

# Juniper Quick Start Guide (Mikrotik vs Juniper)

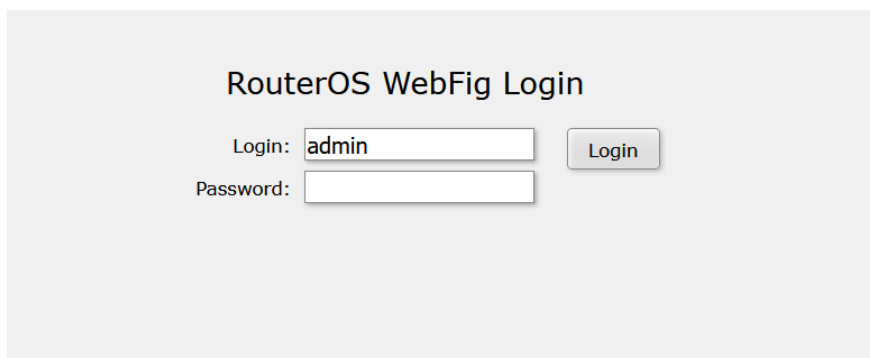
This guide is intended to be a quick start guide to working with Juniper routers. It is intended that NYC Mesh volunteers who know their way around RouterOS can use this guide to complete the same common actions on a Juniper router.

To Do:

- ☐ Login and access terminal
- ☐ List interfaces and view status
- ☐ List DHCP leases
- ☐ Show device address
- ☐ Show bridges and ports

## Login and Access Terminal:

**MikroTik:** Navigate to the router's IP. Enter username and password.

A screenshot of the RouterOS WebFig login page. The title is "RouterOS WebFig Login". Below the title, there is a "Login:" label followed by a text input field containing the word "admin". To the right of this field is a "Login" button. Below the "Login:" field is a "Password:" label followed by an empty text input field.

**Juniper:** SSH to the router's IP. Username is root. Type `cli` and hit enter.

```
ssh root@10.69.19.34
Password:
Last login: Tue Jan 16 22:17:47 2024 from 10.97.227.158
--- JUNOS 21.4R1.12 built 2021-12-17 14:37:27 UTC
root@nycmesh-1934-core: RE: 0% cli
```

```
{master: 0}

root@nycmesh-1934- core>
```

# List Interfaces:

**MikroTik:** Click Interfaces to see interface list and status.

RouterOS v6.49.7 (stable)													Quick Set   WebFig   Terminal	
Interface													Interface List	
Add New   Detect Internet														
16 Items														
		Name	Type	Actual MTU	L2 MTU	Tx	Rx	Tx Packet (p/s)	Rx Packet (p/s)	FP Tx	FP Rx	FP Tx Packet (p/s)	FP Rx Pa (p/s)	
;;; NN:219 #9102														
	D	RS ether1	Ethernet	1500	1598	450.5 kbps	12.2 kbps	45	14	1992.6 kbps	36.6 kbps	166	61	
;;; nycmesh-219-netpower15fr sfp2 (data link)														
	D	RS ether2	Ethernet	1500	1598	169.4 kbps	833.2 kbps	119	154	171.0 kbps	816.7 kbps	120	154	
;;; nycmesh-219-lbelr-3461 (northeast)														
	D	R ether3	Ethernet	1500	1598	19.9 kbps	9.8 kbps	18	9	3.2 kbps	2.7 kbps	2	3	
;;; lbelr-219 <-> 3461-northeast(PH) (mngt)														
	D	RS ether3.1071	VLAN	1500	1594	1552 bps	0 bps	1	0	0 bps	0 bps	0	0	
;;; lbelr-219 <-> 3461-northeast(PH) pathrough (Data)														
	D	R ether3.1072	VLAN	1500	1594	1552 bps	2.6 kbps	1	3	0 bps	2.6 kbps	0	3	
;;; nycmesh-219-60Gx3 (AP sector)														
	D	RS ether4	Ethernet	1500	1598	21.9 Mbps	1973.3 kbps	1 944	1 123	23.7 Mbps	1882.2 kbps	2 126	1 190	
;;; nycmesh-219-af60lr to Vernon														
	D	RS ether5	Ethernet	1500	1598	3.2 Mbps	23.7 Mbps	1 361	2 333	3.2 Mbps	27.1 Mbps	1 488	2 650	
	D	R mesh	Bridge	1500	1594	30.3 Mbps	29.7 Mbps	4 136	4 129	0 bps	0 bps	0	0	
	D	R wds	Bridge	1500	1600	1552 bps	4.5 kbps	1	4	0 bps	0 bps	0	0	
		DRS wds14098	WDS	1500	1600	1552 bps	1888 bps	1	2	0 bps	1888 bps	0	2	
		DRS wds14100	WDS	1500	1600	2.0 kbps	1552 bps	2	1	0 bps	1552 bps	0	1	
		DRS wds9992	WDS	1500	1600	1552 bps	1552 bps	1	1	0 bps	1552 bps	0	1	
	D	RS wlan1	Wireless (Atheros AR9	1500	1600	1233.7 kbps	342.1 kbps	240	74	0 bps	342.1 kbps	0	74	
	D	S wlan2	Virtual	1500	1600	0 bps	0 bps	0	0	0 bps	0 bps	0	0	
	D	RS wlan3	Virtual	1500	1600	6.7 kbps	5.0 kbps	5	4	0 bps	5.0 kbps	0	4	
;;; uses nycmesh-7894-omni via mesh bridge (worse case scenario backup option)														
	E	X wlan4	Virtual		1600	0 bps	0 bps	0	0	0 bps	0 bps	0	0	

