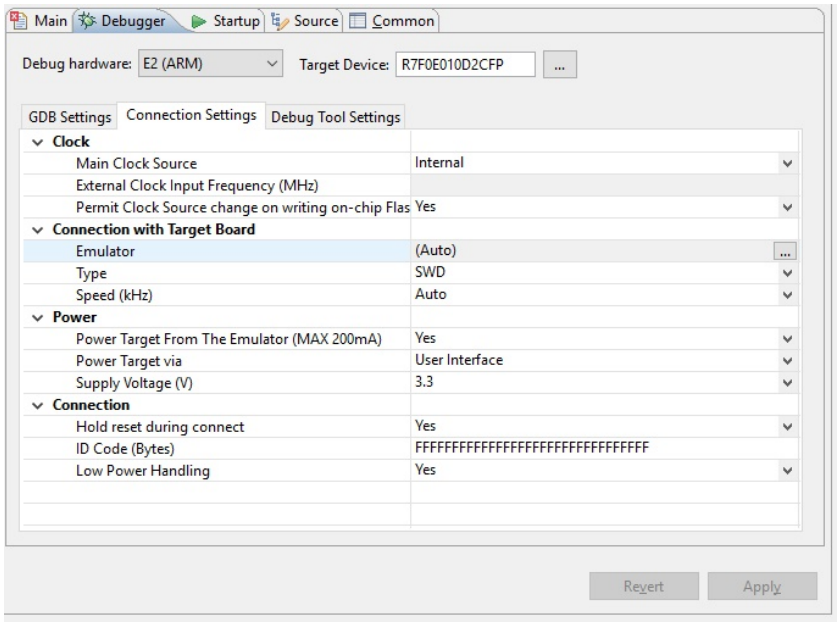
| | | |
|---|---|---|
| | RA | It can be used as a useful debug view at easily check Amazon Free RTOS tasks and resources. Supported devices are RX Family and RA Family. Support devices will be added sequentially.<br>  |
| Debug View | RX<br>RA | The debug view now supports FreeRTOS OS aware debugging. |
| RA Configurator | RA | With certain RA devices, specific interrupt events may only be allocated to a restricted set of IRQ slots only. For example, the SCI3 data transmit event might only be allocated to slot 1, 9, 17 or 25 only. Previous Renesas ARM devices have not placed restrictions on the allocation of interrupt events to IRQ slots so the allocation could be achieved by the linker at build-time.<br>For the RA family devices, more control over allocation is required. The allocation of interrupt events to IRQ slots may be non-trivial in the case where many events are in use and there is competition for the available slots.<br>To meet this new requirement the RA configurator has a tab named Interrupts that allows you to configure this interrupt slot management.<br>  |
| Debugging | All | Breakpoints which have been relocated are now easier to manage. Previously the relocated breakpoint icon would not allow the breakpoint to be toggled from the relocated breakpoint icon. This is now possible. |



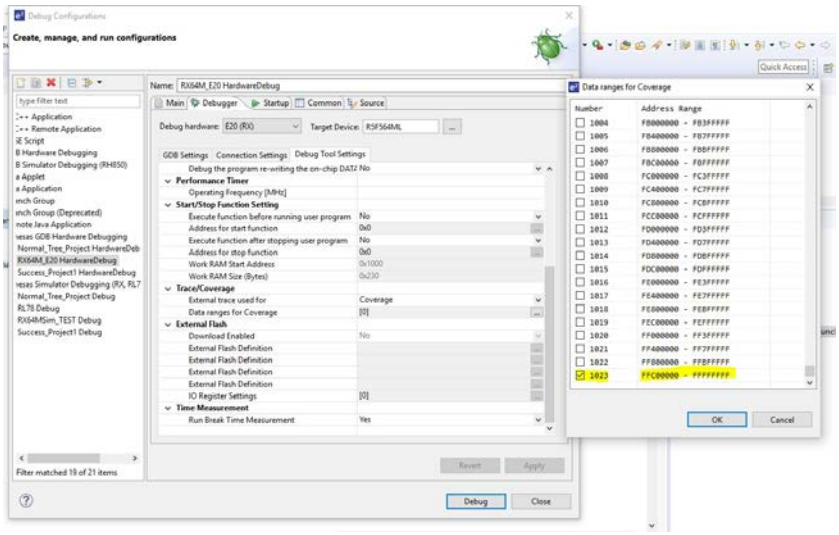

| | | |
|---|---|---|
| Debugging | All | Breakpoint highlighting has been improved to make the line more obvious where the breakpoint is placed. The address of the breakpoint in the source address column is now also highlighted to improve visibility.<br>  <br> |
| | | Device migration has been improved to offer you more fine control over which build options are modified for which build configuration.<br>This control is available as part of the Change Device functionality on the project pop-up menu and Project main menu.<br>The dialog display allows you to browse the changes that will be made and if you are not happy you may uncheck it. This change would then not be applied. |



