Static routing

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This part of the article contains routing configuration scenarios for various tasks. In order to focus on the static routing topic, let's make the following assumptions, which are valid for all scenarios:

- the radio links are established between the wireless devices;
- at the endpoint devices (the PCs), the IP addresses of the wireless devices to which they are directly connected are set as gateway. After specifying the gateway, each endpoint device adds a default route to its routing table;
- switching is off on the devices of the InfiLINK 2x2, InfiMAN 2x2, InfiLINK Evolution, InfiMAN Evolution families;
- in the examples for the InfiLINK 2x2, InfiMAN 2x2, InfiLINK Evolution, InfiMAN Evolution families of devices, the IP addresses are assigned to the physical interfaces, however, virtual interfaces can be used instead, for example, vlan interfaces.

InfiLINK 2x2, InfiMAN 2x2, InfiLINK Evolution, InfiMAN Evolution families of devices

Routing configuration for the management traffic

Let's look at the task concerning the routing configuration for the management traffic (Figure 1). For this task, the Slave's device management interface must be accessible to the engineer working at the PC. Since the PC and the Slave devices belong to different subnets, routing must be used.

⚠ **NOTE**

An configuration example is given for the InfiLINK 2x2, InfiMAN 2x2 families devices, pay attention to the name of the radio interface on your devices during the scheme implementation.
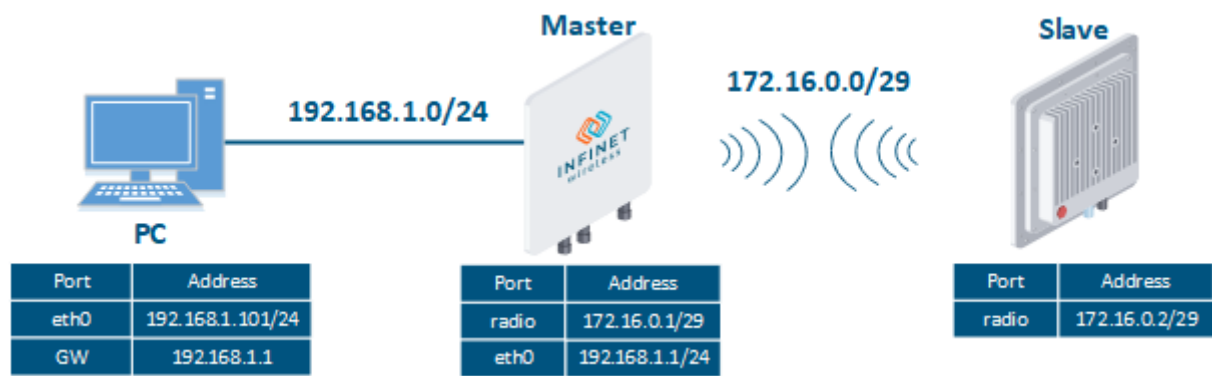

Figure 1 - Routing configuration for the management traffic using the InfiLINK 2x2, InfiMAN 2x2, InfiLINK Evolution, InfiMAN Evolution families of devices

Let's perform a step by step configuration for the Master and the Slave devices using the Web interface:

Step 1

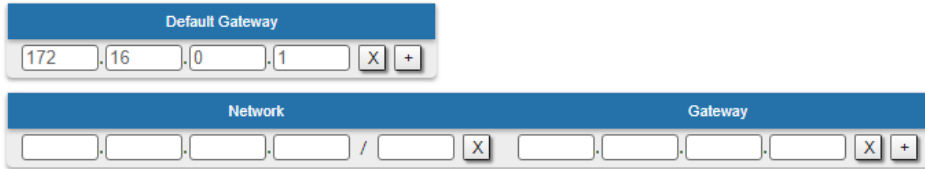| Description	Add the IP addresses to the interfaces of the devices according to the scheme.

Title

Step 2

Description	Analyze the routing table: after adding the IP addresses to the device's interfaces, the routing table was filled up with entries for every new conne(...) (marked as C).
Master	
Slave	

Step 3

Description	Add static routes for the connection between the PC and the Slave.
Master	The Master device is intermediate on the path of the packets between the PC and the Slave. Routes towards the PC and towards the Slave have been added to the Master's device routing table based on the configuration in the previous steps (see step 2), so there is no need to add static entries at the Master device.
Slave	A static route must be added towards PC1's network:

Step 3a

Title

Description	A default route can be configured on the Slave device instead of a static route towards the PC's network.
Master	No changes required.
Slave	Add the IP address of the Master's rf interface as default gateway, so that all the packets will be sent to it by default, if no other specific route is present:

Routing Parameters

Default Gateway
172 . 16 . 0 . 1 [X] [+]

Network	Gateway
. . . / [X]	. . . [X] [+]

Step 4

Description	Analyze the routing table: a static entry (marked as S) has been added to the Slave's routing table.
Master	see step 2
Slave	

```
Slave#1> netstat -r
Routing tables
Destination        Gateway          Flags    Refs     Use  Interface
127.0.0.1          127.0.0.1        UH         0        0  lo0
172.16.0.0/29      link#3           UC         0        0  rf5.0
172.16.0.1         link#3           UHL        1        0  rf5.0
192.168.1.0/24     172.16.0.1       UGS        0        0  rf5.0
192.168.2.0/24     link#2           UC         0        0  eth0
192.168.2.102      00:0c:29:6c:b8:ad UHL       0     1266  eth0
224.0.0.0/8        127.0.0.1        UGS        0        0  lo0
```