Click a specific interface to see individual status, including port status.

													Status
Last Link Down Time													
Last Link Up Time													
Jan/12/2024 14:42:18													
Link Downs													
0													
Auto Negotiation													
done													
Rate													
1Gbps													
Full Duplex													
<input checked="" type="checkbox"/>													
Advertising													
<input checked="" type="checkbox"/> 10M half <input checked="" type="checkbox"/> 10M full													
<input checked="" type="checkbox"/> 100M half <input checked="" type="checkbox"/> 100M full													
<input checked="" type="checkbox"/> 1000M half <input checked="" type="checkbox"/> 1000M full													
<input type="checkbox"/> 10G full <input type="checkbox"/> 2.5G full													
<input type="checkbox"/> 5G full													
Link Partner Advertising													
<input type="checkbox"/> 10M half <input type="checkbox"/> 10M full													
<input checked="" type="checkbox"/> 100M half <input checked="" type="checkbox"/> 100M full													
<input type="checkbox"/> 1000M half <input checked="" type="checkbox"/> 1000M full													
<input type="checkbox"/> 10G full <input type="checkbox"/> 2.5G full													
<input type="checkbox"/> 5G full													
													Traffic
Tx/Rx Rate													
54.6 kbps   /   54.3 kbps													
Tx/Rx Packet Rate													
29 p/s   /   20 p/s													
FP Tx/Rx Rate													
134.8 kbps   /   68.3 kbps													

## Juniper:

Juniper represents configuration separately from the current status. For configuration and layout of the network:

```
root@nycmesh-1934-core> show configuration interfaces
```

```
xe-0/0/0 {  
    description "Grand St OLT1 Port 1";  
    ether-options {  
        802.3ad ae0;  
    }  
}
```

```
xe-0/0/1 {  
    description "Grand St OLT1 Port 2";  
    ether-options {  
        802.3ad ae0;  
    }  
}
```

```
xe-0/0/2 {  
    description "Grand St OLT2 Port 1";  
    ether-options {  
        802.3ad ae1;  
    }  
}
```

```
xe-0/0/3 {  
    description "Grand St OLT2 Port 2";  
    ether-options {  
        802.3ad ae1;  
    }  
}
```

```
xe-0/0/4 {  
    unit 0 {  
        family ethernet-switching {  
            interface-mode access;  
            vlan {  
                members mesh;  
            }  
        }  
    }  
}
```

```
xe-0/0/5 {  
    unit 0 {  
        family ethernet-switching {  
            interface-mode access;  
            vlan {
```

```
        members mesh;
    }
}
}
---(more)---
```

