# MethowNet.com
# Standard Operating Procedures

## Table of Contents

# 1. Technical Support

## A. Monitoring Tools

1. CnMaestro – to view radio performance by access point
    a. Monitor & manage –> Networks, Methownet: Select radio, view IP address, number of customers, etc.
    b. Login to access point (AP) and view Tools – Link Status to view performance of all radios on the AP.

   Cacti – select AP to view performance graphs of radios
2. Nagios – select Map to view status of all APs
3. Hoonahnet - customer database for customer information, work orders, scheduled work, and tech support tickets
    a. Work orders – open work orders are on the home page. “View All” shows history of work orders, including resolved/closed work orders.
    b. Tech orders – monitored by technicians

## B. Hoonahnet

1. To view client activity, enter account name in Name field.
2. Check “Run Ping” box to view if radio or router is failing
3. Check Radio and Router Connection
    a. Radio power supply – green light on
    b. Radio power supply has a Power over Ethernet (PoE) port. Ethernet cable from radio comes out of the wall and is plugged into PoE port on radio power supply, marked as “Radio.”
    c. The LAN port, marked “Router”, connects the radio power supply to the router via an ethernet cable. This cable should connect to port 1 PoE on router.
4. Router – power indicator lights on the router
5. Check Radio Status
    a. On Radio, open the cacti graph links, marked 1 & 2, in a new window to view information
        i. Traffic graph shows amount of speed used on radio connection
            1. Blue line – download speeds
            2. Green line – upload speeds
    b. dBm graph shows the signal strength in deciBels per milliwatt
6. Right-click on Radio, launch Cambium in new tab
    a. MIMO A – Bad. Needs a new radio. Enter a work order
    b. MIMO B – anything above 4x is good. Anything below 4x, enter a work order
    c. Registered AP: location
    d. Tools – Link Status – 100%
    e. Run Link test, efficiency > 80%
    f. Tools – AP Evaluation – Rescan Ips
    g. Check Hoonhanet for resolution and ping
    h. Tools – Alignment Tools
    i. Configuration
    j. Color Code – access point, frequency & channel
    k. Statistics – Ethernet – CRC Errors will show a wiring issue
7. Check Router Status
    a. MikroTik routers are viewed in Winbox
    b. Linkys and Netgear can be viewed on online by entering the full IP address followed by “:8080”
        i. Example: 10.10.111.217:8080
        ii. Select the Wireless tab to view the WEP

## C. WinBox

1. Connect To: Enter IP Address of Router - Example: 011.019, enter as 10.10.11.19
    a. Use Password listed in database customer record
        i. QuickSet
            1. Update network name and password
        ii. Frequency, note channel
        iii. Wireless clients, note signal strength
        iv. IP → DHCP Server: Active Host Name column lists active devices
            1. To Check Frequencies, select Wireless Tables → Scanner
                a. Start scan will disconnect customer, show what frequencies are in use in the area.
            2. If frequencies are too close, they can cause interference.
            3. Change frequency in Quickset box. See Table: Radio Frequency Channels
        v. Uplink – Radio IP
        vi. Frequency, W = Channel D
        vii. Network Name
        viii. Frequency
        ix. Devices and Strength
        x. Interfaces – view anything connected to ports
        xi. Queues – to change speed: Simple Queues → change speed per burst table in Appendix.
        xii. bridge, settings, use ip firewall, OK
        xiii. ip, dhcp, leases - double click each and click make static, OK
        xiv. queues, + to add
            1. name it the device name if possible
            2. target is the IP is has in leases 192.168.88.#
            3. note upload on left, download on right
            4. See: Burst Formula Table in Appendix
2. Exporting Winbox Queues
    a. From Left Navigation Bar, Select Queue List
    b. Open New Terminal: /queue simple export file=name
    c. Open Files
    d. Drag and drop file to desktop
    e. Open file as Open Office document
    f. Edit, using tabs
    g. Save as .txt file
    h. Open spreadsheet
    i. Insert → Sheet from file
    j. /queue simple export file=name
3. Fiber Info – Channels in WinBox

