How To Set XXT System-Wide xxBus Baud Rates So That They All Match

Configuring an XXT system for a baud rate of 19200 with QSSC set to “On” will effect an improvement of almost 4x in the xxBUS throughput making multimode systems more responsive – especially when running surface tests, configuring tools/systems and downloading data files.

XXT does not recommend the use of a 19200 baud rate with QDT/GE components. Companies that operate both XXT and QDT/GE systems or operate “mixed” systems should carefully consider the potential issues associated with switching to a baud rate of 19200.

The “QSSC” command is ONLY compatible with XXT equipment and is NOT QDT/GE compatible.

Caution: When entering commands to configure the system baud rate, be sure not to disconnect or turn off any equipment until at least 10 seconds after the last command has been entered. It may take this long for a command to be completely processed, including the completion of any nonvolatile memory updates as required.

The XXT PC Suite utility “xxNETmonitor” will be used to enter commands. Please note that commands, once entered into the xxNETmonitor “Message to send:” window, can easily be sent again by simply clicking the “down carrot” at the right end of the “Message to send:” window, selecting the desired command, and then clicking on the “Send” button. This is useful as the configuration process involves the re-sending of certain commands.

The procedure that follows will set the Port-0 (xxBus) Baud Rate for all nodes in an XXT system to either 19200 with QSSC turned ON, or 9600 with QSSC turned OFF. The various components which must be configured are:

1. All downhole tool nodes (e.g. MPTx20, VIBm25, Pdvr29, Mdvr39, XL115…)
2. All 4100 nodes (i.e. MPRx05 and xxDT06)
3. The XL50 in the Laversab Black Box which is paired with the 4100

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Equipment Connections

1. Connect the Ethernet Port on your PC to the Ethernet Port on the Laversab Black Box via an Ethernet Crossover cable.
2. Connect the DB9 Serial (COM) Port on your PC to the DB9 Serial Port on the Laversab Black Box via a straight-through DB9 M/F Serial cable.
3. Connect the Toolbus Connector of the Laversab Black Box to your downhole tool.
4. Apply Power to the Laversab Black Box.

Configuration Sequence

1. Power up your 4100 and launch xxNETserver if it is not automatically launched.
2. Close all XXT applications which are open on your PC.
3. Make sure that no programs are running on your PC which use the COM Port connected to the Laversab Black Box.
4. Turn off your PC’s Wireless Networking or at least make sure that your PC’s Wireless Networking Interface will not be picking up another 4100 via a Wireless Router/Microhard/4100 setup that may be in range, as this would result in duplicate node ID problems.
5. Launch only xxNETserver on your PC and make sure that the following xxNETserver settings are configured as indicated here:
   a) “Connections” → “Configure COM Ports”:
      i. “Serial Device 1” Checkbox is checked
      ii. The COM Port selected is the one connected to the Laversab Black Box
      iii. If the “OK” button is not grayed-out, then click “OK”, otherwise click “Cancel”
   b) For xxNETserver versions V02.10 & later, also go to:
      “Connections” → “Enable LAN” and make sure this checkbox is checked
6. Now, launch xxNETmonitor on your PC.
7. In the “Message to send:” line of xxNETmonitor, enter the commands on the following page, allowing time for all of the responses to return between each command (see next page).
Reminder: When using xxNETmonitor, you can re-select any commands that have been previously entered into the "Message to send:" window so that you can re-send them without having to re-type them each time.

If you want to set everything to a baud rate 19200, use the following commands:

a) [##]BR0=9600? QSSC 'd'? (These four lines resolve any)
b) [##]BR0=19200? QSSC 'e'? (mixed node baud rates)
c) [##]BR0=9600? QSSC 'd'?
d) [##]BR0=19200? QSSC 'e'?
e) [29]mtrpwr 'e'? (command to Pdvr29 turns ON Mdvr39)
f) [##]BR0=9600? QSSC 'd'? (These four lines make sure)
g) [##]BR0=19200? QSSC 'e'? (that the Mdvr39 baud rate)
h) [##]BR0=9600? QSSC 'd'? (is also set to 19200)
i) [##]BR0=19200? QSSC 'e'?

