

RBS 6402 (PICO) 18.Q1 Release Notes

CXP 902 8777/1 - R2D130 (18.Q1 GA)

RELEASE NOTES

Abstract

The intention of the release notes is to supply both internal and external customers with information about the contents of the delivery. This information should be used as a reference for software and hardware revisions, changes, contents, and references to other documents where greater detail is required. The purpose is not to duplicate information but to flag important information and where possible reference other documents that need to be studied to ensure successful implementation of the package.

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1 Executive Summary

The RBS 6402 (Pico) 18.Q1 release delivers new functionalities for RBS6402.

2 Revision History

Table 1: Revision History

| Revision | Date | Changes | Changed by |
|----------|------------|---|-----------------------------|
| A | 2017-12-13 | 18.Q1 R2A032 | Neelu Daval Jorammanavar |
| B | 2017-12-29 | 18.Q1 R2A046 | Neelu Daval Jorammanavar |
| C | 2018-01-08 | 18.Q1 R2B | Dan Scott |
| D | 2018-01-09 | 18.Q1 R2C | Dan Scott |
| E | 2018-02-16 | 18.Q1 R2D113 | Dan Scott |
| F | 2018-02-16 | Updates to Resolved Issues list | Dan Scott |
| G | 2018-02-28 | 18.Q1 R2D118 (R2D/3) | Dan Scott |
| H | 2018-03-07 | 18.Q1 R2D118 (R2D/3) updates | Dan Scott |
| J | 2018-04-05 | 18.Q1 R2D130 (R2D/4) | Dan Scott |
| K | 2018-04-19 | 18.Q1 R2D130 (R2D/4) GA updates | Dan Scott |
| L | 2018-04-25 | 18.Q1 OSS support updates | Dan Scott |
| M | 2018-05-29 | 18.Q1 Removal of new functionality restrictions | Dan Scott |
| N | 2018-05-30 | Update TR Limitations | Dan Scott |



3 Release Information

3.1 SW Identity

3.1.1 Upgrade Package

The upgrade package for the Pico 18.Q1 load is defined as follows:

Table 2: Upgrade Package

| SW Package | Product Number |
|-----------------------|----------------------|
| 18.Q1 RBS 6402 (PICO) | CXP 902 8777/1 R2D/4 |

The following ENM ICF configuration files are included in the upgrade package:

Table 3: Included Configuration Files

| Template | Product Number |
|------------------------------------|---------------------------|
| ICF Template MSMM IPsec Full ENM | 15/006 91--CXP 902 8777/1 |
| ICF Template MSMM Trusted Full ENM | 16/006 91--CXP 902 8777/1 |
| ICF Template MSMM IPsec ENM | 17/006 91--CXP 902 8777/1 |
| ICF Template MSMM Trusted ENM | 18/006 91--CXP 902 8777/1 |

Note: Pico must be integrated with the supplied ICF's to configure TDD cell for LAA.



3.2 SW Content

3.2.1 General Public Licensed Source Code

RBS 6402 (PICO) 18.Q1 SW includes Free and Open Source SW (FOSS) which is listed in document Free and Open Source Software [1]. This document is included in the RBS 6402 CPI library [2].

3.2.2 Licenses for the SW

RBS 6402 SW licensing is described in detail in document RBS 6402 Product Package Description [3].

3.2.3 Supported Features

For information on the features supported with Pico RBS 6402 Radio Node 18.Q1, refer to Feature Overview RBS 6402, 2/006 51-LZA 701 6012/1 [7] in the following CPI Store library:

RBS 6402 (Pico) Radio Node 18.Q1, EN/LZN 733 0056 R2A [2]

3.2.4 Resolved Issues

The following issues are resolved in 18.Q1

Table 4: Resolved Issues

| Key | Summary |
|---------|---|
| P05-138 | Throughput obtained per UE is lesser than expected for multi UE (128) scenario in LTE-HC PICO |
| P05-179 | Many Invalid Pack length errors seen in PDCCP UL when Uplink SNR is low |
| P05-203 | Handover failing between two PICOs in Multi QCI (4 ERABs) scenario |
| P05-204 | Crash DSP-ELG3: crashInfo_etbStop |
| P05-205 | Flight Recorder |
| P05-206 | DSP_CORE_CRASH in Pico Cell 6402 with 18.Q1 |



