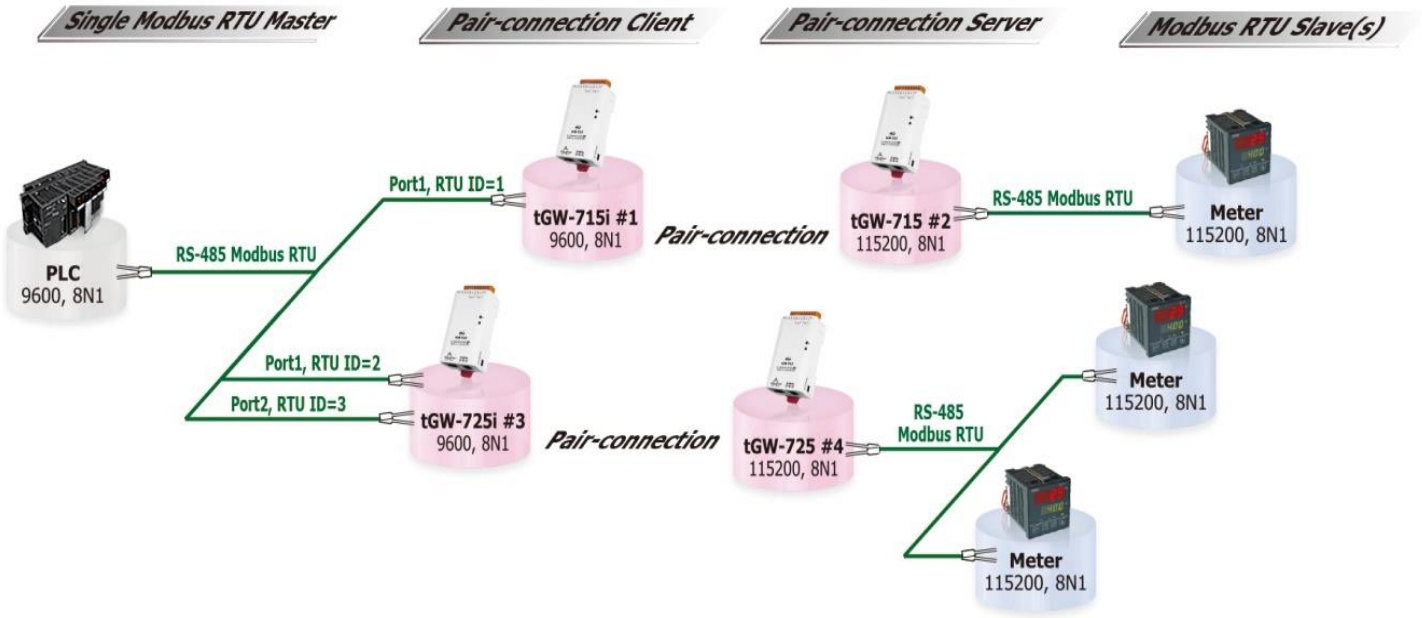
Classification	☑ tDS/tGW/tSH	☐ PETL/tET/tPET	☐ DS/PDS/PPDS	☐ tM-752N
	☐ I/O Card	☐ VXC Card	☐ TouchPAD/HMIWorks	☐ VxComm

Author	Tammy	Date	2017-11-23	NO.	FAQ048

Q: How do I access multiple Modbus RTU slave devices from a single Modbus RTU Master device via the Ethernet?



A: By using pair-connection mode, the Modbus RTU master is then able to access a remote Modbus RTU slave device via the Ethernet. Currently, the pair-connection function only supports one-to-one connections. Consequently, multiple pair-connections are required in order to access multiple slave devices, and all the tGW-700 modules on the master side must be connected to the same RS-485 network as the master device.