| | | | |
|---|---|---|---|
| Main Switch / PUD Fiber | 10.0.0.1 | jhardy/bnd0broZ885 | Winbox |
| EdgeOS Twisp | 10.10.255.79 | ubnt / musTngSa11y | Web |
| Twisp Fiber | 10.10.79.2 | admin / musTngSa11y | Winbox |
| TwispWorks Fiber | 10.10.77.4 | admin / musTngSa11y | Winbox |
| EdgeOS Winthrop | 10.10.255.70 | ubnt / musTngSa11y | Web |
| Winthrop Fiber | 10.10.74.3 | admin / musTngSa11y | Winbox |
| New Winthrop Fiber | 10.10.70.2 | admin / musTngSa11y | Winbox |
| Methownet Mikrotik | 192.168.0.1 | jhardy/bnd0broZ | Winbox |

Select Queues to show all. “Apply” & “Ok” to set speed.

# 2. Adding New Customers and Equipment

## A. Add Equipment

To add equipment, select new

| Field | Radio | Router |
|---|---|---|
| Device ID | autofill | Autofill |
| Device Description<br>Ex: Radcliff PUD 450b Radio | Customer last name, location, device type | Customer last name, location, device type |
| Subscriber ID | - | address assigned when programmed by technician |
| Username / password | admin/admin2u | admin/Gateway4u |
| WEP | - | Tech assigned |
| IP Address: see To Add an IP Address | Use 3 digits, truncated. Assigned when technician identifies AP signal | |
| Gateway | 10.10.IP Access Point.1 | 10.10.IP Access Point.1 |
| Vendor | Vendor | vendor |
| MacAddress | Start with 0a-00-3e, followed by MacAddress provided by technician in field. Check in Radius | Winbox - Quickset |
| DateArrived | Date of install | Date of install |
| Service Address | | |
| Access Point | Drop down | |
| Uplink | | IP of Radio |
| PortForward | | Gateway IP |
| Throughput: almost always 1100 | | |

## B. To Add an IP Address

1. Note - Always unavailable: 1-10 PUD testing, 90-99 AP testing
2. Click on “equipment” in left nav bar of hoonahnet
    a. Select Open IPs, Look for two consecutive IPs on the location line
    b. OR, if the access point is known, scroll down and look for breaks in numbering that would indicate an open IP address.
3. Open a Command Prompt window
    a. Start → Windows System → Command Prompt
    b. Command “Ping” followed by IP address to verify open address, followed by -t to run continuous ping if needed.
    c. Open IP = “No reply. Request timed out.” or “destination host unreachable”

## C. Customer set up in PUD Portal

1. Create Customer – fill in fields, leave “RSP Customer” blank, select “Save”
2. Next window – Add service, select mac address of radio, select “bypass” under address, choose GPS location, save
3. Selecting a PUD IP Address
    a. Access Points: 10, 11, 110, 111, 112, 113. Ping, and then search for IP in non-active equipment.
        i. Warning note: The IPs remain with the PUD radios once assigned.
4. Set speed in PUD portal
    a. Select “manage customers”

b. Enter last name in full name field. Click the 3 dots at the right side for details
c. Click the 3 dots at the right side again for details of the order you are changing
    i. Note: Ensure you are on the correct service. If the customer has multiple connections at home & barn for instance. If you can't tell which is which, click into each one to find the mac address
5. Customer Service Details: Click edit at the top to change the speed
6. Select the service level by drop down and save at the bottom of the page
7. Reboot radio via PUD portal for it to take effect
8. Run pings to verify radio comes back online