| | |
|---------|--|
| P05-214 | IPSec re-authentication Use Case |
| P05-218 | DSP Crash due to corrupted signaling packet in uplink with 18.Q1 |
| P05-221 | AMOS hanging at account lookup |
| P05-222 | WDT Enhancement |
| P05-223 | Enhanced Logging |
| P05-224 | Reduction in restarts for migration |
| P05-248 | One way audio for VOLTE calls |
| P05-271 | Config back & Restore failure |
| P05-312 | Pico unrecoverable during test reboot loop |
| P05-225 | DSP crash triggered by the L3 (core0app) crash |
| P05-322 | LDAP ENM Scalability Fix |
| P05-316 | VoLTE Garbled Audio Fix |
| P05-348 | Samsung S9 UE capability Fix |
| P05-345 | QCI 1 PM counter fix |
| P05-188 | PM counters not step on 18Q1 three PICO's |



3.3 New Functionality

RBS 6402 (PICO) 18.Q1 introduces the following new functionality:

Table 5: New Functionality

| Functionality |
|--|
| Release 13 LAA |
| SHA2 – Phase 1 with Golden Software Update |
| KPI Observability Improvements |
| Replace Pico RBS in Field |

4 System Level

4.1 Applicable HW Configurations

Please refer to the RBS 6402 Product Package Description (221 03-FGC 101 2699) for a complete list of RBS 6402 hardware configurations.

4.2 Dependencies and Requirements

4.2.1 OSS Dependency

RBS 6402 (Pico) 18.Q1 is supported on OSS-RC 17A EU14 in a "Treat-as support" capacity only. Treat-as support means that the new RBS6402 load (N+1) is Treated as the older node version (N) in the OSS-RC.

Support for any new functionality introduced in 18.Q1 requires the customer to upgrade to a supported ENM platform.

4.2.2 ENM Dependency

New functionality introduced in RBS 6402 (PICO) 18.Q1 is only supported with ENM 18.1.

The package is verified together with the final ENM system version.



Table 6: Supported ENM Dependency

| ENM Version |
|-------------|
| ENM 18.1 |

The Managed Object Model (MOM) defines the information model with regards to node management. It presents a view of all the manageable resources in the node, and all the parameters and actions associated with these resources. The table below lists implemented MOM version for the package.

Table 7: MOM Version

| MOM |
|------------------|
| CXP 902 8778 R4E |

The PM recording version defines the complete PM information model with regards to pmEvents for UE and Cell Trace functionalities (including file and stream formats [and ENIQ pm counter mapping]).

Table 8: PM Recording Version

| PM Recording Version |
|----------------------|
| CXP 901 8505/27 R38A |

4.2.3

Transport Network Dependency

To ensure good WCDMA voice quality and packet services, the transport network serving the Pico RBS6402 must meet all requirements for propagation delay, delay variation, and packet loss. For more information, refer to *Transport Network Functionality WCDMA RAN 138/1551-HSD 101 02/1* [5] or in the *Iub Supporting Internet-grade Transport User Guide 173/1553-HSD 101 02/1* [6] if the feature FAJ 121 2602: *Iub Supporting Internet-grade Transport* is activated on the RNC.



4.3 Parameters and Counters

For parameter and counter information refer to the following documents in the Pico RBS 6402 Radio Node 18.Q1, EN/LZN 733 0056 R1A [2] CPI Library:

- RBS 6402 Performance Management, 20/1551-LZA 701 6012/1
- Parameter and Counter Limitations, 27/006 51-LZA 701 6012
- Counter List, 20/1551-LZA 701 6012
- PM Events List, 20/1551-LZA 701 6012

4.4 CPI Library

CPI is released in CPI Store and on CPI Extranet at General Availability.

Table 9: CPI Documentation

| Library Name | Product Number |
|----------------------------------|---------------------|
| RBS 6402 (Pico) Radio Note 18.Q1 | EN/LZN 733 0056 R2A |



5 Update/Upgrade

5.1 Update/Upgrade Path

Upgrades to 18.Q1 are supported from W16A, L16A, 17.Q2 and 18.Q1.

The following software packages are verified as from-states when updating or upgrading to this software package.

