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#### ABSTRACT

A rural community-owned Water Company needed to remotely monitor their Pumphouse providing potable water to their customers on the Olympic Peninsula of Western Washington state. Without any infrastructure for communication, the best choice was to use a cellular router connected to the controller with an embedded webserver in the remote pumphouse to allow communication for remote monitoring and programming. This paper will teach the reader how to implement such a system.

#### **INTRODUCTION**



Figure 1: Cellular Router Dashboard



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Figure 2: Instrumentation

PUMP #1 FLOW AI#4 PUMP #2 FLOW

AI#3



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Figure 3: 25,000 Gallon Water Tank



Figure 4: Pumphouse



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Figure 5: Controller testing in the office



Figure 6: Cellular Router in the Pumphouse



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Figure 7: Controller in the Pumphouse



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Figure 9: Static Route for Cellular Router

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Figure 8: Configuring eMail



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Figure 10: Configuring SMS Text Messages

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Figure 11: Configuring SMS Text Message Phone Number



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### **IMPLEMENTATION**

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Figure 13: Configuring Notifications

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Figure 12: Notification Schedule



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Figure 15: Configuring eMail Address

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Figure 14: Configuring Discrete Alarms (Inputs)



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Figure 17: Configuring Analog Inputs

HOW TO ENABLE REMOTE ACCESS CONFIGURATION!

To enable:

- 1) go to ADMINISTRATION>ACCESS CONFIGURATION>
- 2) enable it
- 3) leave on port 80 or change port for security!
- 4) check via lan and wan
- 5) Under the HTTPS section, make sure that you check via WAN as well!
- 6) submit it and then be sure to save and restart the device.

Note: If you need remote access to your Multi-Connect device over the Internet for remote configuration, ensure that your wireless network provider has provisioned mobile terminated data and fixed or dynamic public IP address in which they can configure the network to redirect any incoming connection to that predefined IP.



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Home	Access Configuration 2	Reset To Default					
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Support	DoS Prevention						
Status	Enabled 🔲 Per Minute 60 Burst 100						
Commands	Ping Limit						
Help	Enabled Der Second 10 Burst 30						
	Brute Force Prevention						
Copyright © 1995-2014 Multi-Tech Systems, Inc. All rights reserved.	Enabled 🔲 Attempts 3 Lockout Minutes 5						
		Submit					

Figure 18: Enable Remote Access Configuration



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#### SUMMARY & CONCLUSIONS

- Were able to use 4G LTE cellular instead of cable, phone, or radios.
- Able to remotely monitor the Pumphouse.
- The cellular router connected to the controller with an embedded webserver allows communication for remote programming.
- Implementing the system was plug-and-play



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MultiConnect® rCell 100 MTR-LTE User Guide; Multi-Tech Systems, Inc.; 2205 Woodale Drive, Mounds View, MN 55112; Phone: (800) 328-9717 or (763) 785-3500

AT Command Addendum and Getting: Started Guide for LAT1 Devices; Telit Firmware 17.00.5x3 Reference Guide. MULTITECH; S000617 Rev 1.1



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