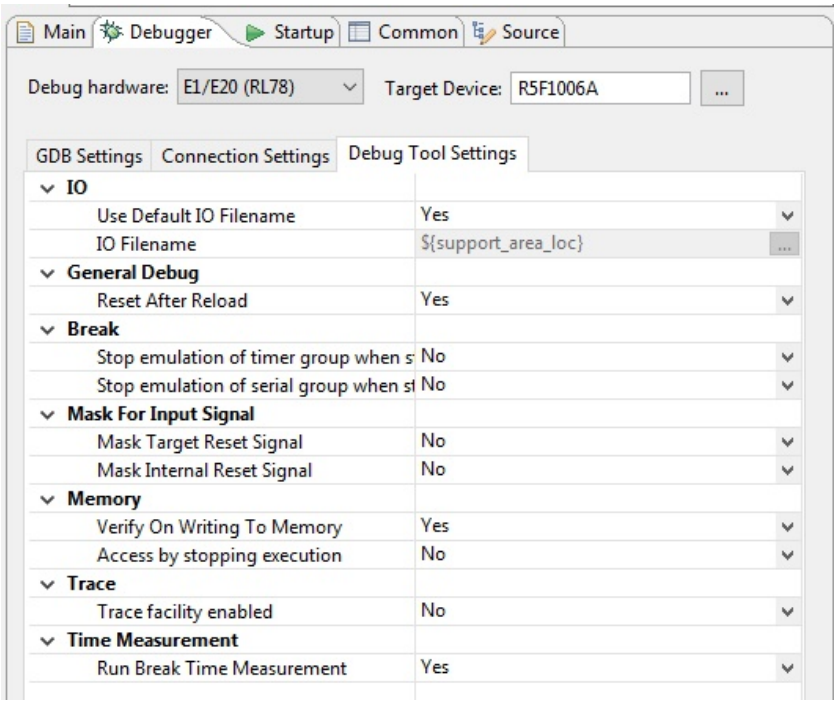

| | | |
|---|---|---|
| E2 Emulator Debugging | - | The E2 and E2 Lite have been added to e² studio to support specific ARM core devices. |




| | | |
|---|---|---|
| Coverage | RX | When using RX600 series and the E20 emulator it allows users to add user-specified data ranges in the same way as other devices. There is no longer a need to care about the 4MB-fixed-size data ranges. These 4MB-fixed-size data ranges are specified/calculated automatically. |

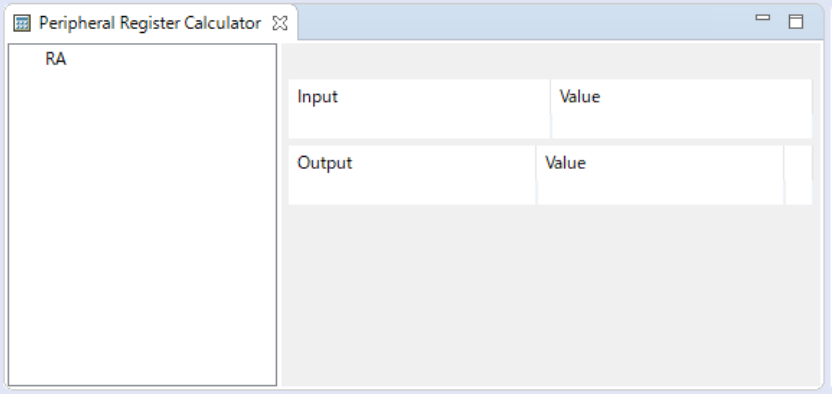



| | | |
|---|---|---|
| RL78 Debugging | RL78 | A debug improvement has been added for RL78 to allow control over the RRM/DMM feature of these devices. On the debug configuration there is a new option: Allow to access by stopping execution while running.<br><br>This function is used to read/write the contents of the memory or of watch-expressions in real-time during execution of a program.<br><br>By default, this option is on, which will stop target execution to edit memory while executing. When this option is off real-time memory access will not work and the RRM feature disabled. |




| | | |
|---|---|---|
| Peripheral Register Calculator | RA | The RA family now has a Peripheral Register Calculator.<br><br>This provides a user interface for regular calculations that you may wish to make relating to the peripheral register setup. |

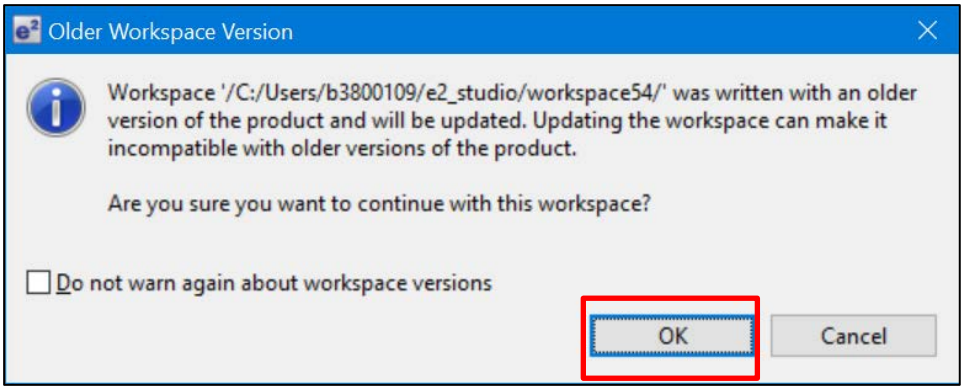
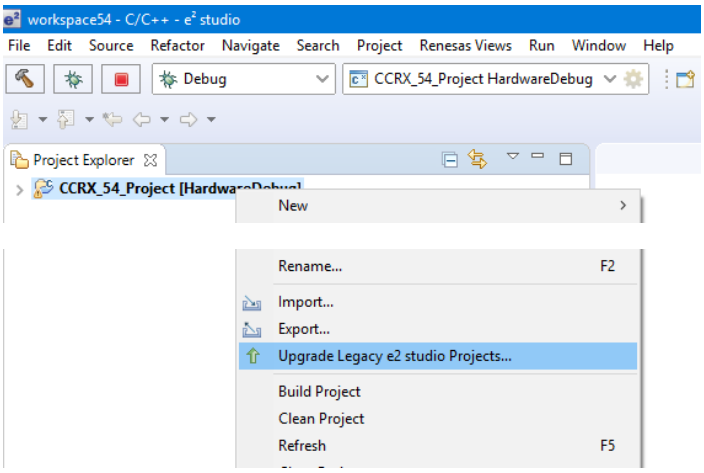
The support for this feature is provide via the Flexible Software Platform (FSP) packs. So, if the view appears blank please check your installation of these files.