Step 4a

Description	If a default route has been added as in step 3a, a corresponding entry (marked as S) will be added to the routing table.
Master	see step 2
Slave	

```
Slave#1> netstat -r
Routing tables
Destination        Gateway          Flags    Refs     Use  Interface
default            172.16.0.1       UGS        0        0  rf5.0
127.0.0.1          127.0.0.1        UH         0        0  lo0
172.16.0.0/29      link#3           UC         0        0  rf5.0
172.16.0.1         link#3           UHL        1        0  rf5.0
192.168.2.0/24     link#2           UC         0        0  eth0
192.168.2.102      00:0c:29:6c:b8:ad UHL       0       18  eth0
224.0.0.0/8        127.0.0.1        UGS        0        0  lo0
```

Step 5

Description	Task accomplished: an engineer working on the PC has access to the management interface of the Slave device.

> ✅ **How to perform the same task using CLI commands**
>
> ```
> Master's device configuration:
> Step 1
> ifc eth0 192.168.1.1/24
> ifc rf5.0 172.16.0.1/29
> Step 2
> netstat -r
> Step 4
> netstat -r
>
> Slave's device configuration:
> Step 1
> ifc rf5.0  172.16.0.2/29
> Step 2
> netstat -r
> Step 3
> route add 192.168.1.0/24 172.16.0.1
> Step 3a
> route add default 172.16.0.1
> Step 4
> netstat -r
> Step 4a
> netstat -r
> ```

Routing configuration for the data traffic using a point-to-point scheme

Let's look at the task of performing the routing configuration for the data traffic using a PtP scheme (Figure 2). For this task, the connectivity between the PC-1 and the PC-2 devices should be established using routing, as PC-1 and PC-2 belong to different subnets.
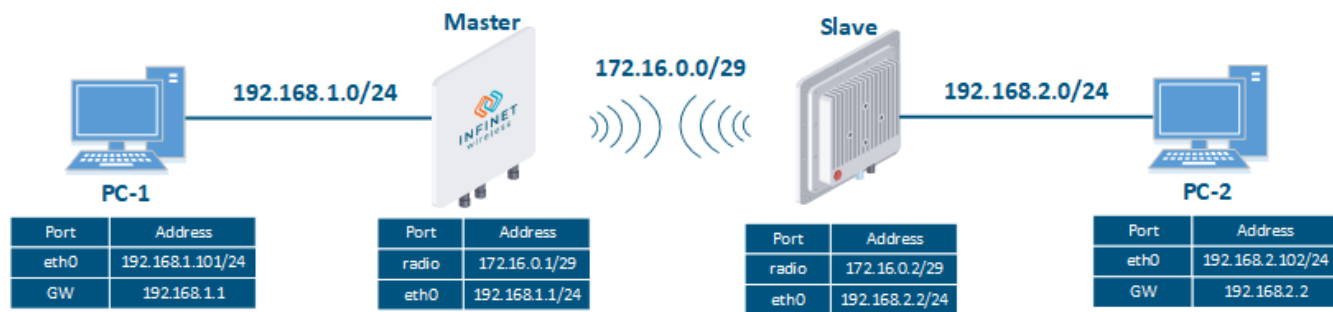

Figure 2 - Routing configuration for the data traffic using the InfiLINK 2x2, InfiMAN 2x2, InfiLINK Evolution, InfiMAN Evolution families of devices

Let's look at the step-by-step configuration of the Master and Slave devices using the Web interface:

Step 1

Description	Add the IP addresses to the interfaces of the devices according to the scheme.
Master	▼ **Network Settings** ▶ **eth0** `192.168.1.1` Up: ☑ Description: [____] DHCP: ☐ Mode: [auto ▼] ▶ **rf5.0** `172.16.0.1` Up: ☑ Description: [____] DHCP: ☐ [Create PRF] [Create VLAN] [Create LAG] [Create SVI] [Create Tunnel] [Create Tap]

Title

Slave	▼ Network Settings
	▸ **eth0** `192.168.2.2` Up: ☑ Description: `_____` DHCP: ☐ Mode: `auto ▾`
	▸ **rf5.0** `172.16.0.2` Up: ☑ Description: `_____` DHCP: ☐
	[Create PRF] [Create VLAN] [Create LAG] [Create SVI] [Create Tunnel] [Create Tap]

Step 2

Description	Analyze the routing table: after adding IP addresses to the devices' interfaces, the routing tables were filled up with entries specifying the directly networks (marked as C).

Master	

```
Master#1> netstat -r
Routing tables
Destination        Gateway            Flags    Refs    Use    Interface
127.0.0.1          127.0.0.1          UH       0       0      lo0
172.16.0.0/29      link#3             UC       0       0      rf5.0
192.168.1.0/24     link#2             UC       0       0      eth0
192.168.1.101      00:0c:29:40:72:d0  UHL      1       974    eth0
224.0.0.0/8        127.0.0.1          UGS      0       0      lo0
```

Slave	

```
Slave#1> netstat -r
Routing tables
Destination        Gateway            Flags    Refs    Use    Interface
127.0.0.1          127.0.0.1          UH       0       0      lo0
172.16.0.0/29      link#3             UC       0       0      rf5.0
192.168.2.0/24     link#2             UC       0       0      eth0
192.168.2.102      00:0c:29:6c:b8:ad  UHL      5       1125   eth0
224.0.0.0/8        127.0.0.1          UGS      0       0      lo0
```

Step 3

Description	Add static routes for the connection between PC-1 and PC-2. There is no route towards the PC-2's subnet on the Master device, and no route towards the PC-1's subnet on the Slave. Let's add these routes.

