

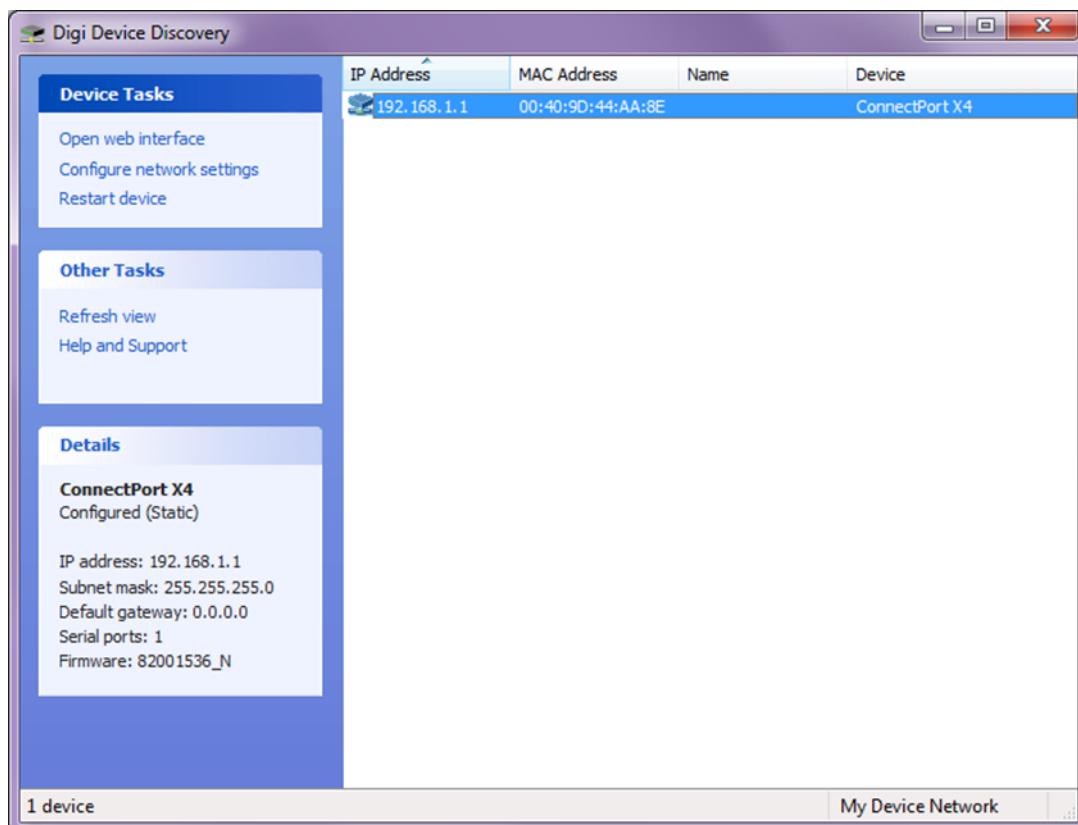
# How to Program A Cellular Gateway

## Version Notes:

- New gateway driver files: dia.yml and dia.zip.
- Supports Sleep Network.
- Updated gateway firmware version 2.17.6.4 (82001536\_R1.bin )
- Firmware prevents bug to disable Verizon CDMA
- Digimesh Network works for agrisensors.net ONLY.

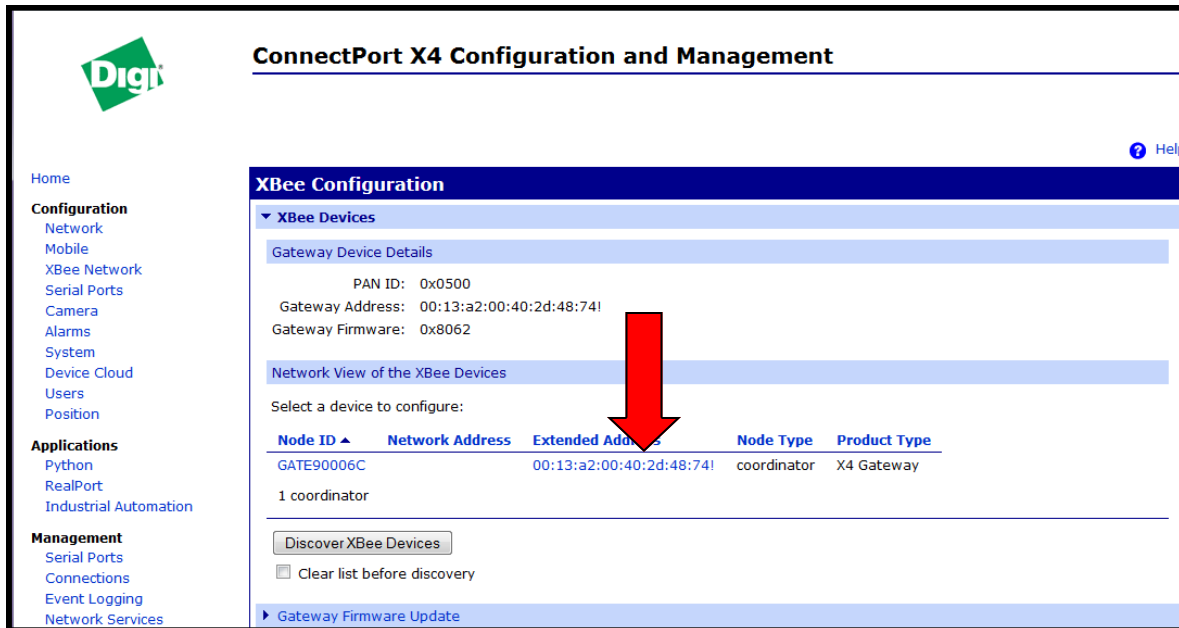
## 1. Discovery Gateway:

- 1) Connect gateway to your PC using a LAN network cable labeled as "CROSSOVER". Power up gateway and wait for one minute.
- 2) Double click on Device Discovery shortcut on your desktop. You may download the program [here](#).
- 3) Click "Refresh View" under "Other Tasks".
- 4) Within 30 seconds, an IP address of 192.168.1.1 will appear in the list with device's MAC address.
- 5) Select the IP then click "Open web interface" from "Device Tasks".



## 2. XBee Configuration:

- 1) Go to "Configuration" - "XBee Network" - "XBee Devices".
- 2) Click on "Extended Address" to go to "Basic Settings".
- 3) Change PAN ID to "0x500" (0x400 for 2.4 GHz gateway).
- 4) Declare Node Identifier "Gate90xxx" (24xxx for 2.4 GHz gateway).