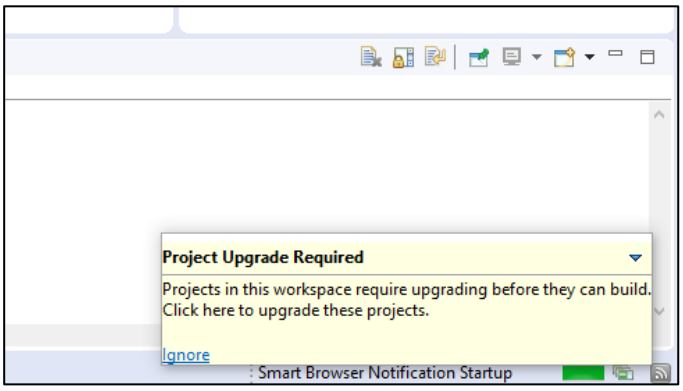
## 5. Useful workarounds and information for 7.6.0

Please visit the Renesas FAQ for e² studio for the latest up to date information:

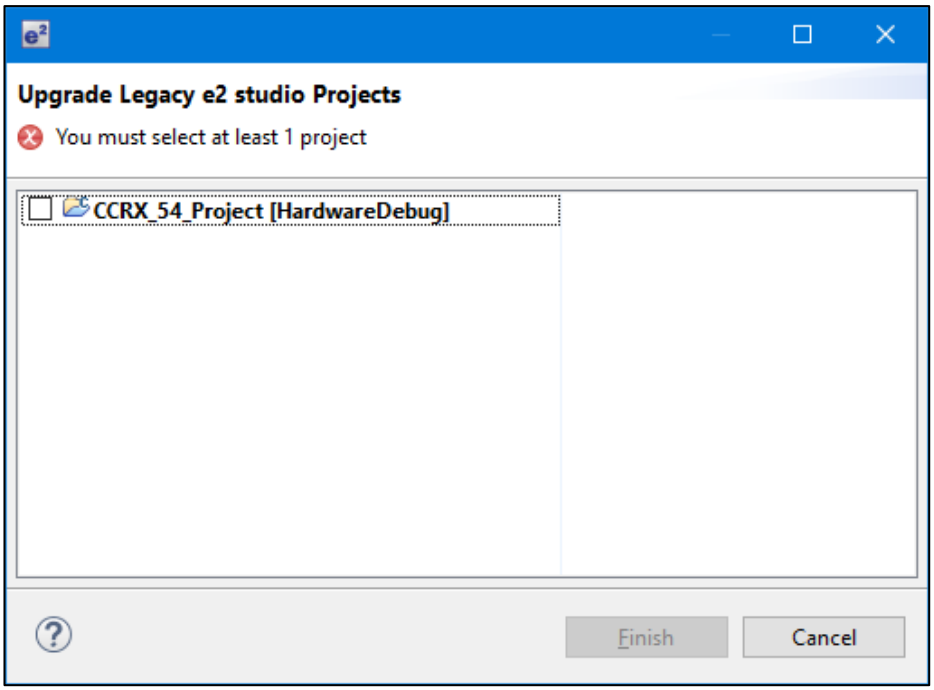
Online FAQ link.

| ID | Component | Workaround or information |
|---|---|---|
| | Application | When using the check for updates feature within e² studio and updating from 7.0.x to 7.1.x the initial restart after the update fails. An error message is displayed. Subsequent launches of e² studio work without issue.<br><br>This is caused by the update to Java. |
| | SH support | The Renesas SH device family is no longer supported in e² studio.<br><br>If you need to use the SH device support, please use e² studio 5.4 or earlier. |
| | Importing old projects into 6.x | All projects being migrated into the latest e² studio from e² studio 5.4 and earlier versions will need to be migrated to the new builder plugins. The new builder plugins have different user interface pages and different option IDs.<br><br>Upon opening an older workspace, the following dialog would be displayed:<br><br>  <br><br><br>Clicking OK will update the workspace to the newer e² studio.<br><br>Importing an existing project to the workspace or opening a workspace with old projects will automatically start the legacy project upgrade procedure.<br><br>If for some reason this process does not start it is also possible to launch the “Upgrade Legacy of e2 studio Projects…” from the project context menu.<br><br>  <br> |

The automatic system pops up a message bubble in the bottom left of the e² studio application window.