Master	**Routing Parameters**

Default Gateway

`___` . `___` . `___` . `___` [X] [+]

Network				Gateway	
`192` . `168` . `2` . `0` / `24` [X]				`172` . `16` . `0` . `2` [X] [+]	

Slave	**Routing Parameters**

Default Gateway

`___` . `___` . `___` . `___` [X] [+]

Network				Gateway	
`192` . `168` . `1` . `0` / `24` [X]				`172` . `16` . `0` . `1` [X] [+]	

Step 3a

Description	A default route can be configured on the Master and on the Slave devices instead of routes towards the networks of the PCs.

Title

Master	**Routing Parameters** Default Gateway `127` . `16` . `0` . `2` [X] [+] Network / Gateway `___` . `___` . `___` . `___` / `___` [X] `___` . `___` . `___` . `___` [X] [+]
Slave	**Routing Parameters** Default Gateway `172` . `16` . `0` . `1` [X] [+] Network / Gateway `___` . `___` . `___` . `___` / `___` [X] `___` . `___` . `___` . `___` [X] [+]

Step 4

Description	Analyze the routing table: a static entry (marked as S) has been added to the routing tables of the Master and Slave devices.

Master	<pre>Master#1> netstat -r
	Routing tables
	Destination Gateway Flags Refs Use Interface
	127.0.0.1 127.0.0.1 UH 0 0 lo0
	172.16.0.0/29 link#3 UC 0 0 rf5.0
	172.16.0.2 link#3 UHL 1 0 rf5.0
	192.168.1.0/24 link#2 UC 0 0 eth0
	192.168.1.101 00:0c:29:40:72:d0 UHL 1 40 eth0
	192.168.2.0/24 172.16.0.2 UGS 0 0 rf5.0
	224.0.0.0/8 127.0.0.1 UGS 0 0 lo0</pre>

Slave	<pre>Slave#1> netstat -r
	Routing tables
	Destination Gateway Flags Refs Use Interface
	127.0.0.1 127.0.0.1 UH 0 0 lo0
	172.16.0.0/29 link#3 UC 0 0 rf5.0
	172.16.0.1 00:04:35:13:72:4f UHL 1 0 rf5.0
	192.168.1.0/24 172.16.0.1 UGS 0 2 rf5.0
	192.168.2.0/24 link#2 UC 0 0 eth0
	192.168.2.102 00:0c:29:6c:b8:ad UHL 6 1097 eth0
	224.0.0.0/8 127.0.0.1 UGS 0 0 lo0</pre>

Step 4a

Description	If a default route has been added in step 3a, a corresponding entry (marked as S) will be added to the routing tables.

Master	<pre>Master#1> netstat -r
	Routing tables
	Destination Gateway Flags Refs Use Interface
	default 172.16.0.2 UGS 1 13 rf5.0
	127.0.0.1 127.0.0.1 UH 0 0 lo0
	172.16.0.0/29 link#3 UC 0 0 rf5.0
	172.16.0.2 00:04:35:10:a2:89 UHL 1 0 rf5.0
	192.168.1.0/24 link#2 UC 0 0 eth0
	192.168.1.101 00:0c:29:40:72:d0 UHL 0 35 eth0
	224.0.0.0/8 127.0.0.1 UGS 0 0 lo0</pre>

Title

| Slave | ```
Slave#1> netstat -r
Routing tables
Destination       Gateway           Flags    Refs    Use  Interface
default           172.16.0.1        UGS      0       0    rf5.0
127.0.0.1         127.0.0.1         UH       0       0    lo0
172.16.0.0/29     link#3            UC       0       0    rf5.0
172.16.0.1        link#3            UHL      1       0    rf5.0
192.168.2.0/24    link#2            UC       0       0    eth0
192.168.2.102     00:0c:29:6c:b8:ad UHL      0       6    eth0
224.0.0.0/8       127.0.0.1         UGS      0       0    lo0
``` |

Step 5

| Description | The task has been solved: the connectivity between PC-1 and PC-2 was successfully established. Note that along with the data traffic routing, the management traffic routing was also configured. |

How to solve the same task using CLI commands

```
Master's device configuration:
Step 1
ifc eth0 192.168.1.1/24
ifc rf5.0 172.16.0.1/29
Step 2
netstat -r
Step 3
route add 192.168.2.0/24 172.16.0.2
Step 3a
route add default 172.16.0.2
Step 4
netstat -r
Step 4a
netstat -r

Slave's device configuration:
Step 1
ifc eth0 192.168.2.2/24
ifc rf5.0 172.16.0.2/29
Step 2
netstat -r
Step 3
route add 192.168.1.0/24 172.16.0.1
Step 3a
route add default 172.16.0.1