The Modbus RTU ID on the pair-connection settings for the tGW-700 can be used to limit access to a specific Modbus RTU slave device. Any messages that have the wrong ID will be ignored by that tGW-700 module. For example, in the above figure, tGW-715i module #1 processes messages that contain ID 1, while tGW-725i module #3 processes messages that contain ID 2 and 3, and so on. Consequently, the remote slave device will only receive messages that contain its ID. This reduces Ethernet network traffic, and reduces the loading on the slave device.

The following table shows both the Pair-connection settings and the Modbus RTU ID mapping configuration for tGW-700 modules #1 to #4:

Model	COM Port	Port Settings		Pair-connection Settings				
		Baud Rate	Data Format	Application Mode	Network Protocol	Remote Server IP	Remote TCP Port	RTU Slave ID (1~247)
tGW-715i #1	Port1	Baud Rate and Data Format for the Master device e.g., 9600, 8N1		Client	TCP	IP address of tGW-715 #2	502	1
tGW-725i #3	Port1			Client	TCP	IP address of tGW-725 #4	502	2
	Port2						503	3
tGW-715 #2	Port1	Baud Rate and Data Format for the Slave device e.g., 115200, 8N1		Server	-	-	-	-
tGW-725 #4	Port1			Server	-	-	-	-
	Port2							

Note: It is recommended that tGW-700i isolation models are used on the master side in this type of architecture to ensure stable operation of the hardware. If you are using the tGW-700 non-isolated models, please use DC power rather than PoE power.

Step 1: Confirm that both the Ethernet connection and the tGW-700 series module are functioning correctly. For detailed information regarding how to install, configure and operate your tGW-700 series module, refer to the tGW-700 Quick Start Guide:

Download the Quick Start Guide.

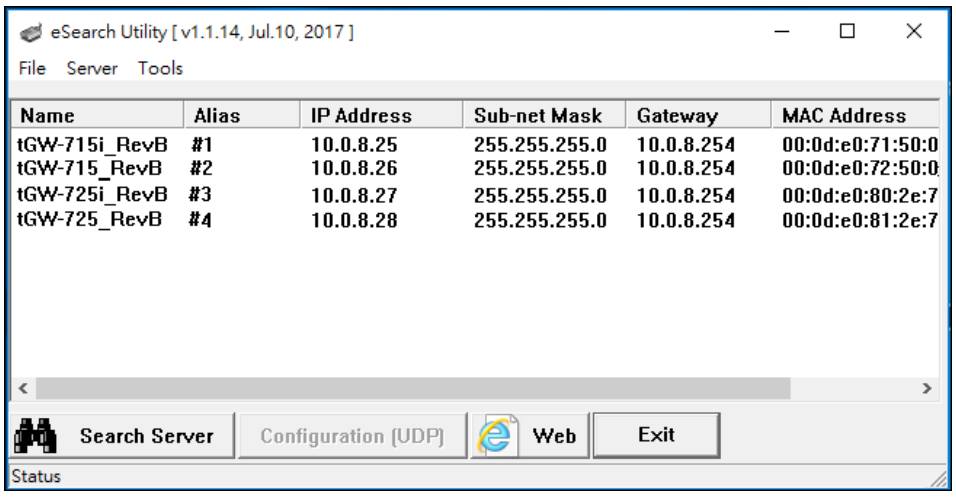


Figure 1-1

The following example provides a detailed description where the tGW-725i module #3 and tGW-725 module #4 that are used.

Step 2: Enter the URL for tGW-725i module #3 in the address bar of the browser to log in to the web configuration pages (use the default password **"admin"**).

Step 3: Verify that the firmware version for the module is **v1.3.4 [Aug. 19, 2013] or later**.