**ConnectPort X4 Configuration and Management**

**XBee Configuration**

**XBee Devices**

Gateway Device Details

PAN ID: 0x0500  
Gateway Address: 00:13:a2:00:40:2d:48:74  
Gateway Firmware: 0x8062

Network View of the XBee Devices

Select a device to configure:

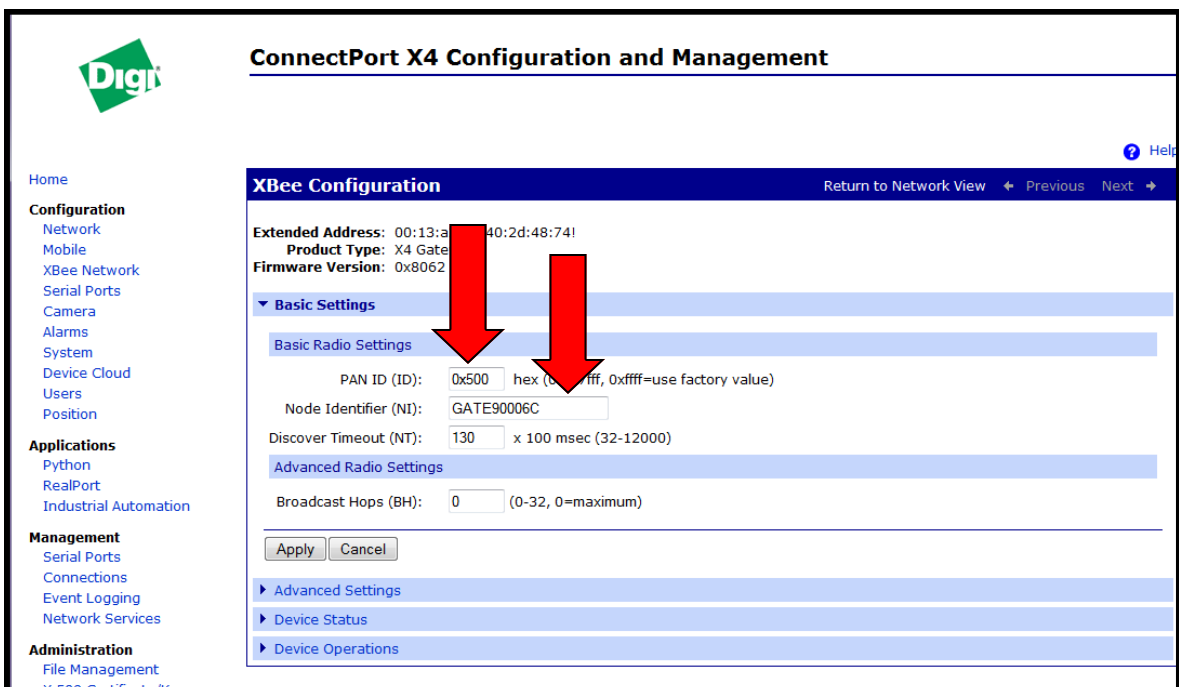
Node ID	Network Address	Extended Address	Node Type	Product Type
GATE90006C		00:13:a2:00:40:2d:48:74	coordinator	X4 Gateway

1 coordinator

Discover XBee Devices

☐ Clear list before discovery

Gateway Firmware Update



**ConnectPort X4 Configuration and Management**

**XBee Configuration**

Return to Network View Previous Next

Extended Address: 00:13:a2:00:40:2d:48:74  
Product Type: X4 Gateway  
Firmware Version: 0x8062

**Basic Settings**

Basic Radio Settings

PAN ID (ID): 0x500 hex (0=0, 0xffff=use factory value)  
Node Identifier (NI): GATE90006C  
Discover Timeout (NT): 130 x 100 msec (32-12000)

Advanced Radio Settings

Broadcast Hops (BH): 0 (0-32, 0=maximum)

Apply Cancel

Advanced Settings

Device Status

Device Operations

## 2. Xbee Configuration (Continued):

- 1) Stay on "XBee Configuration" and go to "Advanced Settings".
- 2) Change Sleep Mode = 7, Sleep Option = 0x5, Sleep Time = 2 (x10 ms), Wake Time = 20000 (ms).

**Advanced Settings**

The following are advanced settings. Use caution - modifying some settings can make remote devices inaccessible from the gateway.

Broadcast radius (BH):	<input type="text" value="0"/>	(0-32)
Coordinator enable (CE):	<input type="text" value="0"/>	(0-2)
Node discovery timeout (NT):	<input type="text" value="130"/>	x 100 msec (32-12000)
Encryption enable (EE):	<input type="text" value="0"/>	(0-1)
Hopping sequence (HP):	<input type="text" value="0"/>	(0-7)
Link encryption key (KY):	<input type="text"/>	(0-16 bytes)
MAC retries (RR):	<input type="text" value="10"/>	(0-15)
Maximum hops (NH):	<input type="text" value="7"/>	(1-32)
Mesh network retries (MR):	<input type="text" value="1"/>	(0-7)
Broadcast retries (MT):	<input type="text" value="3"/>	(0-15)
Network delay slots (NN):	<input type="text" value="3"/>	(1-10)
Node identifier (NI):	<input type="text" value="GATE90006C"/>	(0-20 chars)
PAN identifier (ID):	<input type="text" value="0x600"/>	(0x0-0xffff)
Sleep mode (SM):	<input type="text" value="7"/>	(0-8)
Sleep options (SO):	<input type="text" value="0x5"/>	bitfield (0x0-0xffff)
Sleep Time (SP):	<input type="text" value="2"/>	x 10 msec (1-1440000)
Wake Time (ST):	<input type="text" value="20000"/>	msec (1-3600000)

### 3. System Configuration:


- 1) Go to "Configuration" - "System".
- 2) Update "Device Identity Settings" with new description, contact, location.
- 3) Stay on "System Configuration" page and go to "Date and Time Settings".
- 4) Set local "offset from UTC" and click "Apply".
- 5) Set "Time Source Settings" with 4 different national clock servers. Click "Apply" when done.
  - Sntp server—on—10—60—0.time.devicecloud.com
  - Sntp server—on—20—3600—0.idigi.pool.ntp.org
  - Sntp server—on—100—3600—my.idigi.com
  - Sntp server—on—10—86400—uncnist2.colorado.edu
  - Sntp server—on—100—60—time.nist.gov


**ConnectPort X4 Configuration and**


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**System Configuration**

▼ **Device Identity Settings**

Description: 

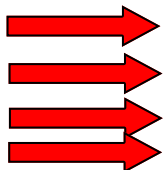
Contact: 

Location: 