Step 4
netstat -r
Step 4a
netstat -r
```

Routing configuration for the data traffic using a Point-to-Multipoint scheme

Let's look at the task of performing the routing configuration for the data traffic using a PtMP scheme (Figure 3). The connectivity between PC-1, PC-2, PC-3 and PC-4 should be established using routing, since all the PCs belong to different subnets.

Title

Figure 3 - Routing configuration for the data traffic using the InfiMAN 2x2, InfiMAN Evolution families of devices

Let's look at the step-by-step configuration of the wireless devices using the Web interface:

Step 1

Description	Add the IP addresses to the interfaces of the devices according to the scheme.
BS	
CPE2	

Title

Step 2

Description	Analyze the routing table: after adding the IP addresses to the devices' interfaces, the routing tables were filled up with entries specifying the direc[tly] connected networks (marked as C).
BS	
CPE2	
CPE3	
CPE4	

Step 3

Title

Description	Add static routes for the connectivity between the PCs. Three static routes should be added on each wireless device, for the other 3 PCs that are not directly connected.
BS	**Routing Parameters** **Default Gateway** [ ].[ ].[ ].[ ] [X] [+] | Network	Gateway
192.168.2.0 / 24 [X]	172.16.0.2 [X] [+]
192.168.3.0 / 24 [X]	172.16.0.3 [X] [+]
192.168.4.0 / 24 [X]	172.16.0.4 [X] [+]	
CPE2	**Routing Parameters** **Default Gateway** [ ].[ ].[ ].[ ] [X] [+] | Network	Gateway
192.168.1.0 / 24 [X]	172.16.0.1 [X] [+]
192.168.3.0 / 24 [X]	172.16.0.3 [X] [+]
192.168.4.0 / 24 [X]	172.16.0.4 [X] [+]	
CPE3	**Routing Parameters** **Default Gateway** [ ].[ ].[ ].[ ] [X] [+] | Network	Gateway
192.168.1.0 / 24 [X]	172.16.0.1 [X] [+]
192.168.2.0 / 24 [X]	172.16.0.2 [X] [+]
192.168.4.0 / 24 [X]	172.16.0.4 [X] [+]	
CPE4	**Routing Parameters** **Default Gateway** [ ].[ ].[ ].[ ] [X] [+] | Network	Gateway
192.168.1.0 / 24 [X]	172.16.0.1 [X] [+]
192.168.2.0 / 24 [X]	172.16.0.2 [X] [+]
192.168.3.0 / 24 [X]	172.16.0.3 [X] [+]	

Step 3a

Description	Since the data from any CPE to the BS or to another CPE goes through the BS, the routing tables of the CPEs can be optimized. Instead of three static entries, one default route can be added. The routing table of the BS cannot be optimized, as the BS has separate connections with each subscriber, havinng no common point.
BS	-

CPE2	**Routing Parameters** **Default Gateway** `172` . `16` . `0` . `1` [X] [+] **Network** / **Gateway** `____` . `____` . `____` . `____` / `____` [X] `____` . `____` . `____` . `____` [X] [+]
CPE3	**Routing Parameters** **Default Gateway** `172` . `16` . `0` . `1` [X] [+] **Network** / **Gateway** `____` . `____` . `____` . `____` / `____` [X] `____` . `____` . `____` . `____` [X] [+]
CPE4	**Routing Parameters** **Default Gateway** `172` . `16` . `0` . `1` [X] [+] **Network** / **Gateway** `____` . `____` . `____` . `____` / `____` [X] `____` . `____` . `____` . `____` [X] [+]

Step 4

Description	Analyze the routing table: three static entries (flag S) have been added to the routing table of each device.
| **BS** | ```
BS#1> netstat -r
Routing tables
Destination         Gateway             Flags    Refs    Use   Interface
127.0.0.1           127.0.0.1           UH       0       0     lo0
172.16.0.0/29       link#3              UC       0       0     rf5.0
172.16.0.2          link#3              UHL      1       0     rf5.0
172.16.0.3          link#3              UHL      1       0     rf5.0
172.16.0.4          link#3              UHL      1       0     rf5.0
192.168.1.0/24      link#2              UC       0       0     eth0
192.168.1.101       00:0c:29:40:72:d0   UHL      1       62    eth0
192.168.2.0/24      172.16.0.2          UGS      0       0     rf5.0
192.168.3.0/24      172.16.0.3          UGS      0       0     rf5.0
192.168.4.0/24      172.16.0.4          UGS      0       0     rf5.0
224.0.0.0/8         127.0.0.1           UGS      0       0     lo0
``` |
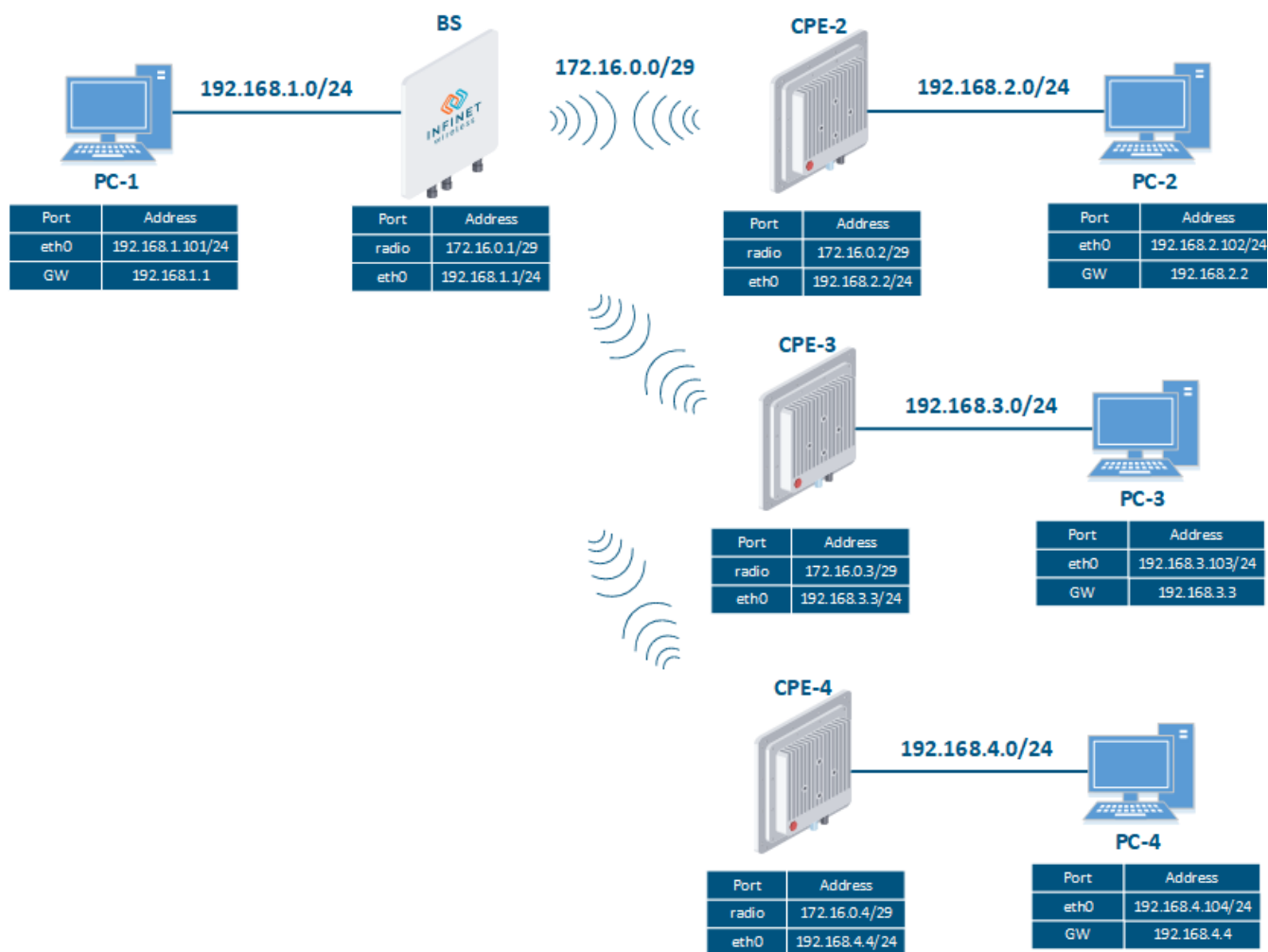
Title