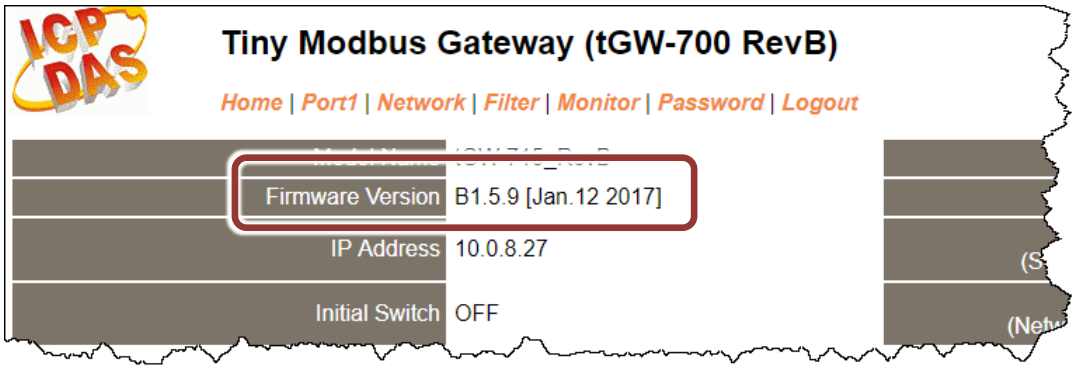


Figure 1-2

Note that if your firmware version is earlier than v1.3.4 [Aug. 19, 2013], the firmware must first be updated to the latest version. For detailed information regarding the firmware update process, refer to the tGW-700 firmware update documentation:

Download the firmware update documentation

➢ Configuring tGW-725i module #3 in Client Mode

Step 4: Click the **"Port1"** tab to display the **Port1 Settings** page.

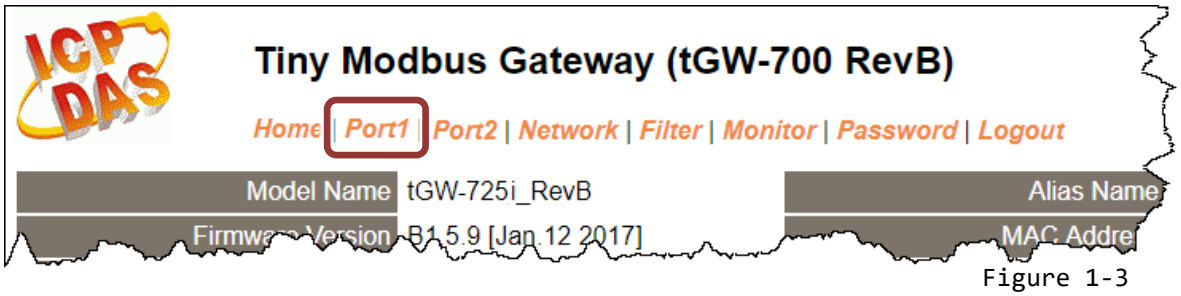


Figure 1-3

Step 5: Select the appropriate **Baud Rate, Data Format and Modbus Protocol** settings from the relevant drop down options depending on the model and type of module being used as the **Modbus RTU Master device**. The following is an example: Baud Rate (bps): **9600**, Data Bits (bits): **8,** Parity: **None**, Stop Bits (bits): **1** and Modbus Protocol: **Modbus RTU**.