## D. Customer set up for Methownet Radios in Radius

Uses: Add a new radio to our Methownet network, Upgrading/Downgrading client

1. Retrieve Mac Address of radio from Hoohnanet: 0a-00-3e-xx-xx-xx
2. Enter Mac address into Radius Username, username is “password”
3. Groupname is speed, Priority 2.
4. Change group membership, select “submit” on group membership and “Edit Acct PW”
5. To change speed in Radius
    a. Copy the customer's mac address into the username and hit search
    b. Mac address is a clickable link, select to view current speed settings
    c. Groupname dropdown is for download/upload speed
    d. Change it to what you want, hit submit on the right, submit on the left
6. Log into the radio via web browser and reboot it for changes to take effect
    a. Click configuration on the left
    b. Reboot at top of page tosave changes
7. Keep pings running to make sure it comes back online

## E. To change speed on an Ubiquiti radio, log into radio

1. Network
2. Configuration – advanced
3. Traffic Shaping – enabled
4. Egress Enable
5. WLAN0 = upload
6. LAN0 = download
    a. 1024 is the base throughput. Multiply this by whatever speed is needed. For example, a 5/2Mbps account would be:
        i. WLAN0 1024*2=2048 Save
        ii. LAN0 1024*5=5120 Save
7. When finished, select CHANGE at bottom of screen. When screen reloads, select APPLY at top of screen.

## F. Fiber – Change Speed

Speed on the fiber network is set on the router. See Section 1.C. Winbox – Queues to change speed on fiber router.

## G. Adding a Cacti graph

1. Log into Cacti
2. Select Console tab
3. Left nav bar: Management → devices, press “+” in the upper right corner of screen to add a device
    a. Description: Customer Name, and truncated IP
    b. Hostname: Full IP address
    c. Device Template:
        i. Radios – choose Motorola Canopy SM
        ii. Fiber routers & 2.4 radios – choose Generic SNMP enabled host
    d. SNMP Version:

i. If Device Template is Generic, choose Version 1
ii. If Device Template is Motorola Canopy, choose Version 2
iii. Note: PUD radios, SNMP Community = Bo@t1a

e. Select [Create]
f. In upper right corner of screen, select, “Create Graphs for this type”
g. For Radio: Select “Power Level dBm” and then scroll down to next section and select option #1
h. For Router: Select “ether1” and create

# 3. PUD Fiber Requests

## A. Submit request for fiber in PUD Portal

1. PUD responds with PUD estimate. Email high level estimate to customer with PUD + Methownet + Tax.

| Region | Methownet Cost | Tax |
|---|---|---|
| Twisp to Loup | $250.00 | 8.70% |
| Loup to Carlton | $300.00 | 8.40% |
| Carlton to Methow | $350.00 | 8.40% |

Example:

| | |
|---|---|
| PUD | $600 |
| MW Install | $250 |
| Router | $88 |
| Subtotal | $938 |
| Taxes | $938*1.087 = $1019.61 |

2. Response from customer required within 30 days. After 30 days, cancel entry in portal if no response.
3. If accepted: Submit to billing request to invoice $150 for PUD & Methownet Site Visit
   a. After payment, schedule site visit with PUD and Methownet to plan fiber route.
   b. Based on site visit, PUD will post final build cost estimate, minus the $150 site visit.
   c. Example $600 - $150 = $450 final build estimate
4. If customer accepts final build estimate, submit a request to billing to invoice final build cost estimate, including the $150 site visit

Example:

| | |
|---|---|
| PUD/MW Site visit | $150 |
| Final PUD cost estimate | $450 |
| MW Install | $250 |
| Router | $88 |
| Subtotal | $938 |
| Taxes | $938*1.087 = $1019.61 |
| Paid | -$150 |
| Total Due | $869.61 |

Total should equal initial high-level estimate unless major adjustments were made post site visit