For statistics and live info:

```
root@nycmesh-1934-core> show interfaces

Physical interface: gr-0/0/0, Enabled, Physical link is Up
  Interface index: 650, SNMP ifIndex: 502
  Type: GRE, Link-level type: GRE, MTU: Unlimited, Speed: 800mbps
  Device flags   : Present Running
  Interface flags: Point-To-Point SNMP-Traps
  Input rate     : 0 bps (0 pps)
  Output rate    : 0 bps (0 pps)

Physical interface: ip-0/0/0, Enabled, Physical link is Up
  Interface index: 649, SNMP ifIndex: 515
  Type: IPIP, Link-level type: IP-over-IP, MTU: Unlimited,
  Speed: 800mbps
  Device flags   : Present Running
  Interface flags: SNMP-Traps
  Input rate     : 0 bps (0 pps)
  Output rate    : 0 bps (0 pps)

Physical interface: pfe-0/0/0, Enabled, Physical link is Up
  Interface index: 654, SNMP ifIndex: 509
  Speed: 800mbps
  Device flags   : Present Running
  Link flags     : None
  Last flapped   : Never
    Input packets : 0
    Output packets: 0

Logical interface pfe-0/0/0.16383 (Index 565) (SNMP ifIndex 510)
  Flags: Up SNMP-Traps Encapsulation: ENET2
  Bandwidth: 0
  Input packets : 0
  Output packets: 0
```

Protocol inet, MTU: Unlimited

Max nh cache: 0, New hold nh limit: 0, Curr nh cnt: 0,

Curr new hold cnt: 0, NH drop cnt: 0

Flags: User-MTU

Protocol inet6, MTU: Unlimited

Max nh cache: 0, New hold nh limit: 0, Curr nh cnt: 0,

Curr new hold cnt: 0, NH drop cnt: 0

Flags: Is-Primary, User-MTU

Physical interface: pfh-0/0/0, Enabled, Physical link is Up

Interface index: 653, SNMP ifIndex: 508

Speed: 800mbps

---(more)---

## List DHCP leases:

**MikroTik:** Click IP > DHCP Server, then click the Leases tab

CAPsMAN

Wireless

Interfaces

PPP

Bridge

Switch

Mesh

IP

ARP

Accounting

Addresses

Cloud

DHCP Client

DHCP Relay

DHCP Server

DNS

Firewall

Hotspot

IPsec

Kid Control

Neighbors

Packing

Pool

Routes

RouterOS v6.49.7 (stable)

DHCP

Networks

Leases

Options

Option Sets

Vendor Classes

Alerts

Quick Set

WebFig

Terminal

DHCP Server

Add New

12 Items

		Address	MAC Address	Client ID	Server	Active Address	Active MAC Address	Active Host Name	Expires After
-	D	10.96.54.247	00:00:00:00:00:00		localdhcp	10.96.54.247			00:06:22
-	D	10.96.54.203	B0:95:75:81:F4:DE	1:b0:95:75:81:f4:de	localdhcp	10.96.54.203	B0:95:75:81:F4:DE	Archer_A6	00:07:49
-	D	10.96.54.209	50:D4:F7:5F:57:C6	1:50:d4:f7:5f:57:c6	localdhcp	10.96.54.209	50:D4:F7:5F:57:C6	Archer_A6	00:07:59
-	D	10.96.54.245	B0:95:75:13:45:27	1:b0:95:75:13:45:27	localdhcp	10.96.54.245	B0:95:75:13:45:27	Archer_A6	00:09:38
-	D	10.96.54.249	B0:95:75:81:F2:05	1:b0:95:75:81:f2:5	localdhcp	10.96.54.249	B0:95:75:81:F2:05	Archer_A6	00:05:52
-	D	10.96.54.208	68:4A:76:8C:6A:E1		localdhcp	10.96.54.208	68:4A:76:8C:6A:E1	eero	00:07:09
- D		10.96.54.218	DC:2C:6E:DA:30:75	1dc:2c:6e:da:30:75	localdhcp	10.96.54.218	DC:2C:6E:DA:30:75	nycmesh-219-60xg3	00:09:53
- D		10.96.54.211	08:55:31:54:E6:D6	1:8:55:31:54:e6:d6	localdhcp	10.96.54.211	08:55:31:54:E6:D6	nycmesh-219-netpower15fr	00:05:35
-	D	10.96.54.242	18:FD:74:1C:72:5E	1:18:f8:29:d8:8b:80	localdhcp	10.96.54.242	18:FD:74:1C:72:5E	nycmesh-219-sxt	00:07:01
;;; Force nycmesh-540-lhg60 to get IP from nycmesh-540-omni									
- D	B	10.96.54.244	48:A9:8A:C3:D8:90	1:48:a9:8a:c3:d8:90	localdhcp			nycmesh-540-lhg60	
-	D	10.96.54.248	24:5A:4C:EC:B9:CB	1:24:5a:4c:ec:b9:cb	localdhcp	10.96.54.248	24:5A:4C:EC:B9:CB	nycmesh-af60lr-219	00:08:56
- D		10.96.54.243	18:E8:29:D8:8B:80	1:18:e8:29:d8:8b:80	localdhcp	10.96.54.243	18:E8:29:D8:8B:80	nycmesh-lbelr-219	00:06:18