Device ID: 00000000-00000000-00409DFF-FF44AA8E

► **Date and Time Settings**

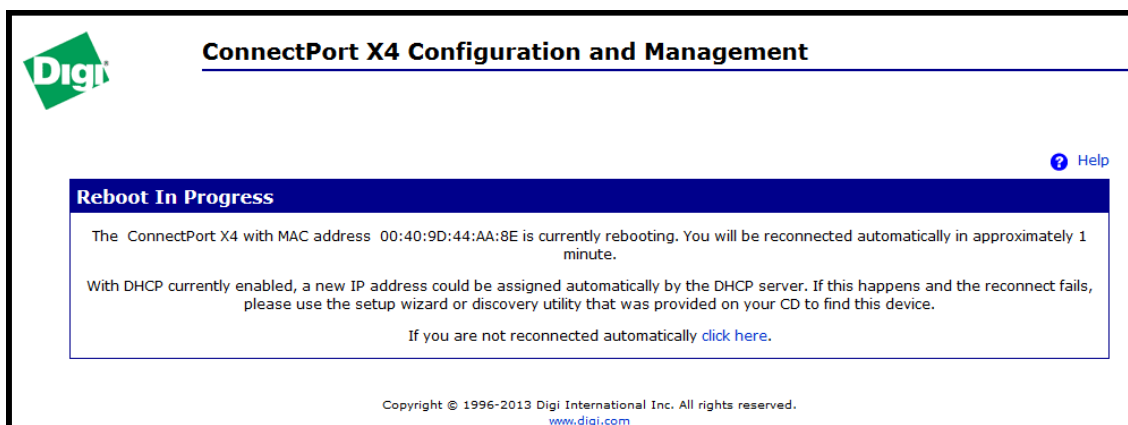
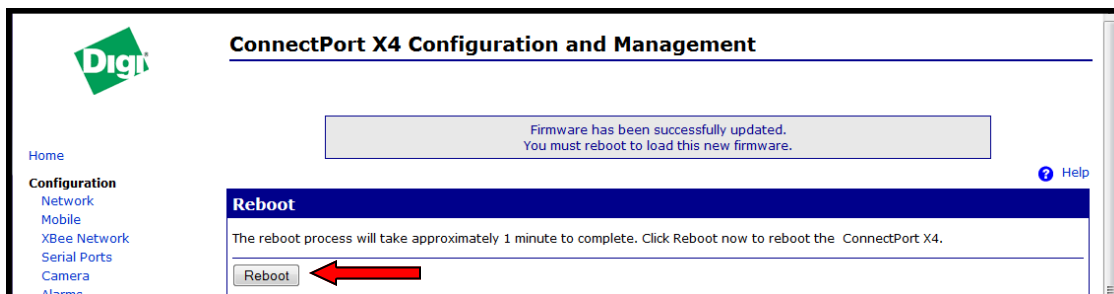
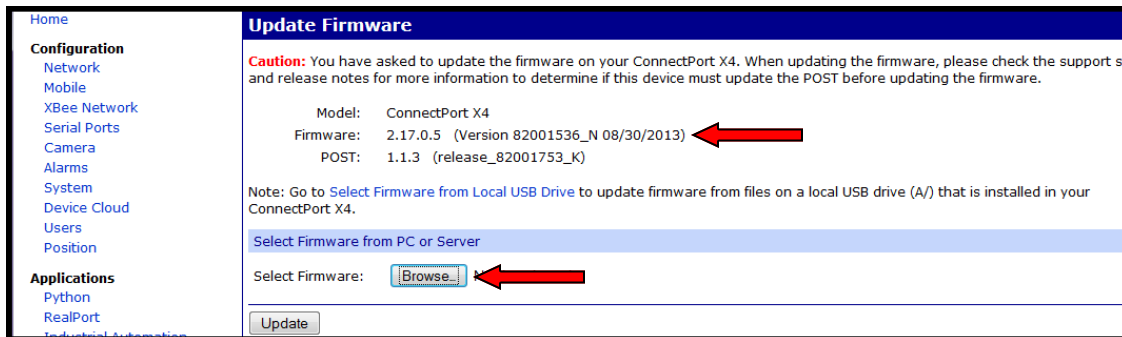
► **Simple Network Management Protocol (SNMP) Settings**



Index	Type	State	Ranking	Interval	FQDN
1	sntp server	on	10	60	0.time.devicecloud.com
2	sntp server	on	20	3600	0.idigi.pool.ntp.org
3	sntp server	on	100	3600	my.idigi.com
4	sntp server	on	10	86400	utcnist2.colorado.edu
5	sntp server	on	100	60	time.nist.gov
	real-time clock	on	50	n/a	n/a

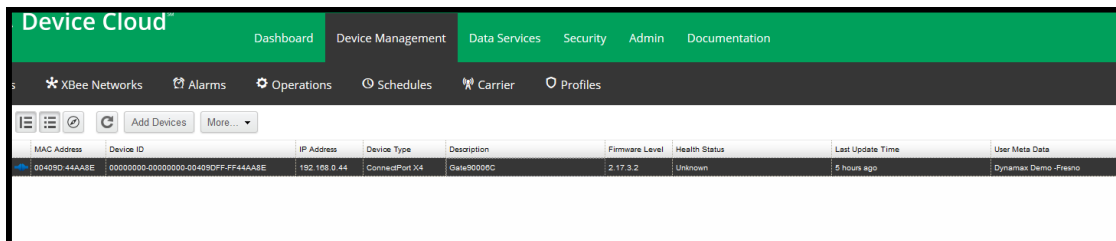
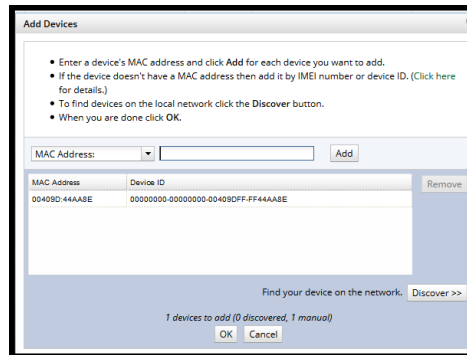
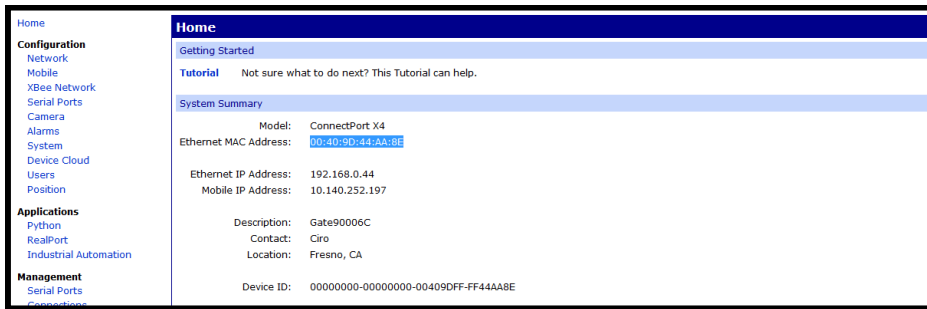
#### 4. Gateway Firmware Update:

- 1) Go to "Administration" - "Firmware Update" and check current firmware version.
- 2) If Firmware: 2.17.6.4 presents, skip Step 4. If not, click on "Browse" and locate the firmware file on your PC. You can download the file [here](#). Click on "Update".
- 3) This will take approximately one minute to complete.
- 4) Reboot is required after updating firmware successfully. It will take approximately one minute for the gateway to reboot and configuration page will be refreshed automatically.



## 5. Add Gateway to Digi Device Cloud Server:

- 1) Browse to my.idigi.com and login.
- 2) Under “Device Management”, click “Add Device” and copy/paste in the MAC address located at home page of Device Discovery.
- 3) Add the MAC to the list and click “OK”.
- 4) Gateway is added to Device Cloud Server.



## 6. Cloud Server Setting:

- 1) Go to "Configuration" - "Device Cloud" - "Connection Settings".
- 2) Under "Device-Initiated Connection", check "Enable Device-Initiated Connection".
- 3) Type "my.devicecloud.com" in "Device Cloud Server Address".
- 4) Check "Automatically reconnect to Device Cloud after being disconnected" and update Reconnect time to 0 hrs 1 mins 10 secs. Click "Apply".
- 5) Go to "Advanced Settings" - "Mobile (Cellular) Settings".
- 6) Change "Connection Method" to "TCP". Change "Device Cloud Connection Keep-Alive Settings" to "Device Send Interval" 270 secs, "Server Send Interval" 280 secs.
- 7) Go to "Ethernet Settings". Change "Connection Method" to "TCP". Change "Device Cloud Connection Keep-Alive Settings" to "Device Send Interval" 60 secs, "Server Send Interval" 70 secs.