5. Email Methownet, LLC contract and invoice to customer. Payment due prior to accepting Final Build Cost in PUD Portal.
   a. Residential – 1 year contract
   b. Business – 3 year contract
6. PUD RSP Sign Contract
   a. From Manage Customers, navigate to customer record
   b. Open details for fiber connection
   c. Select Document tab. Under Workflow Documents, download Supplement Exhibit A to desktop.
   d. Open Supplement Exhibit A in Adobe Acrobat. verify VLAN is 1021, MTU is 1526, and the jumper cable length is adequate. Sign and save.

e. Return to portal, select Do It in customer record
f. Fill in VLAN and Jumper cable length fields
g. Click on Select Document, the blue icon. A file folder window will open. Select the signed pdf file.
h. Click on Submit

7. FINAL BILLING – confirm cost did not exceed build. Bill for additional parts if necessary. PUD has 90 days to submit additional costs.

## 4. Disconnecting a customer

### A. Temporary Disconnect – Disable ethernet link in radio

1. Log into radio
2. Select Configuration
3. Select General tab
4. Ethernet link: select option
   a. Enabled
   b. Disabled
5. Save Changes
6. Reboot

### B. Permanent Disconnect

1. Fiber Disconnect
   a. Change WEP on router
   b. System → Reboot
   c. IP → DHCP Server → Leases
   d. Highlight list
   e. Select (-) to delete
2. Wireless Disconnect
   a. Disconnect the radio from the access point
      i. Disconnect a Cambium radio in Radius
         1. Select Mac Address of radio
         2. Open Radius in new window, enter mac address of radio to be disconnected.
         3. Under Groupname, select “disconnected – change password
         4. Under Edit Account Password, remove the “d” from “password”
      ii. Disconnect a Ubiquiti radio
         1. Log into radio from Hoohnanet Equipment list under customer
         2. Network Tab
         3. Under Network Role, set Disable Network from None to LAN0
         4. Select Change at the bottom of the window, and then Apply from the top of the form.
      iii. PUD portal for PUD customers
         1. Update Customer Record
         2. Update radio description to “Not Active”
         3. Schedule PUD radio pick up in Work Orders
3. Delete Cacti Graph
   a. Console → Devices → Search for customer name or IP addresss
   b. Click in checkbox, choose action, delete
4. Update Hoohnanet Customer Record
   a. Update Radio active field to No
   b. Update Router active field to No

c. Update Customer Record active field to No
**d.** Move work order to Queue: To Be Billed to ensure billing is updated

# 5. Transfer Service

## A. Create new customer record in database

1. Create new customer listing from work order
    a. Transfer Equipment
    b. Go to previous customer record, scroll down and change customer id to new customer
2. Update Radio
    a. Cambium
        i. Log into Radio
        ii. Select Configuration → SNMP: Change site name to new customer
    b. PUD Portal
        i. Log into radio using MAC address, update customer name
    c. Ubiquiti UBNT
    d. Log into radio
    e. Select Network tab, disable NW-LAN0, Change & Apply, from None → LAN0
3. Update Cacti graph
    a. Log into Cacti
        i. Select Console → Device → edit graph, update name

# 6. VOIP Phones

## A. Troubleshoot VOIP issues with customer

1. Reboot phone by pulling PoE from the back of the desk phone or base station.
    a. For wireless handset, replace the batteries
2. Calls come in but go straight to voicemail
    a. Do Not Disturb (DND) enabled or ringer volume down low
        i. If deskphone screen shows a red circle with a line in it, DND is enabled
        ii. Select preferences on the phone by tapping the center of the navigational circle and use arrows to get to preferences. Select preference, disable DND and save.
    b. On wireless handset, press the mute button to toggle DND
3. Sync the base station to the wireless handset
    a. On the basestation, hold the wireless signal button until the bluetooth icon flashes
    b. Accept sync on the wireless handset

