



Appendix - BlueField DHCP Discover

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Possible Vendor Classes

BlueField DHCP DISCOVER

Possible Vendor Classes

Vendor Class String in DHCP Discover	Originator of the DHCP Discover
NVIDIA/BF/OOB	BlueField SoC Arm OS over 1GbE OOB
NVIDIA/BF/PXE	BlueField SoC UEFI BIOS over either 1GbE OOB or high-speed ports
NVIDIA/BF/DP	BlueField SoC Arm OS over high-speed ports
NVIDIA/BF/BMC	BlueField BMC over 1GbE OOB
BF2Client	BlueField OS/UEFI in older versions
PXEClient	BlueField OS/UEFI in older versions
HTTPClient	BlueField OS/UEFI in older versions

BlueField DHCP DISCOVER

Sent from the BlueField UEFI BIOS to the DHCP server:

```
0.0.0.0 -> 255.255.255.255 DHCP 370 DHCP Discover - Transaction
ID 0xfd2f32f1
192.168.254.119 -> 255.255.255.255 DHCP 342 DHCP Offer -
Transaction ID 0xfd2f32f1
    0.0.0.0 -> 255.255.255.255 DHCP 382 DHCP Request -
Transaction ID 0xfd2f32f1
192.168.254.119 -> 255.255.255.255 DHCP 342 DHCP ACK -
Transaction ID 0xfd2f32f1
aa:bb:cc:dd:ee:ff -> Broadcast ARP 60 Who has 192.168.254.119?
Tell 192.168.254.139
gg:hh:ii:jj:kk:ll -> aa:bb:cc:dd:ee:ff ARP 60 192.168.254.119 is
at gg:hh:ii:jj:kk:ll
    192.168.254.139 -> 192.168.254.119 TFTP 98 Read Request, File:
/grubaa64.efi, Transfer type: octet, tsize\000=0\000,
blksize\000=1400\000, windowsize\000=4\000
```

```

192.168.254.119 -> 192.168.254.139 TFTP 84 Option
Acknowledgement, tsize\000=2414472\000, blksize\000=1400\000,
windowsize\000=4\000
192.168.254.139 -> 192.168.254.119 TFTP 72 Error Code, Code:
Option negotiation failed, Message: User aborted the transfer
192.168.254.139 -> 192.168.254.119 TFTP 90 Read Request, File:
/grubaa64.efi, Transfer type: octet, blksize\000=1400\000,
windowsize\000=4\000
192.168.254.119 -> 192.168.254.139 TFTP 70 Option
Acknowledgement, blksize\000=1400\000, windowsize\000=4\000
192.168.254.139 -> 192.168.254.119 TFTP 60 Acknowledgement,
Block: 0
192.168.254.119 -> 192.168.254.139 TFTP 1446 Data Packet,
Block: 1
192.168.254.119 -> 192.168.254.139 TFTP 1446 Data Packet,
Block: 2
192.168.254.119 -> 192.168.254.139 TFTP 1446 Data Packet,
Block: 3

Ethernet II, Src: aa:bb:cc:dd:ee:ff (aa:bb:cc:dd:ee:ff), Dst:
Broadcast (ff:ff:ff:ff:ff:ff)
    Destination: Broadcast (ff:ff:ff:ff:ff:ff)
        Address: Broadcast (ff:ff:ff:ff:ff:ff)
            .... ..1. .... .... .... = LG bit: Locally
administered address (this is NOT the factory default)
            .... ...1 .... .... .... = IG bit: Group address
(multicast/broadcast)
        Source: aa:bb:cc:dd:ee:ff (aa:bb:cc:dd:ee:ff)
            Address: aa:bb:cc:dd:ee:ff (aa:bb:cc:dd:ee:ff)
                .... ..0. .... .... .... = LG bit: Globally unique
address (factory default)
                .... ...0 .... .... .... = IG bit: Individual
address (unicast)
        Type: IP (0x0800)
Internet Protocol Version 4, Src: 0.0.0.0 (0.0.0.0), Dst:
255.255.255.255 (255.255.255.255)