**ConnectPort X4 Configuration and Management**

Home | Configuration | Network | Mobile | XBee Network | Serial Ports | Camera | Alarms | System | Device Cloud | Users | Position | Applications | Python | RealPort | Industrial Automation | Management | Serial Ports | Connections | Event Logging | Network Services | Administration | File Management | X.509 Certificate/Key Management | Backup/Restore | Update Firmware | Factory Default Settings | System Information | Reboot | Logout

### Device Cloud Configuration

For more information about Device Cloud and how to remotely configure and manage this device, please visit [devicecloud.com](#).  
For more information on configuring the Device Cloud settings for this device, see the [Device Cloud Configuration Help](#).  
Device Type: ConnectPort X4

**Connection Settings**

**Device-Initiated Connection:**

- ☒ Enable Device-Initiated Connection
- Device Cloud Server Address:
- ☒ Automatically reconnect to Device Cloud after being disconnected
- Reconnect after:  hrs  mins  secs

**Server-Initiated Connection:**

- ☒ Enable Server-Initiated Connection
- ☒ Enable Device IP Address updates to the following server
- Device Cloud Server Address:
- ☒ Retry if the IP Address update fails
- Retry after:  hrs  mins  secs

**Timed Connection:**

- ☐ Enable Timed Connection
- Device Cloud Server Address:
- Connect every:  hrs  mins
- After boot, wait before first timed connection:

**Paged Connection:**

- ☒ Enable Paged Connection
- Device Cloud Server Address:

Home | Configuration | Network | Mobile | XBee Network | Serial Ports | Camera | Alarms | System | Device Cloud | Users | Position | Applications | Python | RealPort | Industrial Automation | Management | Serial Ports | Connections | Event Logging | Network Services | Administration | File Management | X.509 Certificate/Key Management | Backup/Restore | Update Firmware | Factory Default Settings | System Information | Reboot | Logout

### Advanced Settings

The following settings are advanced settings used to fine tune the connection between Device Cloud and the device. The default settings will typically work in most situations.

**Connection Settings:**

- ☐ Disconnect when the Device Cloud Connection is idle
- Idle Timeout:  hrs  mins  secs
- ☐ Authenticate to Device Cloud with a password
- Password:

**Mobile (Cellular) Settings:**

Device Cloud Connection Keep-Alive Settings:

Device Send Interval:  secs    Server Send Interval:  secs

Assume connection is lost after:  timeouts

Connection Method:  For Device Cloud service, must be TCP or SSL.

HTTP over Proxy Settings (optional):

Hostname:     Username:

TCP Port:     Password:

☐ Enable persistent proxy connections

**Ethernet Settings:**

Device Cloud Connection Keep-Alive Settings:

Device Send Interval:  secs    Server Send Interval:  secs

Assume connection is lost after:  timeouts

Connection Method:  For Device Cloud service, must be TCP or SSL.

HTTP over Proxy Settings (optional):

Hostname:     Username:

TCP Port:     Password:

☐ Enable persistent proxy connections

## 7. Mobile Settings:

- 1) Go to "Configuration" - "Mobile" - "Mobile Settings".
- 2) Under "Mobile Service Provider Settings", select "SIM Slot" - Slot 1. "Service Provider" set to "T-Mobile (USA)". Under "Custom Plan Name", type in "telargo.t-mobile.com". Click "Apply".
- 3) Note: Verizon Wireless service requires "Provision Device" to activate the gateway cellular service which may take several days to complete.
- 4) Stay on "Mobile Configuration", go to "SureLink Settings". Under "Hardware Reset Thresholds", check both selections, and set hard reset to 3 and reboot to 5.
- 5) Under "Link Integrity Monitoring", check "Enable Link Integrity Monitoring..." and select "Ping Test" to "my.idigi.com".
- 6) Set "Repeat the selected link integrity test every: 185 seconds. Check both selections below and set the reset after test failures to 3.

**Mobile Configuration**

Select a mobile profile to configure. Settings on this page apply to the selected profile.

Priority	Service Provider	SIM	Status
1	T-Mobile (USA)	1	Not installed
2	None Selected	N/A	Not configured

**Mobile Settings**

Select the service provider, service plan, and connection settings used in connecting to the mobile network. These settings are provided by and can be retrieved from the service provider.

**Mobile Service Provider Settings**

Service Provider: T-Mobile (USA)

Service Plan / APN: Custom APN

Custom Plan Name: telargo.t-mobile.co

Username: (Optional)

Password: (Optional)

SIM Slot: ☒ Slot 1 ☐ Slot 2

**Mobile Connection Settings**

☒ Enable this connection. This selection will not disconnect an established connection. An established connection may be disconnected from the [Connections Management](#) page.

☒ Re-establish connection when no data is received for a period of time.

Inactivity timeout: 3600 seconds

[Profile Selection](#)

[Advanced Settings](#)

[SureLink Settings](#)

**SureLink Settings**

SureLink™ provides an "always-on" mobile network connection to ensure rapid on-demand communication. The configuration settings below allow you to customize how SureLink detects when a connection has been lost, in order to re-establish the link.

**Hardware Reset Thresholds**

The SureLink Hardware Reset Thresholds are observed if a problem occurs while initializing and establishing the mobile data connection. Please refer to the SureLink help section for additional information.

☒ Hard reset the mobile interface after the following number of consecutive failed connections.

3 (1-255)

☒ Reboot the device after the following number of consecutive failed connections.

5 (1-255)

**Link Integrity Monitoring**

The SureLink Link Integrity Monitoring tests are performed only while the mobile network connection is established, and when the tests are enabled in these settings.

☒ Enable Link Integrity Monitoring using the test method selected below.

☒ Ping Test

Verifies that a valid reply is received for a ping request sent to the following:

Primary Address: my.idigi.com

Secondary Address:

☐ TCP Connection Test

Verifies that a TCP connection can be established with the following:

TCP Port: 80

Primary Address:

Secondary Address:

☐ DNS Lookup Test

Verifies that a DNS reply is received when requesting a DNS lookup of the following:

Primary DNS Name:

Secondary DNS Name:

Repeat the selected link integrity test every: 185

☒ Test only when idle: if no data is received for the above period of time.

☒ Reset the link after the following number of consecutive link integrity test failures.

3 (1-255)



## 8. Load Gateway Driver:

- 1) Go to "Application" - "Python" - "Python Files".
- 2) Browse and Upload "dia.py", "dia.yml", "dia.zip".
- 3) Note: use version 3.8 driver files.
- 4) Stay on "Python" and go to "Auto-start Settings".
- 5) Check 1st selection and type in "dia.py dia.yml" (Note: there is a space between dia.py and dia.yml).
- 6) Click "Apply".

**ConnectPort X4 Configuration and Management**

File uploaded.

**Python Configuration**

**Python Files**

Upload Files

Upload Python programs

Upload File:  No file selected.