Table 10: Verified Software Upgrade Paths

| Software Package | Product Number |
|------------------|-------------------------------|
| L16A IP33 EP3 | CXP 902 6658/2 R3AH (R3AH02) |
| W16A IP33 | CXP 902 7025/1 R3AA (R3AA08) |
| 17.Q2 GA | CXP 902 8777/1 R1AG (R1AG05) |
| 18.Q1 R2D100 | CXP 902 8777/1 R2D/1 (R2D100) |
| 18.Q1 R2D113 | CXP 902 8777/1 R2D/2 (R2D113) |
| 18.Q1 R2D118 | CXP 902 8777/1 R2D/3 (R2D118) |



6 Restrictions and Limitations

6.1 Restrictions

Pico 18.Q1 is only supported with ENM 18.1.

The following features are restricted:

- Common 3GPP+WiFi Traffic management for RBS 6402
- Wi-Fi
- WCDMA Configurable SCTP Parameters

6.2 Limitations

6.2.1 TR Limitations

Open Trouble Reports (TR) for released RBS 6402 (PICO) 18.Q1 functionality.

Table 11: Known Limitations

| Key | Summary |
|---------|---|
| P05-219 | Cell Trace invalid IP address causing MQ congestion |
| P05-409 | cell Traces generating Error on ENM |

P05-409 Problem:

In 18.Q1, the only supported job groups are JG1, JG2, and JG3. All other job groups are not supported.

An upgrade to 18.Q1 from L16A, which supports additional job groups, propagates the job groups forward even though they are not supported. The unsupported job groups cannot be changed or modified in 18.Q1 through neither EMN nor AMOS.

The only way to prevent this issue from occurring is to change all of the job groups to JG1, JG2 or JG3 prior to upgrading to 18.Q1.



If the changes were not made prior to the upgrade the following error will be seen in ENM PMIC:

Error 20: Operations Error

Steps required to prevent this issue from occurring:

Before upgrading to 18.Q1:

- Check the jobGroup attribute settings for the eventJobs using the following command:

```
get . jobGroup
```

You will get the attribute setting for 6 event jobs from 10000 – 10005 as follows:

| MO | Attribute | Value |
|--|--------------------|-------|
| Pm=1, PmMeasurementCapabilities=1 | jobGroupingSupport | true |
| PmEventM=1, EventProducer=Lrat, EventJob=10000 | jobGroup | JG1 |
| PmEventM=1, EventProducer=Lrat, EventJob=10001 | jobGroup | JG1 |
| PmEventM=1, EventProducer=Lrat, EventJob=10002 | jobGroup | JG1 |
| PmEventM=1, EventProducer=Lrat, EventJob=10003 | jobGroup | JG1 |
| PmEventM=1, EventProducer=Lrat, EventJob=10004 | jobGroup | JG2 |
| PmEventM=1, EventProducer=Lrat, EventJob=10005 | jobGroup | JG3 |

- Make sure that the JobGroup for EventJobs from 10000 to 10003 are set to “JG1”, EventJob 10004 is set to “JG2”, and EventJob 10005 is set to “JG3”.
- For each EventJob that does not match this criteria they must be manually changed using AMOS. Below is an example AMOS command that will set the JobGroup:

```
set PmEventM=1, EventProducer=Lrat, EventJob=10000
jobGroup JG1
```

```
y (to accept the change)
```

- Once the changes are complete you can proceed with the upgrade to 18Q1



6.2.2 O&M Limitations

Syslog prints, except for COM prints, will be in utc+0 format when the time zone is changed.

6.2.3 Feature Limitations

The following feature limitations exist:

- Refer to the document “Parameter and Counter Limitations” [4] as mentioned in section 4.3 for a complete list of Performance Management counter limitations.
- The following limitations exist with the LAA feature:
 - Only bands 252, 255 (LTE-U) and 46 (3GPP Rel13 LAA) are supported in the SCell.
 - The LAA cell is not supported for the UNII-2 band.
 - There is no support for radar detection mechanisms, such as Dynamic Frequency Selection (DFS).
 - The LAA cell supports best effort traffic only.
 - Only Channel Access Priority Class 2 and Channel Access Priority Class 3 are currently supported. Only non-GBR QCI 6, 7, 8, and 9 traffic classes can be set up on LAA SCell(s).
 - It is expected that the maximum throughput is lower than LTE-U in lightly loaded Wi-Fi channels. One to two Transmission Time Intervals (TTIs) are lost for every burst and the burst lengths are usually shorter than LTE-U (which typically uses 18 ms burst length). Shorter burst length reduces the possibility of successful HARQ retransmissions.
 - There is no LAA service for delay-sensitive services (for example, Voice over LTE (VoLTE)).
 - RBS 6402 LAA does not support CSI-RS. The RBS 6402 SCell transmits PDSCH, PDCCH, PCFICH, CRS, and DRS.
 - RBS 6402 LAA does not support PDCCH scrambled by CC-RNTI.
 - RBS 6402 LAA does not use the optional starting/ending partial subframes.