| **CPE2** | ```
CPE_2#1> netstat -r
Routing tables
Destination        Gateway            Flags    Refs    Use    Interface
127.0.0.1          127.0.0.1          UH       0       0      lo0
172.16.0.0/29      link#3             UC       0       0      rf5.0
172.16.0.1         link#3             UHL      1       0      rf5.0
172.16.0.3         link#3             UHL      1       0      rf5.0
172.16.0.4         link#3             UHL      1       0      rf5.0
192.168.1.0/24     172.16.0.1         UGS      0       0      rf5.0
192.168.2.0/24     link#2             UC       0       0      eth0
192.168.2.102      00:0c:29:6c:b8:ad  UHL      1       92     eth0
192.168.3.0/24     172.16.0.3         UGS      0       0      rf5.0
192.168.4.0/24     172.16.0.4         UGS      0       0      rf5.0
224.0.0.0/8        127.0.0.1          UGS      0       0      lo0
``` |
| **CPE3** | ```
CPE_3#1> netstat -r
Routing tables
Destination        Gateway            Flags    Refs    Use    Interface
127.0.0.1          127.0.0.1          UH       1       0      lo0
172.16.0.0/29      link#3             UC       0       0      rf5.0
172.16.0.1         link#3             UHL      1       0      rf5.0
172.16.0.2         link#3             UHL      1       0      rf5.0
172.16.0.4         link#3             UHL      1       0      rf5.0
192.168.1.0/24     172.16.0.1         UGS      0       0      rf5.0
192.168.2.0/24     172.16.0.2         UGS      0       0      rf5.0
192.168.3.0/24     link#2             UC       0       0      eth0
192.168.3.103      00:0c:29:15:29:b7  UHL      1       89     eth0
192.168.4.0/24     172.16.0.4         UGS      0       0      rf5.0
224.0.0.0/8        127.0.0.1          UGS      0       0      lo0
``` |
| **CPE4** | ```
CPE_4#1> netstat -r
Routing tables
Destination        Gateway            Flags    Refs    Use    Interface
127.0.0.1          127.0.0.1          UH       1       0      lo0
172.16.0.0/29      link#3             UC       0       0      rf5.0
172.16.0.1         link#3             UHL      1       0      rf5.0
172.16.0.2         link#3             UHL      1       0      rf5.0
172.16.0.3         link#3             UHL      1       0      rf5.0
192.168.1.0/24     172.16.0.1         UGS      0       0      rf5.0
192.168.2.0/24     172.16.0.2         UGS      0       0      rf5.0
192.168.3.0/24     172.16.0.3         UGS      0       0      rf5.0
192.168.4.0/24     link#2             UC       0       0      eth0
192.168.4.104      00:0c:29:29:4b:b9  UHL      1       62     eth0
224.0.0.0/8        127.0.0.1          UGS      0       0      lo0
``` |

Step 4a

Description	If a default route was added in step 3a, a corresponding entry (flag S) will be added to the routing table.
BS	Changes are not required on the BS.

Title

| **CPE2** | ```
CPE_2#1> netstat -r
Routing tables
Destination        Gateway            Flags      Refs      Use   Interface
default            172.16.0.1         UGS          1        327   rf5.0
127.0.0.1          127.0.0.1          UH           0          0   lo0
172.16.0.0/29      link#3             UC           0          0   rf5.0
172.16.0.1         00:04:35:13:72:4f  UHL          1          0   rf5.0
192.168.2.0/24     link#2             UC           0          0   eth0
192.168.2.102      00:0c:29:6c:b8:ad  UHL          0        644   eth0
224.0.0.0/8        127.0.0.1          UGS          0          0   lo0
``` |
| **CPE3** | ```
CPE_3#1> netstat -r
Routing tables
Destination        Gateway            Flags      Refs      Use   Interface
default            172.16.0.1         UGS          1          7   rf5.0
127.0.0.1          127.0.0.1          UH           1          0   lo0
172.16.0.0/29      link#3             UC           0          0   rf5.0
172.16.0.1         00:04:35:13:72:4f  UHL          1          0   rf5.0
192.168.3.0/24     link#2             UC           0          0   eth0
192.168.3.103      00:0c:29:15:29:b7  UHL          0        568   eth0
224.0.0.0/8        127.0.0.1          UGS          0          0   lo0
``` |
| **CPE4** | ```
CPE 4#1> netstat -r
Routing tables
Destination        Gateway            Flags      Refs      Use   Interface
default            172.16.0.1         UGS          0         11   rf5.0
127.0.0.1          127.0.0.1          UH           1          0   lo0
172.16.0.0/29      link#3             UC           0          0   rf5.0
172.16.0.1         00:04:35:13:72:4f  UHL          1          0   rf5.0
192.168.4.0/24     link#2             UC           0          0   eth0
192.168.4.104      00:0c:29:29:4b:b9  UHL          1         81   eth0
224.0.0.0/8        127.0.0.1          UGS          0          0   lo0
``` |