## B. To view phone connections and extensions

1. Log onto server listed in the customer record database to view the phone server id
    a. FreePBX phone server
    b. Phone servers are 63.142.199.xx, where xx is phone server id 72, 76, or 77
        i. Connectivity → Inbound
        ii. Applications → Extensions
2. To trace individual numbers
    a. Connectivity → inbound routes
    b. Select the number/customer
    c. Locate the destination, then follow it through
        i. If destination is extension, go to Applications → Extensions. If it has ring groups listed, go to Applications → RingGroups
3. To log into the phone itself, go into the customers router
    a. Example: Aspen Grove. Log into the 74.16 router. Go to IP → Firewall → Nat tab. Enable the nat rule to access it. Type in the ip & port # to access it via the web. For instance, 10.10.74.16:8081 The password is noted in the database under "password"

## C. To view porting status on a specific number

1. log into the carrier site and navigate to porting

# 7. Methownet Email

To have a copy of everything forward to you automatically, or to see what someone's password is to access their email, log into the mail server. Edit users: select user, click show next to password and it will show you their password to log into webmail as that user.

mail.methownet.com:20000
To change forward settings, click the drop down in the 170 for mail forward settings. Check the "yes forward to" and enter your address there and click Save at the bottom.

# 8. Scanning a Document

On Printer, select *Shortcuts → Scan to Network → Name
Scan
Document will be sent to database \\192.168.0.133\Data\fergusen\Shared\scan

# 9. Appendix

## A. Radio Frequency Channels

| Channel | Center Frequency | Frequency Spread |
|---|---|---|
| 1 | 2412 MHz | 2399.5 MHz – 2424.5 MHz |
| 2 | 2417 MHz | 2404.5 MHz – 2429.5 MHz |
| 3 | 2422 MHz | 2409.5 MHz – 2434.5 MHz |
| 4 | 2427 MHz | 2414.5 MHz – 2439.5 MHz |
| 5 | 2432 MHz | 2419.5 MHz – 2444.5 MHz |
| 6 | 2437 MHz | 2424.5 MHz – 2449.5 MHz |
| 7 | 2442 MHz | 2429.5 MHz – 2454.5 MHz |
| 8 | 2447 MHz | 2434.5 MHz – 2459.5 MHz |
| 9 | 2452 MHz | 2439.5 MHz – 2464.5 MHz |
| 10 | 2457 MHz | 2444.5 MHz – 2469.5 MHz |
| 11 | 2462 MHz | 2449.5 MHz – 2474.5 MHz |
| 12 | 2467 MHz | 2454.5 MHz – 2479.5 MHz |
| 13 | 2472 MHz | 2459.5 MHz – 2484.5 MHz |

## B. Burst Formula Table

formulas below show max limit, burst limit, burst threshold, burst time
formula = burst time x burst threshold / burst limit
goal is 15-20 seconds of bursting

| max limit | burst limit | burst threshold | burst time |
|---|---|---|---|
| 2M | 4M | 512K | 120 |
| 3M | 6M | 1M | 96 |
| 4M | 8M | 1M | 120 |
| 5M | 10M | 1M | 160 |
| 10M | 20M | 2M | 160 |
| 20M | 30M | 2M | 250 |
| 25M | 35M | 2M | 300 |
| 30M | 40M | 2M | 300 |
| 40M | 50M | 5M | 160 |
| 50M | 60M | 5M | 200 |
| 100M | 120M | 5M | 300 |

