

## **R3xx Firmware Revision History**

In order to find out the revision of your module's firmware use the "ATI<cr>" command.

If you are an existing customer and want to update your firmware please contact [zigbeesupport@telegesis.com](mailto:zigbeesupport@telegesis.com)

### **R301 – 16-09-2008**

#### Changes

- Upgraded from EmberZNet3.1 to EmberZNet3.2
- Fixed Problem with specifying EPID in S03 on joining Node
- Removed functionality 0018 temporarily for memory savings
- Fixed cloning to End Devices from Nodes other than the Parent
- Improved cloning mechanism. AT+CLONE can also address NodeIDs and Address table indexes (when cloning to devices >R300).
- It is now possible to write to address table entry 05 (sink entry)
- Data sent to endpoint 0 and 2 is now displayed transparently (if enabled)
- Added bit 2 of S0F to enable displaying all sink advertisements (disabled by default). New Prompt: ADSK:<EUI64>,<NodeID>
- Added bit 7 of S10 to stop node from replacing existing sink with better one (lower cost)
- Added volatile S46 for data related to start-up functionality.
- Contents of S46 (16 bit number) is attached to tracking messages (functionality 0112 and 0113)
- Fixed ATSALL triggering replies
- Added bit A of S0A to disable joining nodes to ask for the Trust Centre link key.
- Improved Trust Centre EUI64 caching
- Fixed Source Route handling
- AT+FNDSR is now working at ZDO Level (works with 3<sup>rd</sup> party nodes), but only when addressed with EUI64 or address table index.
- Debouncing now operates on all 4 IRQ inputs when enabled and works in sleep modes
- Fixed sending SCASTBs with a payload smaller than 5 bytes

#### Registers and Commands affected

- S03
- functionality 0018
- AT+CLONE
- S0F
- ATSALL
- S0A
- AT+FNDSR

#### Indirectly affected

Nothing

#### Upgrade information available

None

#### Upgrade Note Details

For the new cloning mechanism the user needs to ensure that the target device is just a single hop away before initiating the cloning process. If this is not the case the remote node will remain in the bootloader until reset or recovered using AT+RECOVER.

## R302 – 30-04-2009

### Changes

- Upgraded to EmberZNet3.3.3
- Fixed AT+N providing odd results if node is not part of a network
- Fixed functionalities 0012 to 0014 to cause routers to re-join non existing networks three times.
- Added functionality 0018
- Setting bit 9 of S0A on the ZC before starting the network will start the network without the use of a central Trust Centre (distributed Trust Centre mode, not ZigBee compliant). Note: Only a global link key can be used, so Setting bit 7 of S0A will be ignored in this mode)
- Added command AT+BECOMETC to allow the ZC in a network which has been started with a distributed TC to become the TC.
- Setting Bit D of S10 changes the sinks and Trust Centre to be of type EMBER\_HIGH\_RAM\_CONCENTRATOR. This will cause remote nodes not to send a source record message only before the first message sent to the sink or Trust Centre and not repeatedly.
- Sinks also send a many-to-one route request via functionality 02xx and create aggregation routes
- AT+PING and replies to AT+SN use ZDO device announce messages for improved ZigBee compatibility
- ADSK prompt is only shown for sink advertisements of sinks, which aren't the local node's sink
- Shortened S0B to 16 characters.
- Fixed functionalities 0108 and 0109 to only send a maximum of 47 characters
- Fixed deep sleep IRQ handling
- Added S47 to represent the Node's Power Descriptor
- Added S48-S4B to configure the Node's second endpoint
- Added new ZDO commands for Device and Service Discovery: AT+IDREQ, AT+EUIREQ, AT+NODEDESC, AT+POWERDESC, AT+ACTEPDESC, AT+SIMPLEDESC, AT+MATCHREQ
- Improved Cloning Mechanism
- Re-Introduced the AT+DMODE command (known as AT+OPCHAN in R2xx) to create a serial link between any two devices
- Added possibility to join as non sleepy end device (RX on when idle) by modifying the meaning of bits E and F in S0A. New Device type is called ZED.
- Changed formatting of the AT+NTABLE command
- Improved Network Formation and Joining
- Changed S-Registers to not do a Network Key update automatically from the COO and added command AT+KEYUPD to do this manually.
- Source Routes get deleted in case of unsuccessful delivery of a unicast, unless bit D of S10 is set
- Added S4D, S4E and S4F for expert stack timing adjustments
- Improved remote S-Register access to allow concurrent accesses.
- Inverted functionality for bit 8 of S10 to prevent frequent broadcasts to search for sink
- Added Data mode (in R2xx known as "channel")
- Changed S28 to trigger on Network Join
- AT+PING renamed to AT+ANNCE for clarity (AT+PING is still supported for backward compatibility)
- Changed format for response to AT+NTABLE to be inline with other ZDO prompts
- End Devices, which have lost their parent will report "LostPAN" instead of "LeftPAN" as they are still part of the PAN and simply can't talk to it any more. AT+N will still show the network parameters. Use AT+REJOIN or simply poll to find new parent or AT+DASSL to leave.
- In case a parent knows a sink it will pass it on to any joining end device. In case the parent's sink gets updated the parent will update all children using a broadcast.
- Added functionality 0400 (known as 0200 in R2xx).
- Improved AT+FNDSR
- Replies to ATREMS have been re-formatted for better usability