Step 5

Description	The task has been solved: the connectivity between PC-1, PC-2, PC-3 and PC-4 was successfully established. Note that along with the data traffic routing, the routing for the management traffic was also established.

Title

```
BS's device configuration:
Step 1
ifc eth0 192.168.1.1/24
ifc rf5.0 172.16.0.1/29
Step 2
netstat -r
Step 3
route add 192.168.2.0/24 172.16.0.2
route add 192.168.3.0/24 172.16.0.3
route add 192.168.4.0/24 172.16.0.4
Step 4
netstat -r

CPE-2's device configuration:
Step 1
ifc eth0 192.168.2.2/24
ifc rf5.0 172.16.0.2/29
Step 2
netstat -r
Step 3
route add 192.168.1.0/24 172.16.0.1
route add 192.168.3.0/24 172.16.0.3
route add 192.168.4.0/24 172.16.0.4
Step 3a
route add default 172.16.0.1
Step 4
netstat -r
Step 4a
netstat -r

CPE-3's device configuration:
Step 1
ifc eth0 192.168.3.3/24
ifc rf5.0 172.16.0.3/29
Step 2
netstat -r
Step 3
route add 192.168.1.0/24 172.16.0.1
route add 192.168.2.0/24 172.16.0.2
route add 192.168.4.0/24 172.16.0.4
Step 3a
route add default 172.16.0.1
Step 4
netstat -r
Step 4a
netstat -r
CPE-4 device configuration
Step 1
ifc eth0 192.168.4.4/24
ifc rf5.0 172.16.0.4/29
Step 2
netstat -r
Step 3
route add 192.168.1.0/24 172.16.0.1
route add 192.168.2.0/24 172.16.0.2
route add 192.168.3.0/24 172.16.0.3
Step 3a
route add default 172.16.0.1
Step 4
netstat -r
Step 4a
netstat -r
```

Title

InfiLINK XG, InfiLINK XG 1000 families of devices

Routing configuration for the management traffic

Let's look at the task of performing the routing configuration for the management traffic (Figure 4). The Slave's device management interface should be accessible to the engineer working at the PC. Since the PC and the Slave devices belong to different subnets routing must be used.
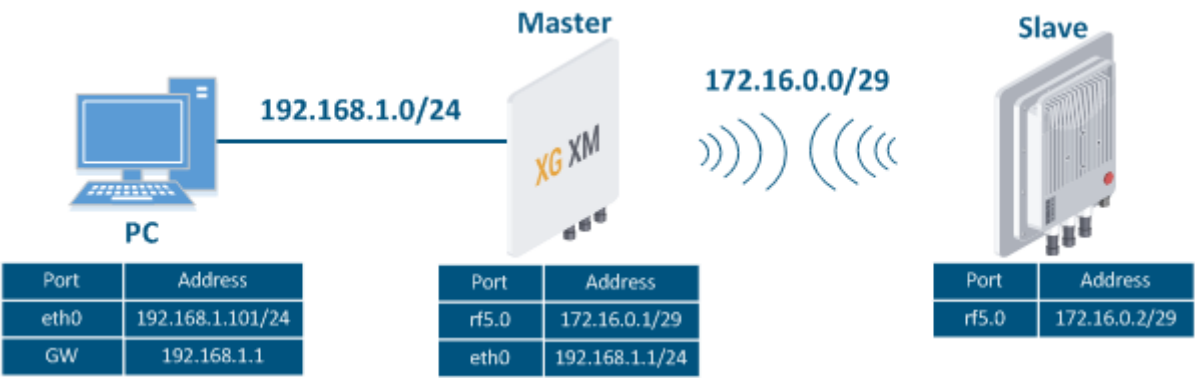
Figure 4 - Routing configuration for the management traffic using the InfiLINK XG / InfiLINK XG 1000 families of devices

Let's perform a step by step configuration for the Master and Slave devices using the Web interface:

Step 1

| Description | Add the IP addresses to the interfaces of the devices according to the scheme.