After selecting the menu item or clicking the bubble the following dialog will be shown:

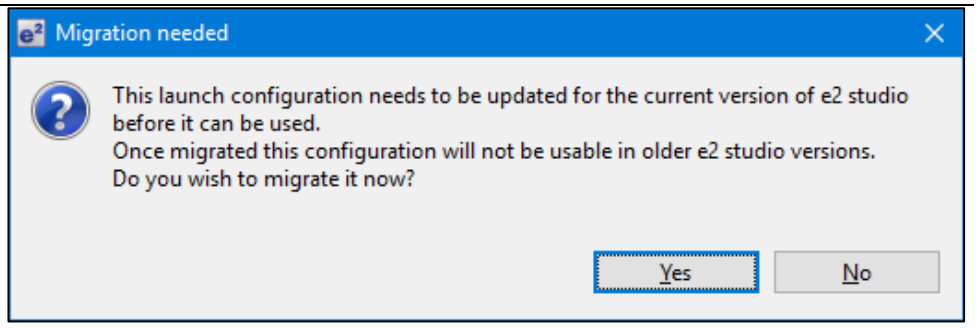



To upgrade the project, click the corresponding check box and then click Finish. Note, this will update the project to the latest build plugins and options. Before doing this, you should ensure your project is backed up as this operation is not reversible.

It is possible to upgrade multiple projects in a single operation.

For the GCC toolchains for RX, RL and GNUARM-NONE have been made to the build options which mean we cannot guarantee the same binary output after upgrade. Please consider this before upgrading.

Another consideration for migration is that debug configurations when opened in 6.0 will also need to be migrated. The following message will be displayed.



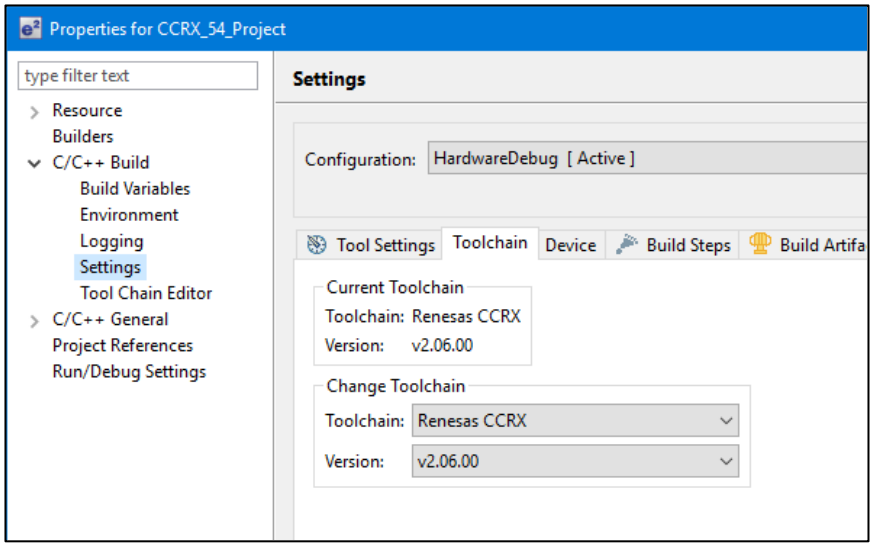

Please ensure that your projects are backed up or in revision control before migration allowing you to return to older versions if required.

Toolchain Management

Before e² studio 6.0 the toolchain management facility automatically upgraded or downgraded the imported project to the latest tools installed on the host machine.

This no longer happens in the latest e² studio. Instead the toolchain remains the same and user operation is the only way to change the toolchain version.

This operation is now available within the build settings on the toolchain tab. An example of CCRX is shown below:




If the particular toolchain version does not exist and build is performed, then an error message is displayed and the build will fail.

RZ Toolchain

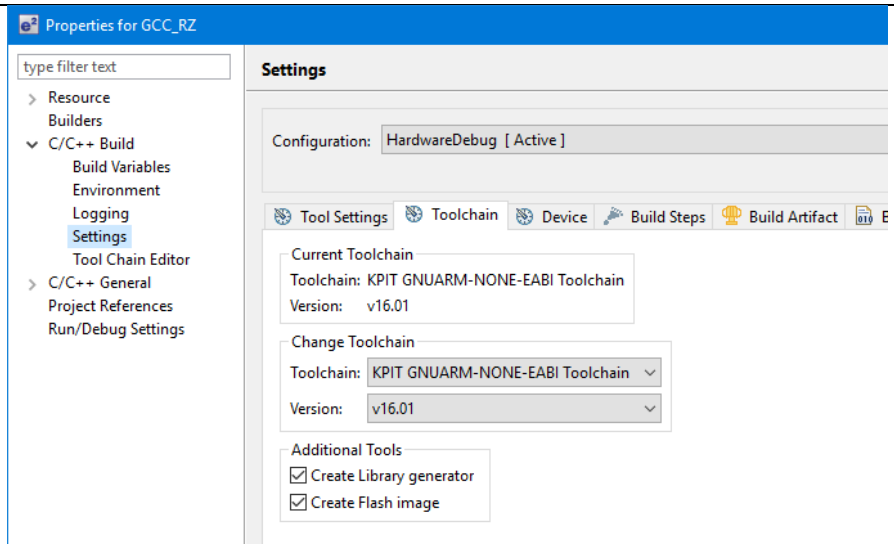
The now legacy KPIT GNU ARM-NONE toolchain is still supported within the e² studio product but now using the gnuarmeclipse plugins.