**Warning:** If you modify the Python files (archives or scripts), it is strongly recommended that you reboot your Digi device server for the modified files to take effect. Unpredictable behaviors may result if you do not reboot, d

**Manage Files**

Action	File Name	Size
<input type="checkbox"/>	dia.zip	603990 bytes
<input type="checkbox"/>	dia.py	11248 bytes
<input type="checkbox"/>	dia.yml	1923 bytes
<input type="checkbox"/>	python.zip	144321 bytes
<input type="checkbox"/>	zigbee.py	1147 bytes

**Auto-start Settings**

**Python Configuration**

**Auto-start Settings**

Specify python programs to be run when the device boots.

Enable	Action On Exit	Auto-start Command Line (specify program filename to execute and any arguments)
<input checked="" type="checkbox"/>	None	dia.py dia.yml
<input type="checkbox"/>	None	
<input type="checkbox"/>	None	
<input type="checkbox"/>	None	

## 9. Network Configuration:

- 1) Go to "Configuration" - "Network" - "IP Forwarding Settings".
- 2) Uncheck "Enable IP Routing (Forwarding)". Click "Apply".
- 3) Stay on "Network Configuration", and go to "Advanced Network Settings".
- 4) Under "Gateway Priority", select "Ethernet" and click "Apply".
- 5) Stay on "Network Configuration", and go to "DHCP Server Settings".
- 6) Check selection "Enable DHCP Server". Click "Apply".
- 7) Stay on "Network Configuration", and go to "Ethernet IP Settings".
- 8) Change to "Obtain an IP address automatically using DHCP", and check selection "Enable AutoIP address assignment". Click "Apply". Note: After this step, the gateway will be reconfigured for its new network setting and will require reboot.

**Network Configuration**

- Ethernet IP Settings
- DHCP Server Settings
- Network Services Settings
- Dynamic DNS Update Settings
- IP Filtering Settings
- IP Forwarding Settings**

These settings are used to manage IP routing (forwarding) of packets between network interfaces. Static routes may be configured and added to the IP routing table to provide additional packet routing rules. In conjunction with IP routing, Network Address Translation (NAT) settings may be configured to support communication between private and public IP networks where basic IP routing is not sufficient.

**IP Routing and Static Route Settings**

☒ Enable IP Routing (Forwarding)

**Note:** If IP Routing is disabled, NAT is disabled.

**Advanced Network Settings**

The following settings are advanced settings used to fine tune the network connection and network interfaces. The default settings will typically work in most situations.

**IP Settings**

Host Name:

Static Primary DNS:

Static Secondary DNS:

DNS Priority: Static Mobile Ethernet

Gateway Priority: Ethernet Mobile

**Network Configuration**

- Ethernet IP Settings
- DHCP Server Settings**

**Note:** For the DHCP server to operate, the ConnectPort X4 must be configured to use a static IP address. (See the IP Settings page in the Network Configuration area.) Please review additional notes below.

☒ Enable Dynamic Host Configuration Protocol (DHCP) Server

Scope Name:

\* IP Addresses:  to

Lease Duration:  days  hrs  mins

**Network Configuration**

- Ethernet IP Settings**

☒ Obtain an IP address automatically using DHCP \*

☐ Use the following IP address:

\* IP Address:

\* Subnet Mask:

Default Gateway:

☒ Enable AutoIP address assignment

\* Changes to DHCP, IP address, and Subnet Mask may affect your browser connection.

## 9. Network Configuration (continue):

- 9) Go to "Configuration" - "Network" - "IP Network Failover Settings".
- 10) Uncheck "Enable IP Network Failover". Click "Apply".
- 11) Under Link Test Settings, both Mobile and Ethernet Interface should be unchecked as well.

Management

Serial Ports

Connections

Event Logging

Network Services

Administration

File Management

X.509 Certificate/Key Management

Backup/Restore

Update Firmware

Factory Default Settings

System Information

Reboot

Logout

Network Failover General Settings

☐ Enable IP Network Failover.

☒ Enable fallback to the non-failover default gateway priority method.

Failover Interface Priority: 

eth0

mobile0

The settings for each network interface are configured below.

Link Test Settings for Mobile Interface (mobile0)

☐ Enable IP Network Failover for the Mobile Interface.

Select and configure one of the following link tests:

☒ No Test

Do not run link tests for this interface. Failover will use the Up or Down status only.

☐ Ping Test

Verifies that a valid reply is received for a ping request sent to the following:

Primary Destination:

Secondary Destination:

Send Count:  5 requests (1-10)

Send Interval:  5 seconds (1-10)

☐ TCP Connection Test

Verifies that a TCP connection can be established with the following:

Primary TCP Port:  80 (1-65535)

Primary Destination:

Secondary TCP Port:  80 (1-65535)

Secondary Destination:

Connection Timeout:  30 seconds (10-60)

Repeat the test every:  240 seconds (10-3600)

On test failure, retry every:  240 seconds (10-3600)

Report Not Responding after:  3 consecutive failures (1-255)

When Not Responding, retry every:  240 seconds (10-3600)

Link Test Settings for Ethernet Interface (eth0)

☐ Enable IP Network Failover for the Ethernet Interface.

Select and configure one of the following link tests:

☒ No Test

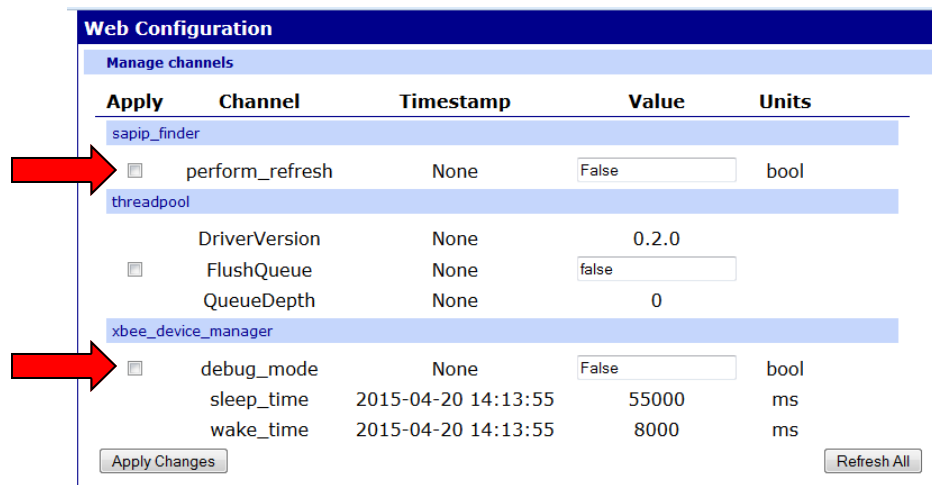
Do not run link tests for this interface. Failover will use the Up or Down status only.

## 10. Operation Verification:

- 1) Unplug gateway from your computer and connect it to local LAN network.
- 2) Go to "Management" - "Event Logging" and monitor the cellular network registration.
- 3) Insert SIM card into Slot 1 and connect Cell Antenna (Included in the package box) to the gateway.
- 4) Go to "Administration" - "System Information" - "Mobile" and check Cellular Signal Strength.
- 5) Stay on "system Information", go to "Device Cloud". Check "Status".
- 6) Stay on "system Information", go to "Diagnostics". Type in "my.idigi.com", click Ping. All 3 packets transmitted should be received and 0% packet loss. This confirms the system is up and running.