In the "Replies:" window, confirm that after the last command, all nodes responded indicating that their baud rates are all now 19200 and that each node reported QSSC="On".

If you want to set everything to a baud rate 9600, use the following commands:

a) [##]BR0=19200? QSSC 'e'? (These four lines resolve any)
b) [##]BR0=9600? QSSC 'd'? (mixed node baud rates)
c) [##]BR0=19200? QSSC 'e'?
d) [##]BR0=9600? QSSC 'd'?
e) [29]mtrpwr 'e'? (command to Pdvr29 turns ON Mdvr39)
f) [##]BR0=19200? QSSC 'e'? (These four lines make sure)
g) [##]BR0=9600? QSSC 'd'? (that the Mdvr39 baud rate)
h) [##]BR0=19200? QSSC 'e'? (is also set to 9600)
i) [##]BR0=9600? QSSC 'd'?

In the “Replies:" window, confirm that after the last command, all nodes responded indicating that their baud rates are all now 9600 and that each node reported QSSC="Off".
Appendix: xxBus Baud Rate Parameter Overview

The Baud Rate parameters associated with the xxBus are BR0, BRa and BR. Here is a brief overview of how these parameters are related to the xxBus (Port-0) interface of each node and how they relate to each other.

**BR0**
The BR0 parameter is only valid for XXT tools. QDT/GE tools do not recognize the parameter “BR0”. BR0 is the nonvolatile Baud Rate configuration for the Port-0 (xxBus) interface for a given node. In XXT tools, the value of BR0 is copied over to BRa at reset.

**BRa**
The BRa parameter is a valid parameter for both XXT and QDT/GE tools. BRa is the volatile “active” or “actual” Baud Rate currently functioning on the Port-0 (xxBus) interface for a given node. If BRa is explicitly set (for example via xxNETmonitor), it is possible for the value of BRa to be set differently than BR0 or BR.

**BR**
The BR parameter is a valid parameter for both XXT and QDT/GE tools. BR is the nonvolatile Baud Rate configuration for the Port-0 (xxBus) interface for a given node. In XXT Tools, BR and BR0 are functionally equivalent (to provide for compatibility) – BR and BR0 are redundant and will always have the same value. In QDT/GE tools, there is no BR0 parameter – BR is the sole nonvolatile Port-0 (xxBus) configuration parameter for a given node. In QDT/GE tools, the value of BR is copied over to BRa at reset.

**XXT Tools**
1. For XXT Tools BR0, BR & BRa are all valid parameters
2. BR0 and BR are the nonvolatile “Baud Rate” parameters (BR always = BR0)
3. BRa is the volatile “active” or “actual” baud rate in use
4. Changing BR0 will automatically update both BR and BRa
5. Changing BR will automatically update BR0, but not BRa
6. Changing BRa will not affect the (nonvolatile) value of either BR0 or BR
7. Upon a reset or an RBR! (Reset BR) command, BRa will be set to the value of BR0

Note that for QDT/GE tools, things are a little bit different:

**QDT/GE Tools**
1. For QDT/GE tools, only BR & BRa are valid parameters (not BR0)
2. BR is the nonvolatile “Baud Rate” parameter
3. BRa is the volatile “active” or “actual” baud rate in use
4. Changing BR will not automatically update the value of BRa
5. Changing BRa will not affect the (nonvolatile) value of BR
6. Upon a reset or an RBR! (Reset BR) command, BRa will be set to the value of BR
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As always, XXT customers are encouraged to test all fieldable hardware and software configurations, including telemetry sequence definition strings, in the shop prior to using them in the field to ensure that they function exactly as required and anticipated.

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