In addition RZ within e² studio now supports the GNU ARM Launchpad toolchain. Available from https://launchpad.net/gcc-arm-embedded.

One drawback of this toolchain is that it does not have a standard library builder provided in the same manner as the legacy KPIT ARM-NONE toolchain. To use this feature for ARM Launchpad and gain access to the more efficient optlib libraries a further download is required.

This can be downloaded within the e² studio installer or directly from here: https://gcc-renesas.com/rz/rz-download-toolchains/

Once integrated it is possible to integrate the library generator from the toolchain tab of the build settings page.




See “Create Library generator” option. Once checked the library generator (libgen) is added to the available tool settings.

| | | |
|---|---|---|
| | QE compatibility | If QE for TCP/IP V1.0.0 is used, please update it to V1.0.1.<br>Other QE series can be used with e² studio 6.0.<br><br>What is QE?<br>https://www.renesas.com/qe<br><br>Details of QE for TCP/IP<br>https://www.renesas.com/qe-tcpip |
| 5954 | Application | If you experience the error message “org.eclipse.swt.SWTError: No more handles” this can be caused by certain multi-monitor software and the Eclipse framework.<br><br>If this error occurs there are 2 workarounds:<br>1. Use a single monitor display.<br>2. Uninstall the multiple monitor software from your graphics chipset vendor and revert to the standard Windows multi-monitor feature. |
| 6981 | RL78 Debugging | When debugging IAR C source file with an OCD emulator (E1), the Monitor program area (0x00002-0x00003) is used.<br><br>So this area must be excluded from usable address space. Please add '-HFF' in the linker option.<br>1. Open Property.<br>2. Select [C/C++ build]-[Settings] at left side.<br>3. Select 'IAR RL78 Xlink linker' at right side, add '-HFF' at the textbox 'command'.<br><br>Not doing this will cause problems with connection and download when using interrupts. |
| NA | Application | If you are experiencing slow building of projects within e² studio there are some possibilities to improve.<br><br>The system environment will attempt to find the make.exe tool via the system environment. If you ensure the directory make resides in is at the start of the path variable it will find it more quickly. Especially important if there are network drives in the path. |

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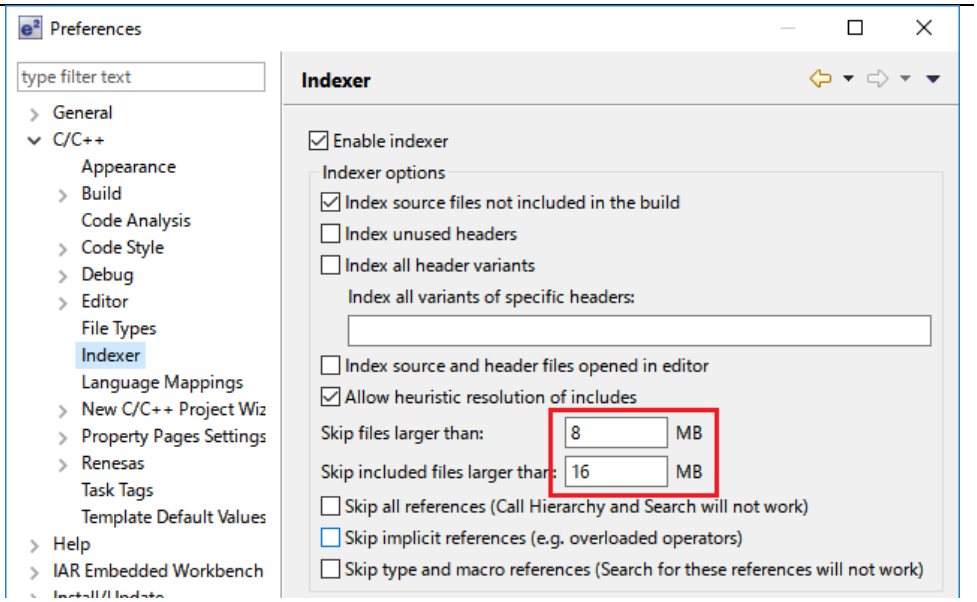
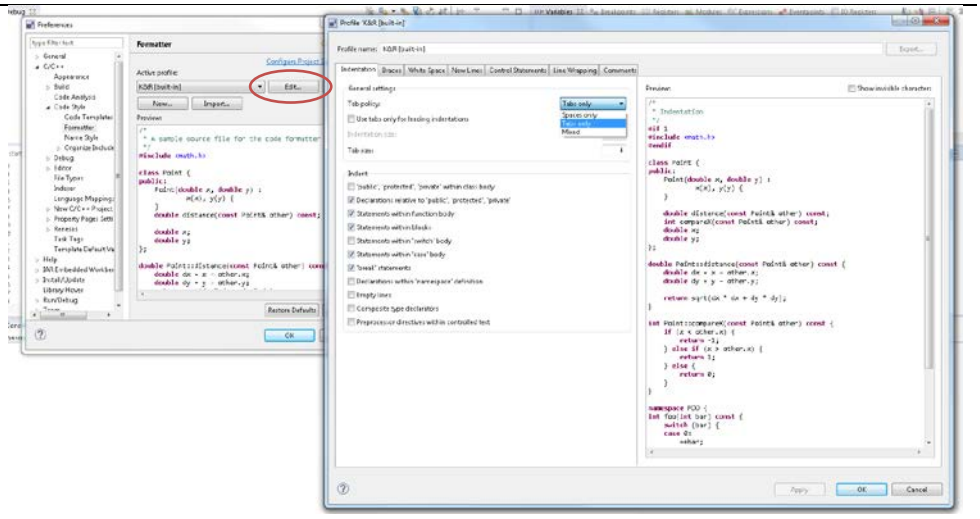
| | | In the project properties, C/C++ Build tab, behavior tab you can switch on parallel build. This will take advantage of the multi-cores on your host machine if it has them. |
| NA | RZ GCC | In 3.0 the KPIT GCC RZ toolchain was supported at version 14.01. This version is no longer supported within e² studio.<br><br>KPIT modified the name of their ARM toolchain to be ARM-none-eabi to follow standard ARM naming convention like other GCC toolchain vendors.<br><br>The ARM-none toolchain is available at versions 14.01, 14.02 and 16.01 from the www.gcc-renesas.com website. The binaries in the 14.01 version are identical to those used in the 14.01 RZ toolchain.<br><br>Once the toolchain is installed your projects will be imported and ported to ensure there is as little disruption as possible due to this change. |
| NA | KPIT GCC | The KPIT toolchains are now no longer supported by the www.kpitgnutools.com website. Support is now available from the www.gcc-renesas.com website.<br><br>In addition, there are two new releases for the GNU toolchains for RX and RL78. These are now named Renesas GCC for RX and Renesas GCC for RL78.<br><br>Both integrate into e² studio and can be selected from the project wizard. |
| 2010 | HEW Importer | Symptoms: Project fails to build after importing a legacy project from HEW<br><br>Conditions: If a long filename or path is used, and the HEW project importer is used, the project may fail to build.<br><br>Workaround: Move the original HEW project to a shallow directory structure (i.e.) C:\Workspace and import from there. Also, ensure that the HEW project is relocated before importing into e² studio. |
| 1922 | Application | Symptoms: Project fails to build in first instance after archive project import (not from HEW)<br><br>Conditions: If an archived project is imported, it may fail to build the first time, due to a residual .d file.<br><br>Workaround: Clean and Build a second time. |
| 2762 | CODAN | When using assembly code within a C source file, CODAN errors can be observed in the editor. Even though the project builds successfully, or even after rebuild index.<br><br>Indexer buffer can be insufficient to process whole project.<br>Please try giving larger values for the following configurations.<br><br>Open preferences dialog through “Window”->” Preferences” menu. In “C/C++” -> “Indexer” tree, you will indexer configuration as shown below: |