## 11. Dia Presentation Page:

- 1) Make sure gateway started at least 15 minutes and dia drivers are running.
- 2) **Remove SIM card from the gateway and wait for 2 minutes.**
- 3) Type in "http://192.168.0.44/idigi\_dia.html" in the browser where "192.168.0.44" is the Ethernet IP address of the gateway.
- 4) Check "debug\_mode" and change value to "TRUE". Click "Apply Changes". This is to change sleep network to awake status in order to issue commands.
- 5) Check "perform\_refresh" and change value to "TRUE". Click "Apply Changes". This is to issue awake command to the entire network in order to wake up all SAPIP nodes.
- 6) Wait for as many as 2 minutes for the entire network to be awake before issuing commands.



Apply	Channel	Timestamp	Value	Units
<b>sapip_finder</b>				
<input type="checkbox"/>	perform_refresh	None	False	bool
<b>threadpool</b>				
	DriverVersion	None	0.2.0	
<input type="checkbox"/>	FlushQueue	None	false	
	QueueDepth	None	0	
<b>xbee_device_manager</b>				
<input type="checkbox"/>	debug_mode	None	False	bool
	sleep_time	2015-04-20 14:13:55	55000	ms
	wake_time	2015-04-20 14:13:55	8000	ms

Apply Changes Refresh All

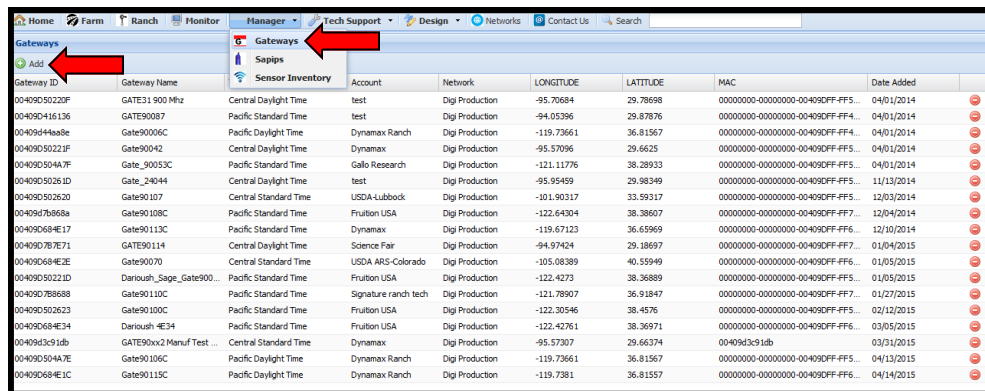


DriverVersion	None	0.2.0
MissedPackets	None	0
pChannelConfig	None	?
pComplete	2015-04-14 16:50:37	SN00004001012001000806YY6121000000000855000N1708 5056004015163KKKKKKKKUK, #, 00003, 01/01/2001, 00:08, 15.1, +00.123, +00.122, +00.123, +0.0000, +00.121, &
pData0	2015-04-14 16:50:37	#, 00003, 01/01/2001, 00:08, 15.1, +00.123, +00.122, +00.123, +0
pData1	2015-04-14 16:50:37	&, 00003, +00.124, +00.123, +0.0000, 05.0560, 00040, +23.4.5.1
pData2	2015-04-14 16:50:37	I, 00003, 01/01/2001, 00:08, T, F, 15.1, KKKKKKKKKK
pStatus	2015-04-14 16:50:37	SN00004001012001000806YY6121000000000855000N1708 5056004
pVersion	None	?
<b>sapip_finder</b>		
<input type="checkbox"/>	perform_refresh	False
<b>threadpool</b>		
	DriverVersion	0.2.0
<input type="checkbox"/>	FlushQueue	false
	QueueDepth	0
<b>xbee_device_manager</b>		
<input checked="" type="checkbox"/>	debug_mode	True
	sleep_time	50
	wake_time	20000

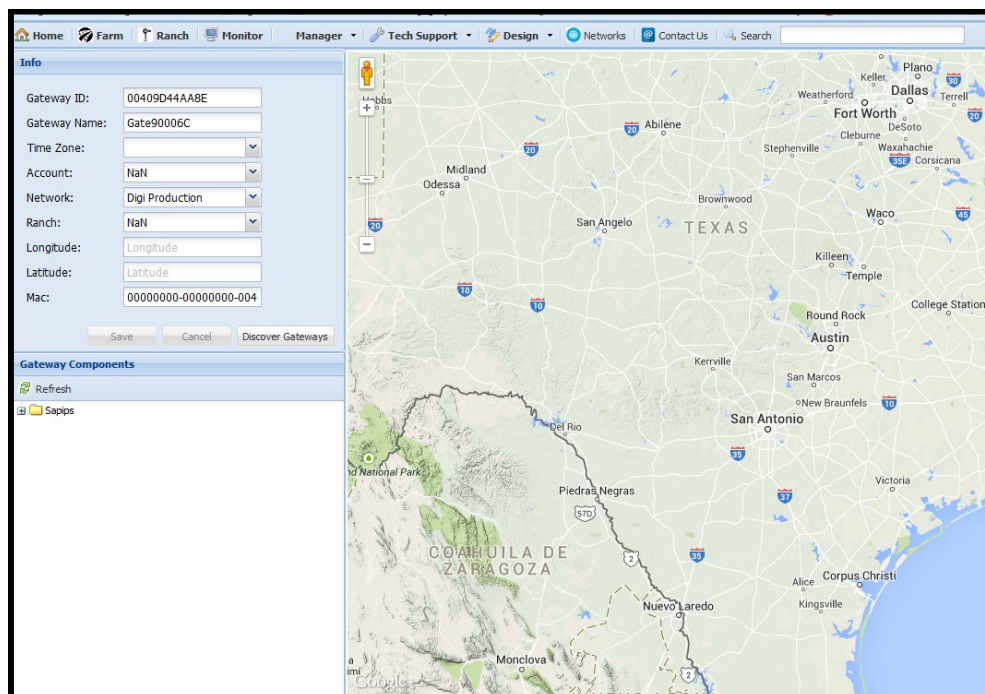
Apply Changes Refresh All

## 12. Agrisensors.net:

- 1) Browse to web address "72.52.168.29" and login.
- 2) Go to "Manage" - "Gateways". Click "Add" to add new gateway to the list.
- 3) Select Network "Digi Production" and click "Discover Gateways".
- 4) In the popup window, select the new gateway added to Digi Cloud Server then click "Select".
- 5) Choose "Time Zone", "Account", "Ranch", and GPS coordinates. Click "Save".