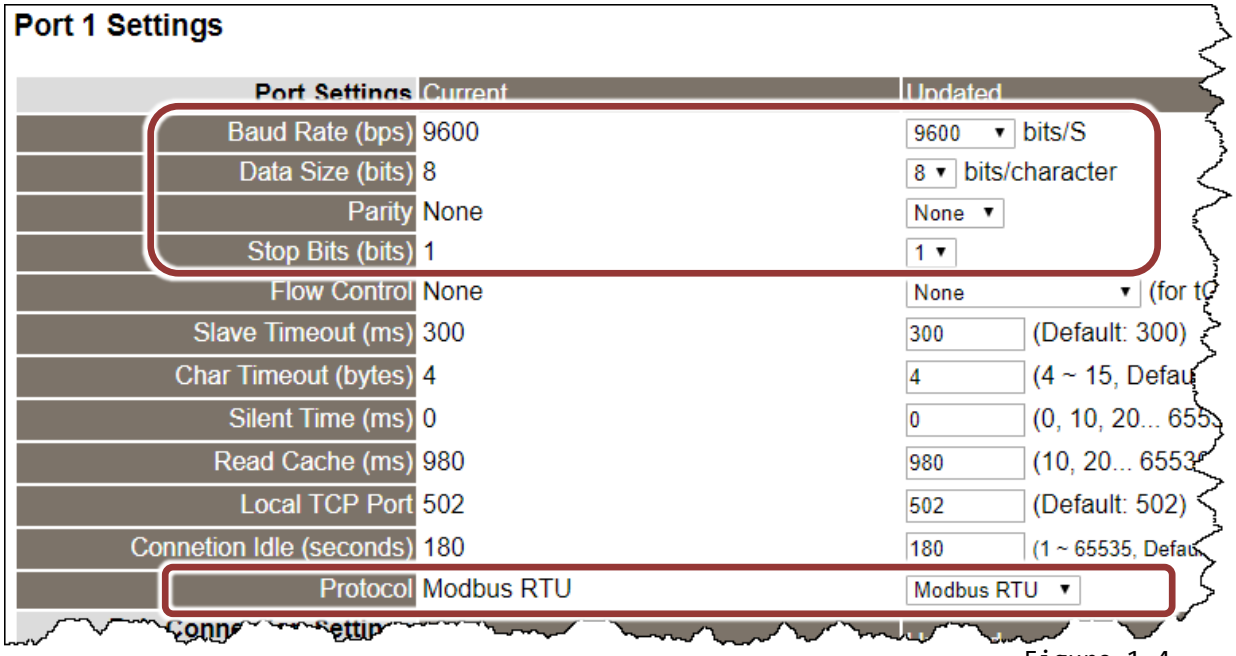


Figure 1-4

Step 6: In the Pair-connection settings area, verify that the configuration details are same as those shown in the table below:

Field	Server Mode	Modbus Protocol	Remote Server IP	Remote TCP Port	RTU Slave ID (1~247)
Pair-connection Settings	**Client**	**TCP**	**10.0.8.28**	**502**	**2**
		Modbus Protocol, IP address and TCP port for tGW-725 module #4			Port 1 on tGW-725i module #3

Step 7: Amend any details as required and then click the **"Submit"** button to complete the configuration.

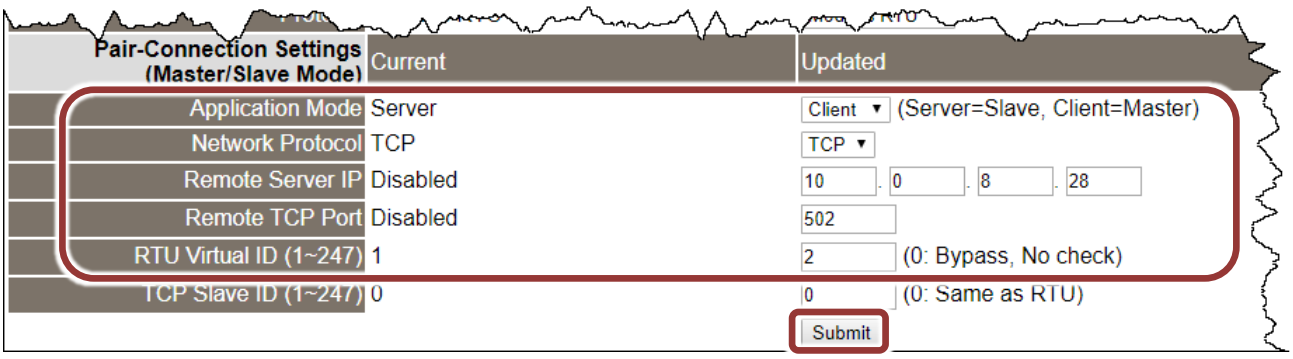


Figure 1-5

Step 8: Click the **"Port2"** tab to display the **Port2 Settings** page.