- DRS periodicity is fixed at 40ms and is always subframe 5 of DTMC.
- RBS 6402 must be integrated with the supplied ICF's to configure TDD cell for LAA.

6.2.4 Limitations Inherited from Earlier Releases

The following limitations are inherited from earlier releases:

- The maximum supported number of WCDMA and LTE users in an MSMM configuration is 32 UEs per RAT. Customers are strongly recommended to configure the following parameters to restrict the admission to 32 UEs per RAT:
 - For LTE, the attribute `maxActiveUe` under the `MO AdmissionControl` sets the maximum number of users that can be serviced in a cell. The attribute `maxActiveUe` must be set to 32.
 - For WCDMA, the attributes `dlHwAdm` and `ulHwAdm` under the `MO Iublink` set the admission limit on RBS downlink and uplink hardware resource utilization. The attributes `dlHwAdm` and `ulHwAdm` must be set to 50% on the RNC to allow a maximum of 32 users in the RBS.
- MSMM only supports IPv4. IPV6 is not supported.

6.2.5 H/W Limitations

None.

6.3 ISP Impact

N/A



7

Abbreviations

Table 12: Abbreviations

| Abbreviation | Description |
|--------------|---|
| 3GPP | Third Generation Partner Project |
| BSIM | Base Station Integration Manager |
| CDMA | Code Division Multiple Access |
| CM | Configuration Management |
| CP | Correction Package |
| CPG | Converged Packet Gateway |
| CPI | Customer Product Information |
| DL | Downlink |
| E-UTRAN | Evolved UMTS Terrestrial Radio Access Network |
| ENIQ | Ericsson Network IQ |
| EPC | Evolved Packet Core |
| EPG | Evolved Package Gateway |
| EU | European Union |
| FCAP | Fault, Configuration, Accounting, Performance |
| FFI | First Field Introduction |
| FOSS | Free and Open Source Software |
| GA | General Availability |
| GSW | Golden SW |
| HW | Hardware |
| ICF | Initial Configuration File |
| IP | Incremental Package |
| IPsec | Internet Protocol security |
| IPv6 | Internet Protocol version 6 |
| ISP | In Service Performance |
| LTE | Long Term Evolution |



| | |
|-------|--|
| MO | Managed Object |
| MOM | Managed Object Model |
| MR | Main Requirements |
| MSMM | Multi Standard Mixed Mode |
| MSS | Mobile Soft Switch |
| OAM | Operation, Administration, and Maintenance |
| PM | Performance Monitoring |
| pRBS | Pico Radio Base Station |
| RAN | Radio Access Network |
| RAT | Radio Access Technology |
| RBS | Radio Base Station |
| RNC | Radio Network Controller |
| ROP | Recording Output Period |
| RF | Radio Frequency |
| SCTP | Stream Control Transmission Protocol |
| SNAD | Sub Network Adaptor |
| SW | Software |
| TN | Transport Network |
| TR | Trouble Report |
| UE | User Equipment |
| UP | Upgrade Package |
| WCDMA | Wideband Code Division Multiple Access |



8 References

- [1] Free and Open Source Software:
1/0962-3/LZA 701 6012
- [2] LTE RBS 6402 (Pico) Radio Node 18.Q1:
EN/LZN 733 0056 R2A
- [3] RBS 6402 Product Package Description:
221 03-FGC 101 2699
- [4] Parameter and Counter Limitations:
27/006 51-LZA 701 6012
- [5] Transport Network Functionality WCDMA RAN:
138/1551-HSD 101 02/1
- [6] Iub Supporting Internet-grade Transport User Guide:
173/1553-HSD 101 02/1
- [7] Feature Overview RBS 6402:
2/006 51-LZA 701 6012/1