```

```
Version: 4
Header length: 20 bytes
Differentiated Services Field: 0x00 (DSCP 0x00: Default; ECN:
0x00: Not-ECT (Not ECN-Capable Transport))
    0000 00.. = Differentiated Services Codepoint: Default
(0x00)
        .... ..00 = Explicit Congestion Notification: Not-ECT
(Not ECN-Capable Transport) (0x00)
Total Length: 368
Identification: 0x61c7 (25031)
Flags: 0x00
    0... .. = Reserved bit: Not set
    .0.. .. = Don't fragment: Not set
    ..0. .... = More fragments: Not set
Fragment offset: 0
Time to live: 64
Protocol: UDP (17)
Header checksum: 0x17b7 [validation disabled]
    [Good: False]
    [Bad: False]
Source: 0.0.0.0 (0.0.0.0)
Destination: 255.255.255.255 (255.255.255.255)
User Datagram Protocol, Src Port: bootpc (68), Dst Port: bootps
(67)
    Source port: bootpc (68)
    Destination port: bootps (67)
    Length: 348
    Checksum: 0xe557 [validation disabled]
        [Good Checksum: False]
        [Bad Checksum: False]
Bootstrap Protocol
    Message type: Boot Request (1)
    Hardware type: Ethernet (0x01)
    Hardware address length: 6
Hops: 0
Transaction ID: 0xfd2f32f1
```

```
Seconds elapsed: 0
Bootp flags: 0x8000 (Broadcast)
    1... .. = Broadcast flag: Broadcast
    .000 0000 0000 0000 = Reserved flags: 0x0000
Client IP address: 0.0.0.0 (0.0.0.0)
Your (client) IP address: 0.0.0.0 (0.0.0.0)
Next server IP address: 0.0.0.0 (0.0.0.0)
Relay agent IP address: 0.0.0.0 (0.0.0.0)
Client MAC address: aa:bb:cc:dd:ee:ff (aa:bb:cc:dd:ee:ff)
Client hardware address padding: 00000000000000000000
Server host name not given
Boot file name not given
Magic cookie: DHCP
Option: (53) DHCP Message Type
    Length: 1
    DHCP: Request (3)
Option: (54) DHCP Server Identifier
    Length: 4
    DHCP Server Identifier: 192.168.254.119 (192.168.254.119)
Option: (50) Requested IP Address
    Length: 4
    Requested IP Address: 192.168.254.139 (192.168.254.139)
Option: (57) Maximum DHCP Message Size
    Length: 2
    Maximum DHCP Message Size: 65280
Option: (55) Parameter Request List
    Length: 35
    Parameter Request List Item: (1) Subnet Mask
    Parameter Request List Item: (2) Time Offset
    Parameter Request List Item: (3) Router
    Parameter Request List Item: (4) Time Server
    Parameter Request List Item: (5) Name Server
    Parameter Request List Item: (6) Domain Name Server
    Parameter Request List Item: (12) Host Name
    Parameter Request List Item: (13) Boot File Size
    Parameter Request List Item: (15) Domain Name
```

Parameter Request List Item: (17) Root Path

Parameter Request List Item: (18) Extensions Path

Parameter Request List Item: (22) Maximum Datagram
Reassembly Size

Parameter Request List Item: (23) Default IP Time-to-Live

Parameter Request List Item: (28) Broadcast Address

Parameter Request List Item: (40) Network Information

Service Domain

Parameter Request List Item: (41) Network Information

Service Servers

Parameter Request List Item: (42) Network Time Protocol
Servers

Parameter Request List Item: (43) Vendor-Specific
Information

Parameter Request List Item: (50) Requested IP Address

Parameter Request List Item: (51) IP Address Lease Time

Parameter Request List Item: (54) DHCP Server Identifier

Parameter Request List Item: (58) Renewal Time Value

Parameter Request List Item: (59) Rebinding Time Value

Parameter Request List Item: (60) Vendor class identifier

Parameter Request List Item: (66) TFTP Server Name

Parameter Request List Item: (67) Bootfile name

Parameter Request List Item: (97) UUID/GUID-based Client
Identifier

Parameter Request List Item: (128) DOCSIS full security
server IP [TODO]

Parameter Request List Item: (129) PXE - undefined
(vendor specific)

Parameter Request List Item: (130) PXE - undefined
(vendor specific)

Parameter Request List Item: (131) PXE - undefined
(vendor specific)

Parameter Request List Item: (132) PXE - undefined
(vendor specific)

Parameter Request List Item: (133) PXE - undefined
(vendor specific)

```
Parameter Request List Item: (134) PXE - undefined
(vendor specific)
Parameter Request List Item: (135) PXE - undefined
(vendor specific)
Option: (97) UUID/GUID-based Client Identifier
Length: 17
Client Identifier (UUID): c24e2ad6-a730-ec11-8000-
08c0eb58d8ec
Option: (94) Client Network Device Interface
Length: 3
Major Version: 3
Minor Version: 16
Option: (93) Client System Architecture
Length: 2
Client System Architecture: Unknown (11)
Option: (60) Vendor class identifier
Length: 13
Vendor class identifier: NVIDIA/BF/PXE
Option: (255) End
Option End: 255
```

i Note

Note the "Vendor class identifier" value in line 134.

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