Step 9: Select the appropriate **Baud Rate, Data Format and Modbus Protocol** settings from the relevant drop down options depending on the model and type of module being used as the **Modbus RTU Master device**.

Refer to Figures 1-3 to 1-4 for an illustration of how to perform Steps 8 to 9 of the procedure described above.

Step 10: In the Pair-connection settings area, verify that the configuration details are same as those shown in the table below:

Field	Server Mode	Modbus Protocol	Remote Server IP	Remote TCP Port	RTU Slave ID (1~247)
Pair-connection Settings	Client	TCP	10.0.8.28	503	3
		Modbus Protocol, IP address and TCP port for tGW-725 module #4			Port 2 on tGW-725i module #3

Step 11: Click the **"Submit"** button to complete the configuration.

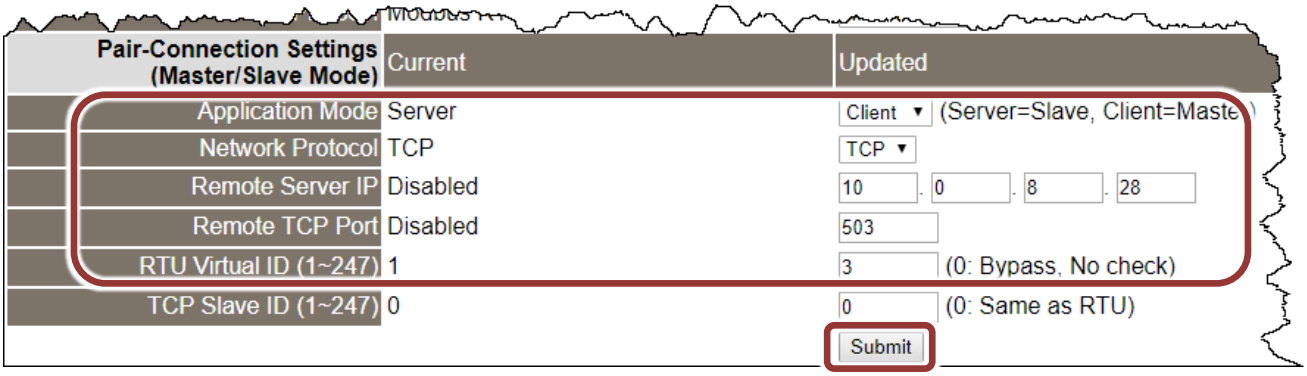


Figure 1-6

Step 12: Click the **"Home"** tab and confirm that the Pair-connection settings for Port1 and Port2 are correct.