10.70.188.21	3207138	18: fd: 74: ef: 6d: 8a	506	BOUND	irb.12
10.70.188.132	3217186	1c: 91: 80: c8: 51: d3	10	BOUND	irb.12
10.70.188.47	50490	28: 29: 86: 5a: f4: 15	533	BOUND	irb.12
10.70.188.197	2536785	28: 29: 86: 6a: 51: 82	487	BOUND	irb.12
10.70.188.24	2536919	28: 76: 10: 1e: 35: 8e	386	BOUND	irb.12
10.70.188.183	3213552	3a: e0: 38: 60: bb: 91	198	BOUND	irb.12
10.70.188.172	2416730	3c: 9b: d6: 75: c8: f8	571	BOUND	irb.12
10.70.188.107	3216907	56: 9d: 3f: a6: d7: 0f	57	BOUND	irb.12
10.70.188.193	2604196	5c: e9: 31: 7c: 56: ff	537	BOUND	irb.12
10.70.188.130	3217152	5e: 48: 5d: 5b: 79: 90	415	BOUND	irb.12
10.70.188.129	3217128	5e: 8f: 1b: e9: 16: 8a	2	BOUND	irb.12
10.70.188.44	1931696	60: 22: 32: 4f: 2b: fe	380	BOUND	irb.12
10.70.188.136	3217238	62: 45: 45: e2: 0a: 39	500	BOUND	irb.12
10.70.188.240	2857437	68: d7: 9a: 76: d4: f7	316	BOUND	irb.12
10.70.188.203	331465	68: d7: 9a: a2: 07: 10	453	BOUND	irb.12
10.70.188.188	3213574	6a: 5c: 64: e1: 8c: d4	439	BOUND	irb.12
10.70.184.90	3026881	70: a7: 41: 3e: aa: 91	522	BOUND	irb.11
10.70.184.65	2953063	70: a7: 41: 3e: ab: d5	331	BOUND	irb.11
10.70.187.244	2730465	70: a7: 41: 3e: ab: f9	336	BOUND	irb.11
10.70.187.178	2476746	70: a7: 41: 3e: ac: 51	589	BOUND	irb.11
10.70.184.93	3027863	70: a7: 41: 3e: ac: 71	318	BOUND	irb.11
10.70.188.93	170763	70: a7: 41: 42: 76: 31	300	BOUND	irb.12
10.70.188.45	781270	74: 83: c2: 9c: 92: fc	394	BOUND	irb.12
10.70.188.215	1945827	74: 83: c2: c0: bb: 90	582	BOUND	irb.12
10.70.188.36	2825439	74: 83: c2: c3: d1: 75	354	BOUND	irb.12
10.70.188.134	3147069	74: 83: c2: c3: d1: 83	533	BOUND	irb.12
10.70.188.86	25849	74: ac: b9: 0c: 9a: 1d	360	BOUND	irb.12
10.70.188.161	71710	74: ac: b9: 72: 3f: 33	454	BOUND	irb.12
10.70.188.75	2857433	74: ac: b9: b9: 92: cc	559	BOUND	irb.12
10.70.188.53	2857440	74: ac: b9: bc: a7: 2a	500	BOUND	irb.12
10.70.188.49	2857438	74: ac: b9: bc: ab: 83	346	BOUND	irb.12
10.70.187.109	2182001	78: 45: 58: 06: 3c: 9b	516	BOUND	irb.11
10.70.187.27	573697	78: 45: 58: 06: 3c: a5	549	BOUND	irb.11
10.70.187.31	573715	78: 45: 58: 06: 41: 94	510	BOUND	irb.11
--- ( more ) ---					