Put larger values for each red-framed variables, then rebuild project or rebuild index.

| | | |
|---|---|---|
| 2728 | GDB | Step into does not always work when using the CC-RX 1.02.01 toolchain.<br><br>To ensure this behaves correctly you will need to use CC-RX 2.00.00 or greater as this issue with the debug information is corrected in this release. |
| NA | Eventpoints | If eventpoints do not always work just after they are set, you can use the "Apply to Target" toolbar button in the Eventpoint view to send the Eventpoints to the target manually. This will always ensure the debugger target has all the required eventpoint updates before execution starts. |
| 5772 | IAR Plugins | The IAR Plugin Manager is included in e² studio and provides support for RX, RL78, RH850 and RZ (ARM).<br><br>This tool simplifies installation and configuration of IAR toolchain plugins. You can access this though Help -> IAR Embedded Workbench plugin manager. |
| 6184 | RL78/CC-RL debugging | When the load module for RL78/G10 which created at CC-RL is debugged in E1, please specify the following option:<br><br>[Linker] -> [Device] -> "Set enable/disable on-chip debug by link option |
| 7217 | Application | The restore default settings does not restore all the options set during project generation. Instead, it sets the defaults to the base settings for the device family in use. |
| 7524 | RZ/T1 Debugging | In a RZ/T1 RAM-based project, the "Reload" function does not work.<br><br>Reloading or re-downloading during debugging resets the device and the RAM content is erased.<br><br>To continue the debugging, disconnect and connect the debugger again. |
| | Use spaces as tabs | Eclipse and CDT both have settings for use spaces as tabs. The option on the Editor preferences page conflicts with the CDT formatter settings.<br><br>To change the use spaces as tabs option in e² studio please use this page: |