Registers and Commands affected	Indirectly affected
<ul style="list-style-type: none"> <li>- AT+PING</li> <li>- AT+SN</li> <li>- AT+CLONE</li> <li>- S0A</li> <li>- AT+NTABLE</li> <li>- ATREMS</li> <li>- S28</li> </ul>	Nothing
Upgrade information available	Upgrade Note Details
none	<ul style="list-style-type: none"> <li>- "FFD" and "COO" prompt have been combined into "FFD"</li> <li>- Formatting of ATREMS has changed</li> <li>- After upgrading a factory reset will be conducted</li> <li>- Cloning between R301 and R302 won't work</li> <li>- By default nodes don't search sink automatically if none is known to prevent frequent broadcasts (bit8 of S10)</li> </ul>

## R303 – 07-04-2010

### Changes

- Upgraded to EmberZNet3.5.1 (ETRX2)
- Upgraded to Ember ZNet4.0.2 (ETRX3)
- Fixed wakeup by UART to interfere with other external interrupt's functionality
- Fixed NodeID MSB and LSB mix-up in reply to AT+SN and AT+ANNCE and S07
- Fixed MCASTs not getting through to both endpoints
- ADC calibration now only performed when needed. Significantly shortens awake interval for sending messages containing ADC readings.
- Added interaction with ETRX3 series 32 bit S-Registers
- Modified "RX:" prompt to include sender's EUI64 and Node ID:  
RX:[<EUI64>,<NodeID>,<profileID>,<destinationEndpoint>, <SourceEndpoint>,<clusterID>: <payload>
- Added functionality 0401 to use separate IO for indication
- Non-sleepy EDs are polling as well when functionality 0010. This is just to prevent them from timing out at their parent
- ETRX2: Fixed Data Mode malfunctioning when command echo is switched off
- Corrected default value of S4E to 0605 (5 Minutes)
- ETRX3: Corrected major bug with I/O configuration when going into power modes 2 and 3
- ETRX3: Fixed S0D to also show the firmware revision
- Fixed Functionalities 24xx to 26xx
- ETRX3: Fixed Charging External RC for functionalities 0111 and 0113
- ETRX3: Fixed functionalities 0400 and 0401
- ETRX3: Fixed IRQs triggering on both edges in power modes 2 and 3
- ETRX3: Fixed potential issue with timers stopping when waking up from sleep
- Added AT+RTABLE (ZDO) command
- S4B and S4C extended to hold up to 12 cluster IDs
- S46 is now a 32-bit number
- ETRX3: Fixed RDATA Messages
- ETRX3: Setting bit 8 of S15 enables Vref output on PB0
- Added functionality 0114 and 0115 to send tracking message, which doesn't contain ADC readings.
- Fixed mixing up MSB and LSB of a Device Announce
- Changed default power setting to 3dBm for both hardware platforms. Power settings above 3dBm will automatically enable the boost mode.
- Improved timer accuracy when repeatedly woken up by external interrupts from power mode 2.

#### Registers and Commands affected

- S07
- AT+RTABLE
- S4B, S4C
- S46
- S15
- S01

#### Indirectly affected

The 16-bit short address of a node reported using AT+ANNCE (AT+PING) or as a reply to AT+SN will be shown with the least significant byte first in case the remote node using a previous version of this firmware.

#### Upgrade information available

None

#### Upgrade Note Details

After upgrading a factory reset will be conducted