## C. Links

| Contacts | | |
|---|---|---|
| Crum, Mark | Networking devices | 509-436-9050 |
| **Resources** | | |
| Adobe | | U:<br>P: |
| AirOS | Ubiquiti radio network | U:<br>P: |
| Barracuda<br>Email Security Gateway<br>spam firewall, email troubleshooting | https://63.142.200.163/cgi-mod/index.cgi?error=3&locale=en_US | U:<br>P: |
| Cacti<br>traffic graphs, signal graphs | http://63.142.200.166/cacti/graph_view.php?action=tree&tree_id=1&leaf_id=2341&select_first=true | U:<br>P: |
| cnMaestro<br>monitor towers | https://63.142.200.189/#/<br><br>Click on IP address of radio to get to Cambium | U:<br>P: |
| Email Server @methownet<br>password resets<br>box size | https://63.142.200.170:45454/ | U:<br>P: |
| Hoonahnet<br>Database | http://192.168.0.130/Hoonahnet_php/Templates/index.php | U:<br>P: |
| mac address lookup<br>devices attached to someone's router | https://aruljohn.com/mac/84A466 | N/A |
| Nagios - map<br>system map - what is offline/online | http://63.142.200.167/nagios/ | U:<br>P: |
| PUD Coverage Map | https://portal.okpudbb.org/Home/CheckCoverage | U:<br>P: |
| PUD NEW access points on map | https://www.google.com/maps/d/viewer?mid=15VjznUTzAMM6OGAItzxkEHDI4XZEF7mH&ll=48.24460577652241%2C-120.00931952339845&z=11 | |
| PUD Portal | https://portal.okpudbb.org/Account/Login?ReturnUrl=%2F | U:<br>P: |
| Radius<br>enter radio speed for North Valley equipment | http://63.142.200.180/radius/Login.php?ret_link=%2Fradius%2Fradius3%2Fradcheck_list.php&type=notLogged | U:<br>P: |
| Speed Test site | https://www.speakeasy.net/speedtest/ | N/A |
| Tax Sifter | https://okanoganwa-taxsifter.publicaccessnow.com/Search/Results.aspx | |

| | | |
|---|---|---|
| tx/rx calculator<br>if someone asks, "i have this 10gb update, how long is this going to take?" | https://www.meridianoutpost.com/resources/etools/calculators/calculator-file-download-time.php | N/A |
| UFIBER Twisp | https://10.10.255.79/#Dashboard | U:<br>P: |
| UFIBER Winthrop | https://10.10.255.70/#ONUs | U:<br>P: |
| UniFi<br>wireless access points - hotels | https://63.142.200.182:8443/manage/account/login?redirect=%2Fmanage%2Fsite%2F4cd7pco0%2Fmaps%2Fphysical | U:<br>P: |
| VOIP Phone Servers<br>diff customer groups in diff servers, check board in jeff's office for legend/guide | http://63.142.199.66/admin/config.php?display=extensions#<br>http://63.142.199.70/admin/config.php?display=extensions<br>http://63.142.199.71/admin/config.php?display=extensions | U:<br>P: |
| WinBox | | U:<br>P: |
| zoom test site | https://support.zoom.us/hc/en-us/articles/115002262083 | N/A |

## D. Templates

Customer Script
Customer: What speed do we pay for? What speed do I get with you?
No problem, let me check that out for you. Who am I speaking with/what is the name on the account?
Hoonahnet customer record, open radio and router.
If mikrotik, click into interfaces on the left sidebar to see live traffic by port.
On radio, double check speed in database by copying mac address into radius to verify speed setting.
It looks like you are paying for the #mbps account. How has your connection been working for you?
If they say it seems slow, ask them what specifically seems slow.
Are web pages slow to load?
Does streaming buffer?
Having video conferencing trouble?
Can you recreate the problem for me while I'm logged onto your connection so I can see what is happening?
If they start running a speed test or streaming a video, let them know what RX/TX speeds you're seeing on the mikrotik interfaces.
Depending on what they are having trouble with, suggest speed increase if you think it's necessary. Try one upgrade level at a time. If 5, let's try 7mbps to see if that makes a difference for you. If 7, let's try 10mbps to see if that helps.
Customer: speedtest.net. Hit GO. Let them know it takes a minute to run, when it has completed it will give them download and upload speeds. Let them know this is basically flooding the connection with fake files (packets) to see how much it can handle. If someone else is downloading/uploading at the same time in the house, this will likely crash what they are doing temporarily, so it's not a good idea to do it if something important is going on in the background.