| | | |
|---|---|---|
| | |  |
| | Installer problems | In some situations, the AVG virus checker appears to interfere with the e² studio installation process. If you experience such a problem, please temporarily disable the AVG tool and try the installation again. |
| | Antivirus | In some situations, the Norton anti-virus tool can interfere with the building of Renesas Synergy projects. If possible, please disable the antivirus program when building Renesas Synergy projects on systems with Norton Antivirus installed. |
| | Green Hills RH850 Projects | When debugging the RH850 object built with the Green Hills compiler in e² studio, specify the following option for the compiler option:<br>`-gtws`<br><br>The GUI setting menu is as follows.<br>[GHS C Compiler for V800 Standalone]-[Debugging Option]<br>"Generate Target-Walkable Stack" -> On<br>If this option is not specified, Step Over and Step Return may not work properly. |
| 17052 | Debugging | When debugging using a project with duplicate filenames that are in different source folders problems can be seen with breakpoint setting.<br>When a breakpoint is set at a source line in this file it will also stop at the same source line in the other same named file when execution passes through. |
| 18505 | RZ debugging | When debugging with RZ/T1 in certain situations you may experience problems stepping:<br><br>If the following conditions are met:<br><br>1. Code is located close to address 0x0<br>2. There is very little library code included into the project<br>3. There are unused functions in the program<br>The possibility arises that the code cannot be debugged. This due to `--gc-sections` linker option which removes the unused functions but not the related debug information.<br>There are several solutions to this problem:<br>a. disable `--gc-sections` until those functions are used<br>b. remove the unused functions |

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| | RZ GCC Build | In the latest e² studio, the RZ import functionality has been improved. However, there are still possibilities of older projects causing problems when imported into e² studio.<br><br>In older versions of the RZ build plugins the FPU option was not being handled correctly. When setting the “Soft” Floating point ABI the command line was still receiving `-mfpu=vfpv3` incorrectly. This can now cause problems with older start-up code in older RZ projects.<br><br>After import if you see an error relating to this please add `-mfpu=vfpv3` to the “Other Assembler Flags” page of the Assembler tool.<br><br>In addition, when migrating some RZ/A1 projects you may experience import problems unless you build the project in 5.4 first. |
| | RZ DS-5 Project Import | When a DS-5 project is imported into e² studio the environment variables for Path and TCInstall are copied from the DS-5 environment.<br><br>This is not correct. The way to correct this problem is to delete both paths and replace them with correct values to your toolchain. If you are unsure how to correct this please create a new project and copy the values from this to the converted project. |
| | RX & RL78 GCC Project Import | When importing a KPIT RL78/RX Library C/C++ project from e² studio 5.4 or before the build artifact settings are not correct.<br><br>The output prefix should be set to “lib” but is in fact empty. |
| | RZ/G debug | In the case of debugging Linux application for RZ/G, the following error messages are shown in GDB server console when pushing [Step in] button or [Step Over] button.<br>These messages can be ignored because the Step debugging should work properly even with these messages.<br><br>Examples of error messages:<br>`PassthroughTargetCommunication::sendResponse error 42 46`<br>`PassthroughTargetCommunication::sendResponse error 10 15`<br>`PassthroughTargetCommunication::sendResponse error 42 46` |
| 21863 | RX & RL Debugging | In previous releases there were some problems with stepping in some situations when using the CCRX and CCRL toolchains.<br><br>A fix has been made to the debug object converter. To see this improvement please clean and rebuild the project. The debug information will then be updated, and the stepping will be more correct and reliable. |
| | Code Generator registration | When using multiple installations of e² studio on your machine you may find that subsequent installations do not work correctly with the code generator.<br><br>The effect is that the code generator cannot be created or added to projects. Existing projects can be used by the code generator views appear empty.<br><br>If this is the case, then the code generator must be manually registered. To do this execute the following tool:<br><br>e.g.<br>`C:\Renesas\e2_studip\eclipse\plugins\com.renesas.cg_2.11.0.v20180601-1047\CodeGenerator\Tools\register COM.bat` |

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| 25278 | Synergy debugging | When loading Symbols from multiple .elf files compiled using the IAR toolchain, the user will need to add ".text" before place in FLASH_region command inside the .icf Script.<br>e.g.<br>`".text":`<br>`place in FLASH_region { block LOCK_LOOKUP,`<br>`ro,`<br>`ro section .rodata,`<br>`block QSPI_NON_RETENTIVE_INIT_BLOCK,`<br>`block RAM_INIT_CODE,`<br>`block USB_DEV_DESC_BLK };` |
| 25273 | RZ Device Migration | When changing the device from a RZ/A1 and attempting to swap to a RZ/T1 the device migration is not successful.<br>The source code is not migrated successfully, and the build fails.<br>This is due to the different start-up code structure between these devices.<br>In this case please create a new project and copy the required source to the newly created project. |
| 25195 | RZ/A2M Smart Configurator | When creating a project of RZ / A2M, the following Warning is displayed in the Problems view for the src / renesas / configuration folder.<br>`"Invalid project path: Include path not found"`<br>[Workaround]<br>Delete the specification of this folder with the compile option include path setting. |
| 24883 | R2/A2M | RZ / A2M project generated by e² studio does not support GCC ARM 7.x. Please use GCC ARM 6.3. |
| 28824 | GDB Server Synergy | When using Synergy and RZ devices (with a JLink connection) the "Use Flash Breakpoints" option on the Debug Configuration is currently ignored and the setting will default to "On".<br>If needed, the workaround is to use a JLink script file with the JLINK_ExecCommand("DisableFlashBPs") command to override this setting. |
| 27960 | Code Generator | It is not currently possible to add the code generator to a RX IAR project which is using the version 4.x.<br>An error will be displayed with the error message "The selected project is not supported by Code Generator!" Note: This issue does not occur with IAR Toolchain for RX (3.x). |
| 27913 | GDB server RL78 | When debugging with an EZ cube, real-time refresh significantly slows down debugging features and it makes e² studio look like suspended. |
| 12123 | Linker Script Editor | The Linker Script Editor may report errors when using some Wild Identifiers such as 1file.o and *filename.o..<br>Although these are valid file names and valid identifiers according to the Linker Script syntax, they need to be quoted when using the Linker Script Editor.<br>(e.g. "1file.o" and "*filename.o"). |
| 29278 | RZ Debugging | You may experience download failures when debugging RZ/A1 Dual_SPI projects. In that case, it is recommended to replace the J-Link dll (JLinkARMDll.dll) under DebugComp/RZ/ARM/Segger with the DLL version of V6.44h (2019-05-03) or earlier. Alternatively use V6.48a or later. |
| 30431 | RA | The Smart Demo functionality for RA does not currently work. The project cannot be created successfully. |