# Show Device Address:

**MikroTik:** Click IP > Addresses.

CAPsMAN

Wireless

Interfaces

PPP

Bridge

Switch

Mesh

IP

ARP

Accounting

Addresses

Cloud

DHCP Client

DHCP Relay

DHCP Server

DNS

RouterOS v6.49.7 (stable)

Add New

4 items

		▲ Address	Network	Interface	
-	D	✚ 10.68.2.19/16	10.68.0.0	wds	
-	D	✚ 10.69.2.19/16	10.69.0.0	mesh	
;;; lbe-219 (St_Marks) (.54) <> PH 3461 (.55)					
-	D	✚ 10.70.253.54/32	10.70.253.55	ether3.1072	
-	D	✚ 10.96.54.193/26	10.96.54.192	mesh	

## Juniper:

Every Layer 3 (IP) network is attached to an `irb` which in turn is attached to a VLAN, unlike RouterOS where the IPs are attached to the interfaces directly, irrespective of Layer 2 interface type.

```

root@nycmesh-1934-core> show configuration interfaces irb
unit 0 {
    family inet {
        dhcp {
            vendor-id Juniper-qfx5100-48s-6q;
        }
    }
}
unit 10 {
    description "mesh bridge";
    family inet {
        address 10.69.19.34/16;
        address 10.70.189.1/24;
    }
}
unit 11 {
    description "Grand St OLTS";
    family inet {
        address 10.70.184.1/22;
    }
}

```

```

}
unit 12 {
    description "Grand St 00B";
    family inet {
        address 10.70.188.1/24;
    }
}
unit 51 {
    description nycmesh-1932-af24-227;
    family inet {
        address 10.70.251.18/30;
    }
}
unit 115 {
    description nycmesh-1933-mlq1-407;
    family inet {
        address 10.70.251.69/30;
    }
}
unit 202 {
    description nycmesh-1933-af60lr-7512;
    family inet {
        address 10.70.251.9/30;
    }
}
---(more)---

```

Each `irb` would then be attached to a VLAN, which in turn gets attached to interfaces.

```

root@nycmesh-1934-core> show configuration vlans
default {
    vlan-id 1;
    l3-interface irb.0;
}
grandstolts {
    vlan-id 11;
    l3-interface irb.11;
}
grandstoob {
    vlan-id 12;
    l3-interface irb.12;
}

```



```
}  
mesh {  
    vlan-id 10;  
    l3-interface irb.10;  
    isolated-vlan sectors;  
}  
nycmesh-1932-af24-227 {  
    vlan-id 51;  
    l3-interface irb.51;  
}  
nycmesh-1932-lhg60-2463 {  
    vlan-id 500;  
    l3-interface irb.500;  
}  
nycmesh-1933-af60lr-7512 {  
    vlan-id 202;  
    l3-interface irb.202;  
}  
nycmesh-1933-eh8010-5916 {  
    vlan-id 302;  
    l3-interface irb.302;  
}  
nycmesh-1933-mlq1-407 {  
    vlan-id 115;  
    l3-interface irb.115;  
}  
sectors {  
    vlan-id 15;  
    private-vlan isolated;  
}
```

...which then get attached to interfaces (see above).

---

Revision #3

Created 17 January 2024 00:35:42 by Lydon Thorpe

Updated 13 July 2024 21:53:47 by Daniel Heredia