Gateway ID	Gateway Name	Account	Network	LONGITUDE	LATITUDE	MAC	Date Added
00409D50220F	GATE31 900 Mhz	test	Digi Production	-95.70684	29.78698	00000000-00000000-00409DFF-FF5	04/01/2014
00409D416136	GATE90087	test	Digi Production	-94.05396	29.87876	00000000-00000000-00409DFF-FF4	04/01/2014
00409444a8e	Gate90006C	Dynamax Ranch	Digi Production	-119.73661	36.81567	00000000-00000000-00409DFF-FF4	04/01/2014
00409D50222F	Gate90042	Dynamax	Digi Production	-95.57096	29.6625	00000000-00000000-00409DFF-FF5	04/01/2014
00409D50447F	Gate_90053C	Gallo Research	Digi Production	-121.11776	38.28933	00000000-00000000-00409DFF-FF5	04/01/2014
00409D50261D	Gate_24044	test	Digi Production	-95.95459	29.98349	00000000-00000000-00409DFF-FF5	11/13/2014
00409D50262D	Gate90107	USDA-Lubbock	Digi Production	-101.90317	33.59317	00000000-00000000-00409DFF-FF5	12/03/2014
00409D7668a	Gate90108C	Fruition USA	Digi Production	-122.64304	38.38607	00000000-00000000-00409DFF-FF6	12/04/2014
00409D64E17	Gate90113C	Dynamax	Digi Production	-119.67123	36.65969	00000000-00000000-00409DFF-FF6	12/10/2014
00409D767E71	GATE90114	Science Fair	Digi Production	-94.97424	29.18697	00000000-00000000-00409DFF-FF7	01/04/2015
00409D64E2E	Gate90070	USDA ARS-Colorado	Digi Production	-105.08389	40.55949	00000000-00000000-00409DFF-FF6	01/05/2015
00409D50221D	Dariush_Sage_Gate900...	Fruition USA	Digi Production	-122.4273	38.36889	00000000-00000000-00409DFF-FF7	01/05/2015
00409D768688	Gate90110C	Signature ranch tech	Digi Production	-121.78907	36.91847	00000000-00000000-00409DFF-FF7	01/27/2015
00409D502623	Gate90100C	Fruition USA	Digi Production	-122.30546	38.4576	00000000-00000000-00409DFF-FF7	02/12/2015
00409D64E34	Dariush #E34	Fruition USA	Digi Production	-122.42761	38.36971	00000000-00000000-00409DFF-FF6	03/05/2015
00409d3c91ub	GATE900a2 Manuf Test ...	Dynamax	Digi Production	-95.57307	29.66374	00409d3c91ub	03/31/2015
00409D50447E	Gate90106C	Dynamax Ranch	Digi Production	-119.73661	36.81567	00000000-00000000-00409DFF-FF5	04/13/2015
00409D684E1C	Gate90115C	Dynamax Ranch	Digi Production	-119.7381	36.81557	00000000-00000000-00409DFF-FF6	04/14/2015



Info

Gateway ID: 00409D44A8E

Gateway Name: Gate90006C

Time Zone:

Account: NaN

Network: Digi Production

Ranch: NaN

Longitude:

Latitude:

Mac: 00000000-00000000-004

Save Cancel Discover Gateways

Gateway Components

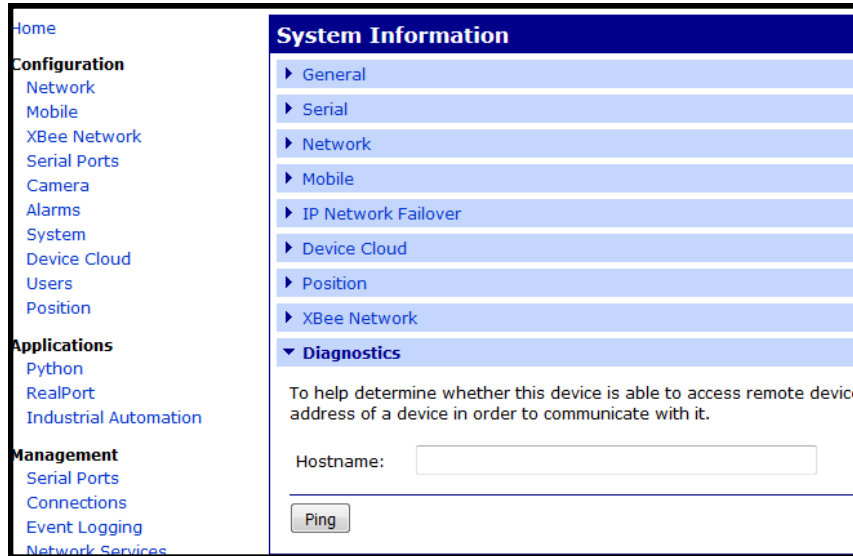
Refresh

Sapps

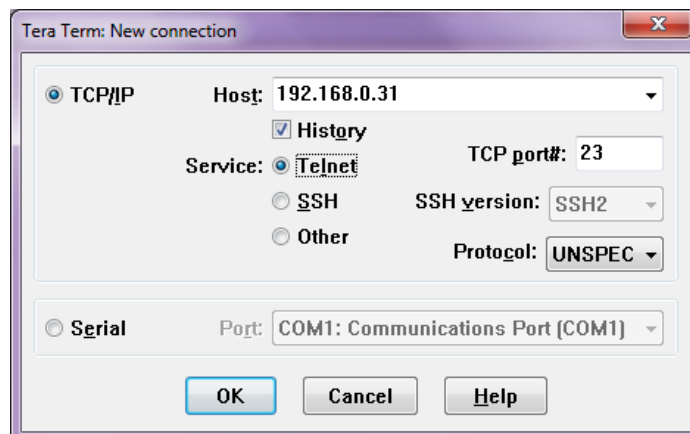
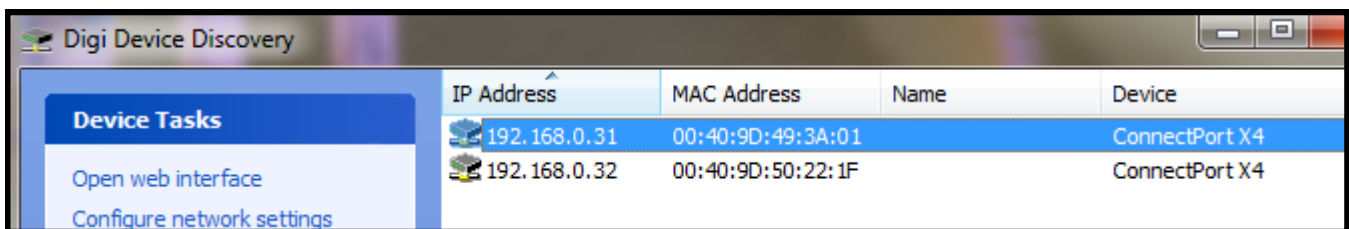
Map showing Texas and surrounding areas, including cities like Dallas, Fort Worth, San Antonio, Austin, and San Marcos.

### 13. Diagnose the Gateway Locally:

- 1) Use Device Discovery tool to access the gateway.
- 2) Go to Administration—System Infor—Diagnostics to ping a website from the gateway.



- 3) Use TeraTerm to access the gateway.
- 4) Start TeraTerm program, choose "TCP/IP", select "Telnet", type in host IP address (obtain this address from Digi Device Discovery), use TCP port #23. Click "OK" button.
- 5) To display network list, type "Display Xbee". To display gateway setting, type "Display Xbee Address". To ping SapIPs, type "xbee ping sapipxxxxx" (or repipxxxxx for repeaters).