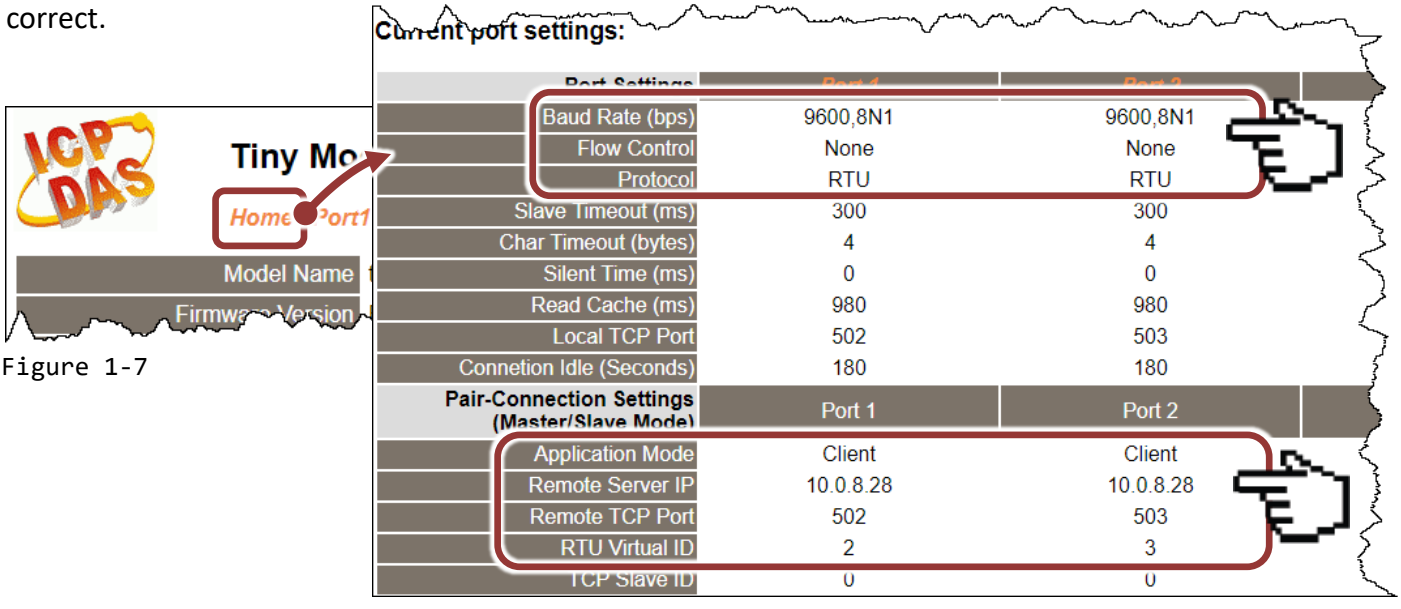


Figure 1-7

➢ Configuring tGW-725 module #4 in Server Mode

Step 13: Enter the URL for tGW-725 module #4 in the address bar of the browser to log in to the web configuration pages (use the default password **"admin"**).

Step 14: Click the **"Port1"** tab to display the **Port1 Settings** page.

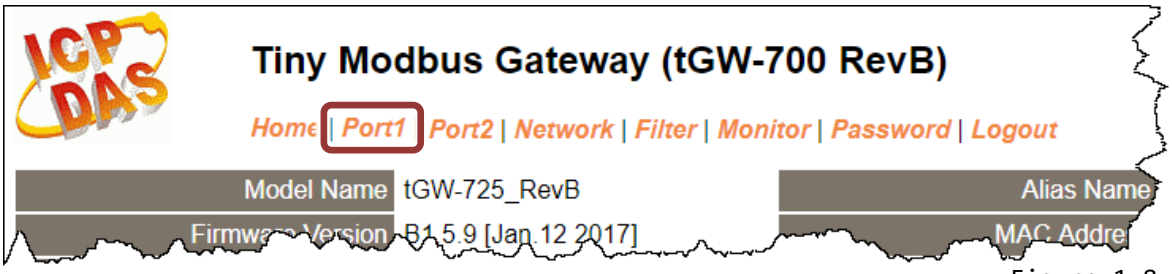


Figure 1-8

Step 15: Select the appropriate **Baud Rate, Data Format and Modbus Protocol** settings from the relevant drop down options depending on the model and type of module being used as the **Modbus RTU Slave device**. The following is an example: Baud Rate (bps): **115200**, Data Bits (bits): **8,** Parity: **None**, Stop Bits (bits): **1** and Modbus Protocol: **Modbus RTU**.