Unlike the devices of the InfiLINK 2x2 / InfiMAN 2x2 families, the IP address is not assigned to the physical interfaces, but to the virtual management interface (see the Switch section). |
| --- | --- |
| Master | |
| Slave | |

Step 2

Description	Analyze the routing table: after adding IP addresses to the device's interfaces, the routing table was filled up with entries specifying the directly co networks (flag C).

Title

| Master | ```
#1> netstat -r
Routing tables
Destination        Gateway           Flags     Refs     Use   Interface
127.0.0.1          127.0.0.1         UH         0        0   lo0
172.16.0.0/29      link#2            UC         0        0   mgmt
192.168.1.0/24     link#2            UC         0        0   mgmt
192.168.1.101      00:0c:29:40:72:d0 UHL        7     3196   mgmt
224.0.0.0/8        127.0.0.1         UGS        0        0   lo0
``` |
| Slave | ```
#1> netstat -r
Routing tables
Destination        Gateway           Flags     Refs     Use   Interface
10.10.10.0/24      link#2            UC         0        0   mgmt
10.10.10.102       00:0c:29:6c:b8:ad UHL        1     3637   mgmt
127.0.0.1          127.0.0.1         UH         0        0   lo0
172.16.0.0/29      link#2            UC         0        0   mgmt
224.0.0.0/8        127.0.0.1         UGS        0        0   lo0
``` |

Step 3

Description	Add static routes for establishing the communication between the PC and the Slave devices.
Master	The Master device is intermediate on the path of the packets between the PC and the Slave. Routes towards the PC and towards the Slave have been added to the Master's device routing table during the previous steps using the directly connected networks (see step 2), so there is no need to add static entries.
Slave	Configure a static route on the Slave device towards the PC's network: **Static Routes** Network: 192 . 168 . 1 . 0 / 24 Gateway: 172 . 16 . 0 . 1

Step 3a

Description	A default route can be configured on the slave device instead of a route towards the PC's network.
Master	Changes are not required.
Slave	**Routing Settings** Default Gateway: 172 . 16 . 0 . 1

Step 4

Description	Analyze the routing table: a static entry (flag S) has been added to the Slave's routing table.
Master	See step 2

Title

| Slave | ```
#1> netstat -r
Routing tables
Destination       Gateway           Flags    Refs    Use  Interface
10.10.10.0/24     link#2            UC       0         0  mgmt
10.10.10.102      00:0c:29:6c:b8:ad UHL      7      4279  mgmt
127.0.0.1         127.0.0.1         UH       0         0  lo0
172.16.0.0/29     link#2            UC       0         0  mgmt
172.16.0.1        00:04:35:07:a8:3a UHL      1         4  mgmt
192.168.1.0/24    172.16.0.1        UGS      0       115  mgmt
224.0.0.0/8       127.0.0.1         UGS      0         0  lo0
``` | |

Step 4a

Description	If a default route has been added in step 3a, a corresponding entry (flag S) will be added to the routing table.
Master	See step 2
| Slave | ```
#1> netstat -r
Routing tables
Destination       Gateway           Flags    Refs    Use  Interface
default           172.16.0.1        UGS      0        88  mgmt
10.10.10.0/24     link#2            UC       0         0  mgmt
10.10.10.102      00:0c:29:6c:b8:ad UHL      1      4603  mgmt
127.0.0.1         127.0.0.1         UH       0         0  lo0
172.16.0.0/29     link#2            UC       0         0  mgmt
172.16.0.1        00:04:35:07:a8:3a UHL      1         4  mgmt
224.0.0.0/8       127.0.0.1         UGS      0         0  lo0
``` |

Step 5

Description	The task has been solved: an engineer working on the PC has access to the Slave's device management interface.

✅ **How to solve the same task using CLI commands**

```
Master's device configuration:
Step 1
ifc mgmt 192.168.1.1/24
ifc mgmt 172.16.0.1/29
Step 2
netstat -r
Step 4
netstat -r

Slave's device configuration:
Step 1
ifc mgmt 192.168.2.2/24
ifc mgmt 172.16.0.2/29
Step 2
netstat -r
Step 3
route add 192.168.1.0/24 172.16.0.1
Step 3a
route add default 172.16.0.1
Step 4
netstat -r
Step 4a
netstat -r
```