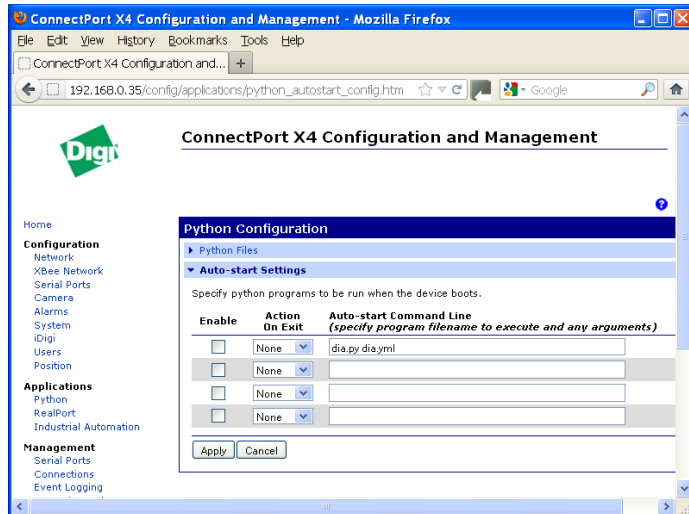


Telnet to debug the Gateway with Trace on the SapIP Driver.

This information was on the original 3.4 release, and now it is repeated to ensure that two debug screens are available, ONE ON TER-  
ATERM, AND ONE ON THE sapip Driver:

Update the firmware, but make sure that no previous python is running to do this.

You MUST uncheck the autostart, under python and **reboot the Gate.**



Use the file upload under Python to upgrade or load the latest SapIP drivers, dia.zip. Dia.py, Dia.yml (does not change very often, but in this case we need to update).

Reboot to change all settings, and reload the software.

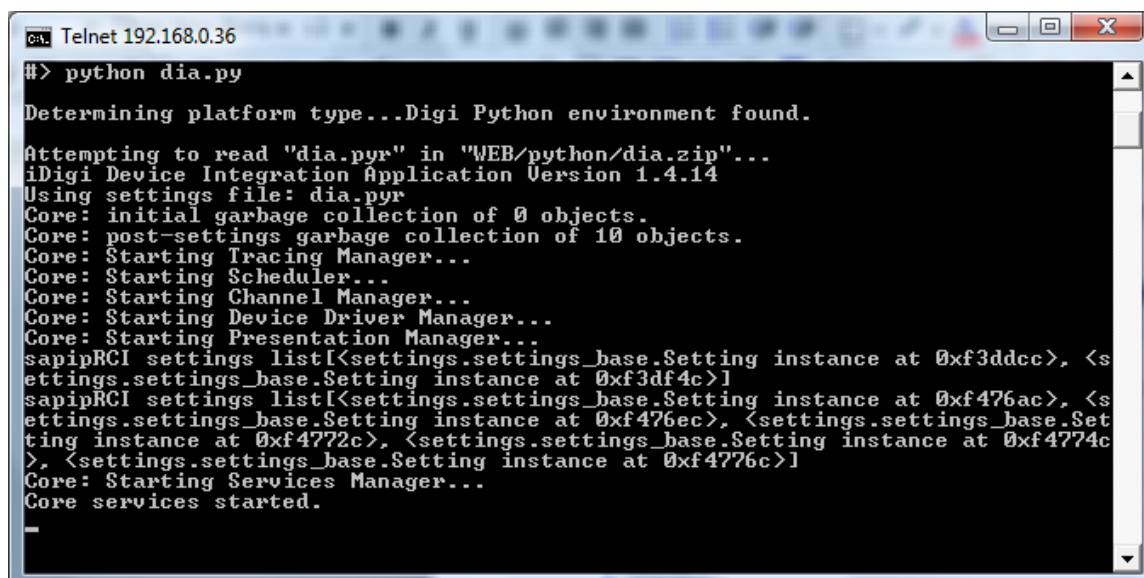
Look up your ip address. Bring up a DOS console, or use the run cmd line . Or use the TeratERM, and set the port to IP address / Port 23

Telnet 192.168.0.xx 23

After prompt #> python dia.py dia.yml

----- will start the application

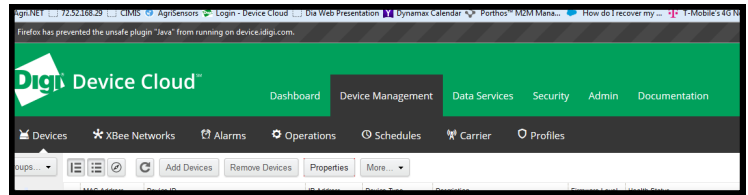
If you need to do debug or want to watch progress of the device driver. You must start with a telner session, and





## 14. Diagnose the Gateway Remotely:

- 1) Log in to Digi Device Cloud Server, device.idigi.com.
- 2) Navigate to "Device Manager" - "Devices".
- 3) Locate the gateway by searching for gateway name or MAC address,
- 4) Highlight the gateway and click on "Properties".
- 5) Navigate to "Command Line Interface".
- 3) To display network list, type "Display Xbee".
- 4) To display gateway setting, type "Display Xbee Address".
- 5) To ping SapIPs, type "xbee ping sapipxxxxx"  
(or repipxxxxx for repeaters).



```
sapip not respond.txt - Notepad2
File Edit View Settings ?
1 display xbee
2
3
4 XBee network device list
5
6 PAN ID: 0x0500
7 Gateway address: 00:13:a2:00:40:e6:25:6e!
8 Gateway firmware: 0x8062
9
10 Node ID      Network Extended address      Node type      Product type
11 -----
12 GATE90125C   00:13:a2:00:40:e6:25:6e! coordinator X4 Gateway
13 SAPIP90477   00:13:a2:00:40:e6:25:2f! router      0x0005ff91
14 SAPIP90478   00:13:a2:00:40:e6:25:5b! router      0x0005ff91
15 SAPIP90479   00:13:a2:00:40:e6:25:51! router      0x0005ff91
16 SAPIP90480   00:13:a2:00:40:e6:25:50! router      0x0005ff91
17
18 1 coordinator, 4 routers
19
20 To display device details:
21   display xbee address=[id|address]
22
23 xbee ping sapip90477
24
25
26 Ping 00:13:a2:00:40:e6:25:2f!: 16 data bytes
27 16 bytes from 00:13:a2:00:40:e6:25:2f!: seq=0, time=2749 ms
28 16 bytes from 00:13:a2:00:40:e6:25:2f!: seq=1, time=5156 ms
29 16 bytes from 00:13:a2:00:40:e6:25:2f!: seq=2, time=36 ms
30 16 bytes from 00:13:a2:00:40:e6:25:2f!: seq=3, time=36 ms
31
32 --- 00:13:a2:00:40:e6:25:2f! ping statistics ---
33 4 packets transmitted, 4 received (100%)
34 round-trip min/avg/max = 36/1994/5156 ms
35
36 xbee ping sapip90477
37
38
39 Ping 00:13:a2:00:40:e6:25:2f!: 16 data bytes
40 16 bytes from 00:13:a2:00:40:e6:25:2f!: seq=0, time=36 ms
41 16 bytes from 00:13:a2:00:40:e6:25:2f!: seq=1, time=36 ms
42 16 bytes from 00:13:a2:00:40:e6:25:2f!: seq=2, time=36 ms
43 16 bytes from 00:13:a2:00:40:e6:25:2f!: seq=3, time=36 ms
44
45 --- 00:13:a2:00:40:e6:25:2f! ping statistics ---
46 4 packets transmitted, 4 received (100%)
47 round-trip min/avg/max = 36/36/36 ms
Ln1:139 Col1 Sel0 4.65 KB ANSI CR+LF INS Default Text
```