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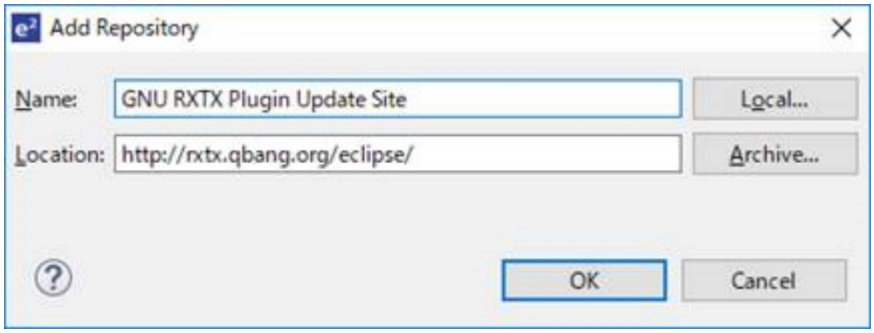
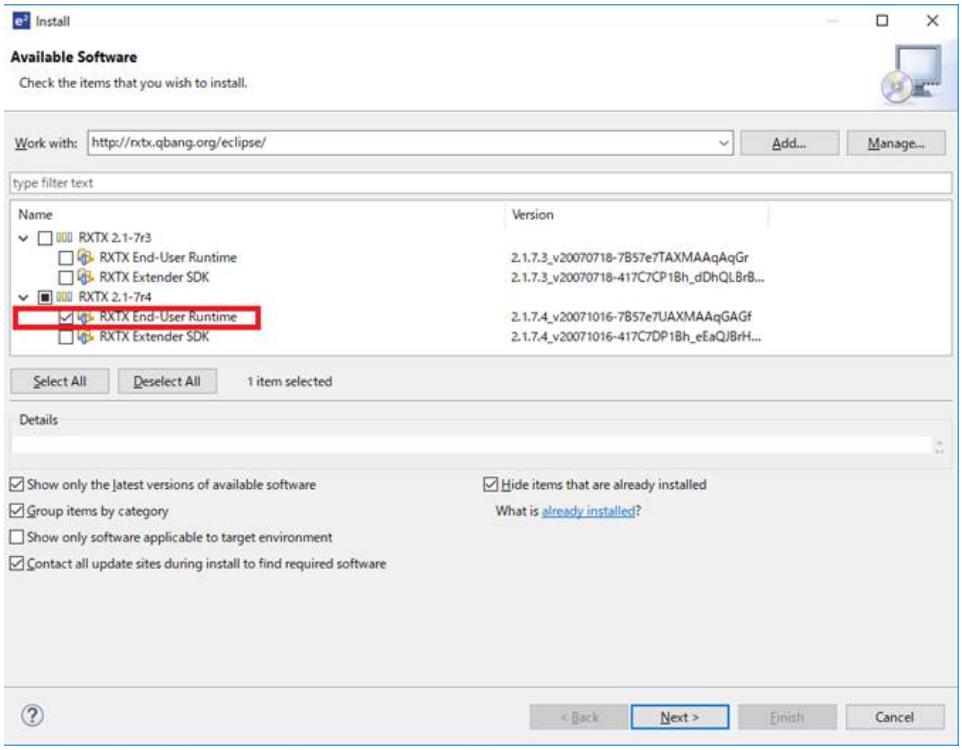
| | RZ/G Linux Platform Tools | When using RZ/G Linux Platform Tools, gnu.io.rxtx plug-ins should be installed same as Nebula plug-ins.<br>Please follow the below steps to install gnu.io.rxtx plug-ins.<br><br>Start the e2 studio and select [Help] -> [Install New Software] from the menu bar to open the [Install] dialog box.<br>Click on the [Add] button, enter “GNU RXTX Plugin Update Site” as a name and “http://rxtx.qbang.org/eclipse/” as a location, and click on the [OK] button.<br>  <br>Select [RXTX 2.1-7r4] -> [RXTX End-User Runtime] from the list, click on the [Next] button, confirm the license, and install the plug-ins.<br>  |
| 29869 | Debug Configuration RX | To be able to connect with RX7xx devices, please specify the Operating Frequency value in Debug Tool Settings/Performance Timer |

Debug Configuration RX

## 6. Open Issues in 7.6.0

Open issues in the e² studio 7.6 product will be kept up to date here:

Please visit to see the latest open issue list.

# 7. Appendix

## 7.1 Website and Support

Renesas Electronics Website
http://www.renesas.com/

Inquiries
http://www.renesas.com/contact/

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