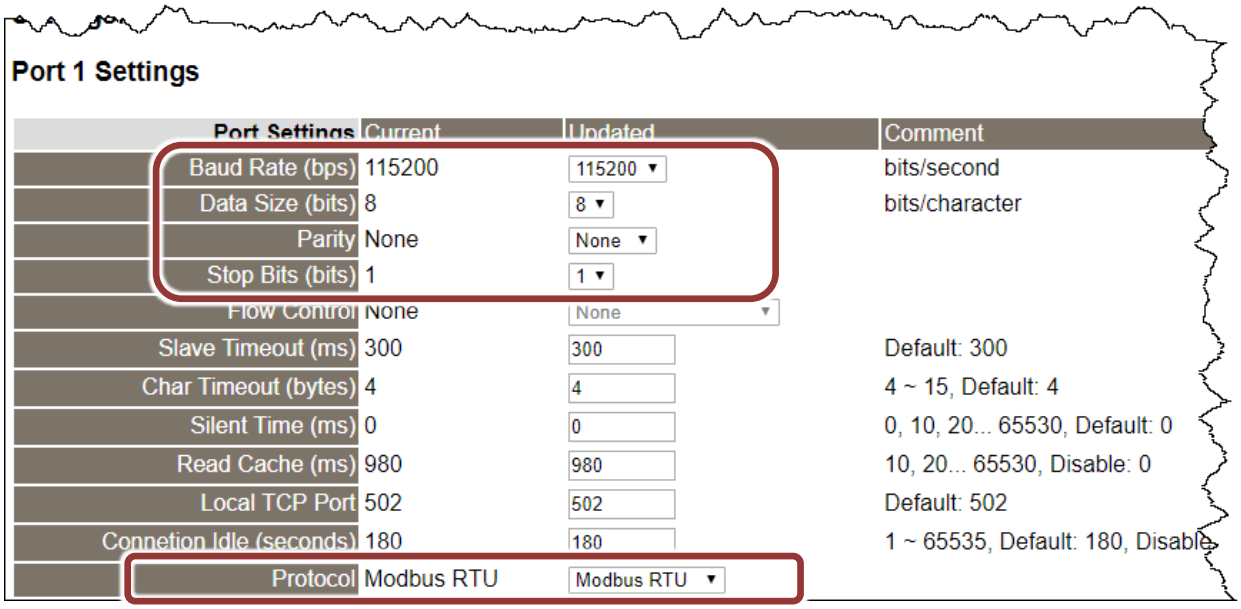


Figure 1-9

Step 16: In the **Pair-connection Settings** area for Port1, select "**Server**" from the **"Application Mode"** drop down options, and click the **"Submit"** button to complete the configuration.

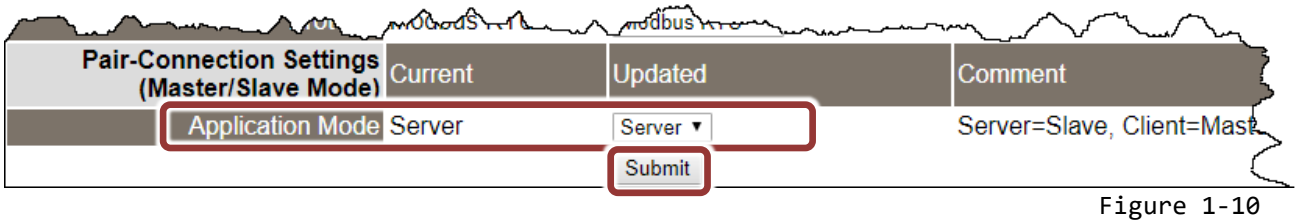


Figure 1-10

Step 17: Click the **"Port2"** tab to display the **Port2 Settings** page.

Step 18: Select the appropriate **Baud Rate, Data Format and Modbus Protocol** settings from the relevant drop down options depending on the model and type of module being used as the **Modbus RTU Slave device**.

Step 19: In the **Pair-connection Settings** area for Port2, select "**Server**" from the **"Application Mode"** drop down options, and click the **"Submit"** button to complete the configuration.

Refer to Figures 1-8 to 1-10 for an illustration of how to perform Steps 17 to 19 of the procedure described above.

Step 20: Click the **"Home"** tab to confirm that the pair-connection settings for Port1 and Port2 on tGW-725 module #4 are correct.