Quanta 5, Quanta 6, Quanta 70 families of devices

Routing configuration for the management traffic

Let's look at the task of performing the routing configuration for the management traffic (Figure 5). The Slave's device management interface should be accessible to the engineer working at the PC. Since the PC and the Slave devices belong to different subnets routing will be used.
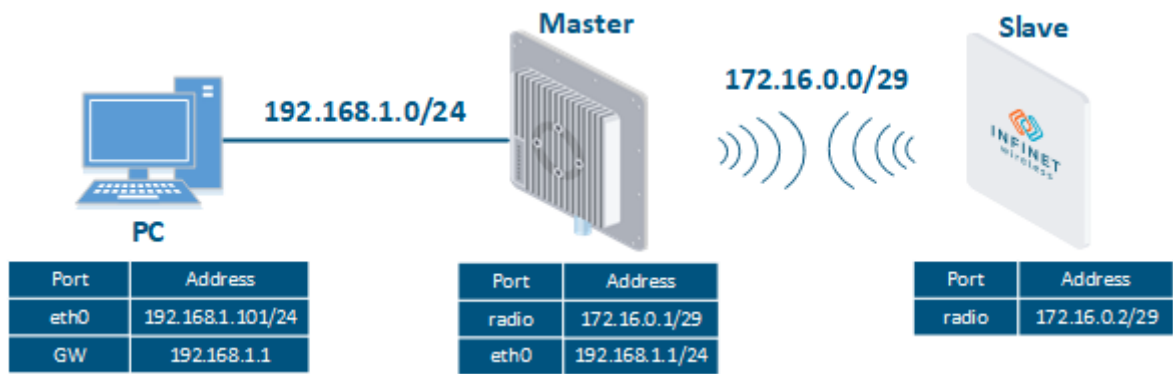

Figure 5 - Routing configuration for the management traffic using the Quanta 5, Quanta 6, Quanta 70 families of devices

Let's perform the step by step configuration of the Master and Slave devices using the Web interface:

Step 1

Description	Add the IP addresses to the interfaces of the devices according to the scheme.
	Unlike the devices of the InfiLINK 2x2 / InfiMAN 2x2 families, the IP address is not assigned to the physical interfaces, but to the virtual management interface (see "Switch settings" section).
Master	
Slave	

Step 2

Description	Analyze the routing table: after adding IP addresses to the device's interfaces, the routing table was filled up with entries specifying the directly co networks (marked as C).

| **Master** | ```
#1> netstat -r
Routing tables
Destination       Gateway            Flags   Refs    Use  Interface
127.0.0.1         127.0.0.1          UH       0       0  lo0
172.16.0.0/29     link#2             UC       0       0  eth0
192.168.1.0/24    link#2             UC       0       0  eth0
192.168.1.101     00:0c:29:40:72:d0  UHL     13    6705  eth0
224.0.0.0/8       127.0.0.1          UGS      0       0  lo0
``` |
| **Slave** | ```
#1> netstat -r
Routing tables
Destination       Gateway            Flags   Refs    Use  Interface
default           172.16.0.1         UGS      0       0  eth0
10.10.10.0/24     link#2             UC       0       0  eth0
10.10.10.101      00:0c:29:40:72:d0  UHL     10   10752  eth0
10.10.10.102      00:0c:29:6c:b8:ad  UHL      5    9876  eth0
127.0.0.1         127.0.0.1          UH       0       0  lo0
172.16.0.0/29     link#2             UC       0       0  eth0
172.16.0.1        00:04:35:0a:b1:67  UHL      1       0  eth0
224.0.0.0/8       127.0.0.1          UGS      0       0  lo0
``` |

Step 3

Description	Add static routes for establishing the communication between the PC and Slave devices. The Quanta 5, Quanta 6 and the Quanta 70 families of devices allow to configure only the default route.
Master	The Master device is intermediate on the path of the packets between the PC and the Slave. Routes towards the PC and towards the Slave have been added to the Master's device routing table (see step 2), so there is no need to add static entries.
Slave	**Network interface** | IP address		Subnet mask	VLAN ID	DHCP		
---	---	---	---	---	---	---
10.10.10.2	/	24	Disabled	Disabled	✏	✕
172.16.0.2	/	29	Disabled	Disabled	✏	✕	 + Add IP address Default gateway: 172.16.0.1

Step 4

Description	Analyze the routing table: a static entry (flag S) has been added to the Slave's routing table.
Master	See step 2

Title

| Slave | ```
#1> netstat -r
Routing tables
Destination        Gateway            Flags    Refs     Use  Interface
default            172.16.0.1         UGS       0        56  eth0
10.10.10.0/24      link#2             UC        0         0  eth0
10.10.10.101       00:0c:29:40:72:d0  UHL       7     13277  eth0
10.10.10.102       00:0c:29:6c:b8:ad  UHL       8     12871  eth0
127.0.0.1          127.0.0.1          UH        0         0  lo0
172.16.0.0/29      link#2             UC        0         0  eth0
172.16.0.1         00:04:35:0a:b1:67  UHL       1         1  eth0
224.0.0.0/8        127.0.0.1          UGS       0         0  lo0
``` |

Step 5

| Description | The task has been solved: an engineer working on the PC has access to the Slave's device management interface. |

✅ **How to solve the same task using CLI commands**

```
Master's device configuration:
Step 1
ifc eth0 192.168.1.1/24
ifc eth0 172.16.0.1/29
Step 2
netstat -r
Step 4
netstat -r
Slave's device configuration:
Step 1
ifc eth0 172.16.0.2/29
Step 2
netstat -r
Step 3
route add default 172.16.0.1
Step 4
netstat -r
```

✅ **See also**

The article continues with: Dynamic routing.

Additional materials

Online courses

1. Quanta 5 / Quanta 6: Installation and Configuration.
2. InfiLINK XG Family Product.
3. InfiLINK 2x2 / InfiMAN 2x2: Initial Link Configuration and Installation.

Webinars

1. Typical scenario of routing setting using Infinet Wireless devices. Part I.

Other

1. Quanta 5 / Quanta 6 device configuration.
2. InfiLINK XG, InfiLINK XG 1000 devices configuration.
3. Network configuration via Web interface for InfiLINK 2x2, InfiMAN 2x2 families devices.
4. Network configuration via Web interface for InfiLINK Evolution, InfiMAN Evolution families devices.

Title