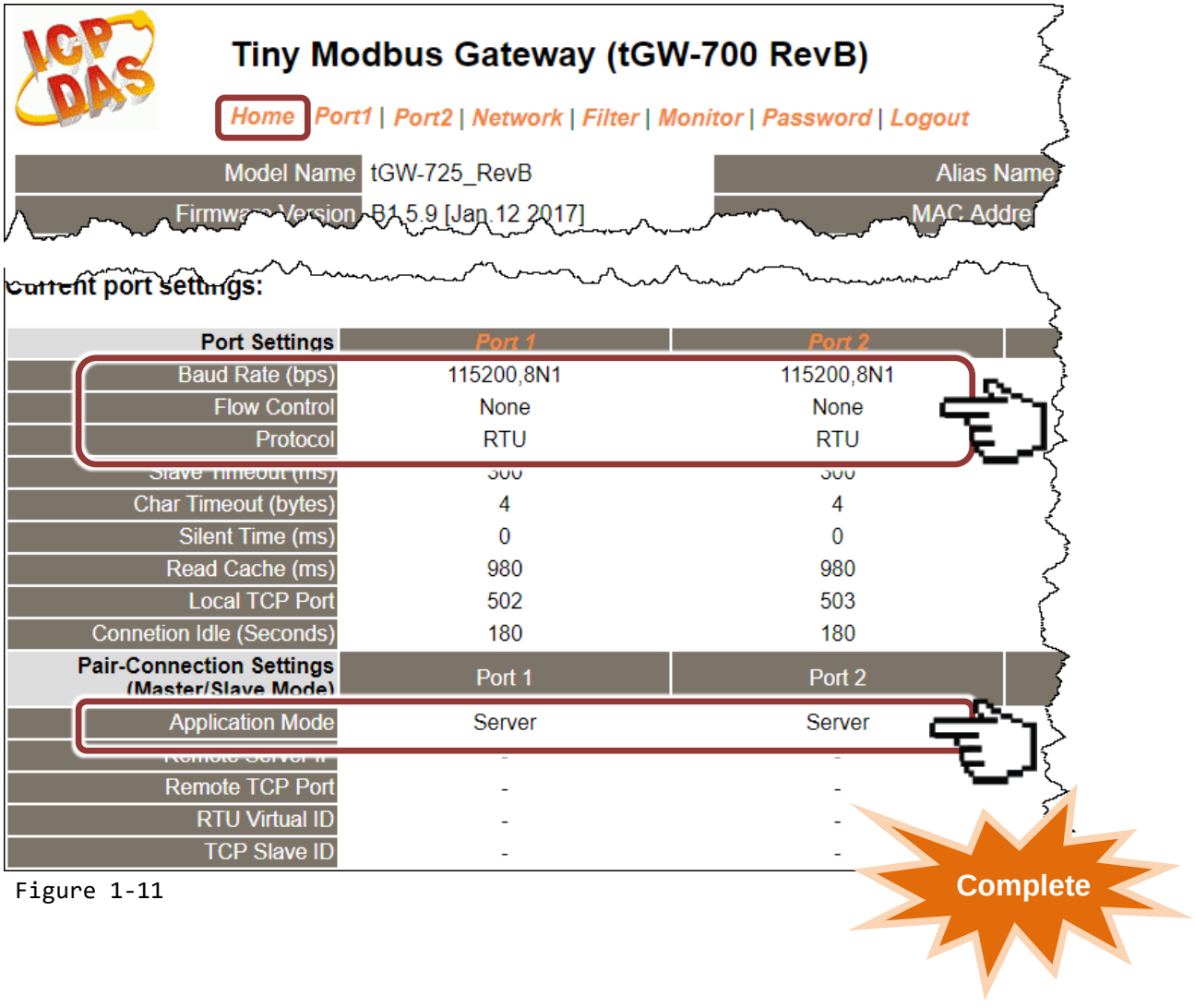


Figure 1-11