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Cisco DTP (Dynamic Trunking Protocol) Negotiation

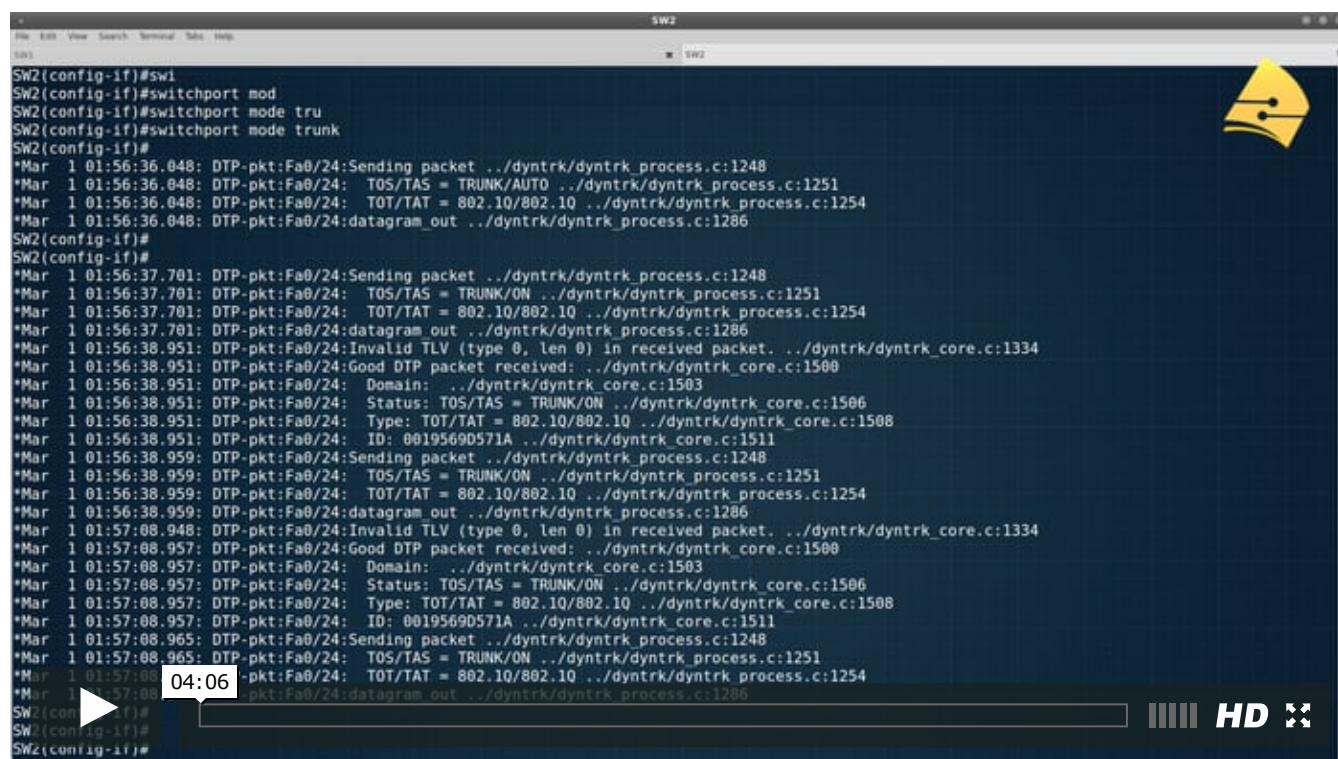


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In this tutorial we'll take a look at DTP (Dynamic Trunking Protocol) negotiation. DTP is normally used on Cisco IOS switches to negotiate if the interface should become an access port or trunk.

By default DTP is enabled and the interfaces of your switches will be in “dynamic auto” or “dynamic desirable” mode. This means that whenever you receive a DTP packet that requests to form a trunk, your interface will be in trunk mode. If you are unfamiliar with DTP and the different interface settings then you might want to read my [“How to configure Trunk on Cisco Catalyst Switch”](#) lesson before continuing.

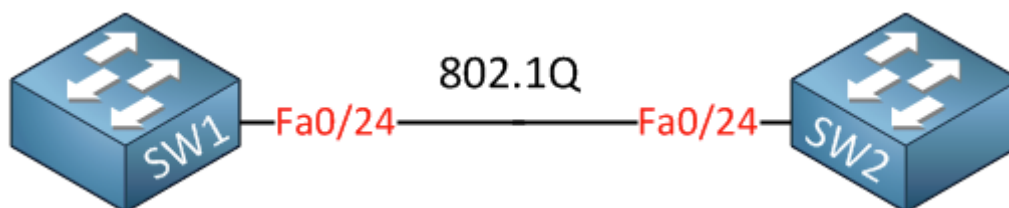


```

SW2(config-if)#sw1
SW2(config-if)#switchport mod
SW2(config-if)#switchport mode tru
SW2(config-if)#switchport mode trunk
SW2(config-if)#
*Mar 1 01:56:36.048: DTP-pkt:Fa0/24:Sending packet ../dyntrk/dyntrk_process.c:1248
*Mar 1 01:56:36.048: DTP-pkt:Fa0/24: TOS/TAS = TRUNK/AUTO ../dyntrk/dyntrk_process.c:1251
*Mar 1 01:56:36.048: DTP-pkt:Fa0/24: TOT/TAT = 802.1Q/802.1Q ../dyntrk/dyntrk_process.c:1254
*Mar 1 01:56:36.048: DTP-pkt:Fa0/24:datagram_out ../dyntrk/dyntrk_process.c:1286
SW2(config-if)#
SW2(config-if)#
*Mar 1 01:56:37.701: DTP-pkt:Fa0/24:Sending packet ../dyntrk/dyntrk_process.c:1248
*Mar 1 01:56:37.701: DTP-pkt:Fa0/24: TOS/TAS = TRUNK/ON ../dyntrk/dyntrk_process.c:1251
*Mar 1 01:56:37.701: DTP-pkt:Fa0/24: TOT/TAT = 802.1Q/802.1Q ../dyntrk/dyntrk_process.c:1254
*Mar 1 01:56:37.701: DTP-pkt:Fa0/24:datagram_out ../dyntrk/dyntrk_process.c:1286
*Mar 1 01:56:38.951: DTP-pkt:Fa0/24:Invalid TLV (type 0, len 0) in received packet. ../dyntrk/dyntrk_core.c:1334
*Mar 1 01:56:38.951: DTP-pkt:Fa0/24:Good DTP packet received: ../dyntrk/dyntrk_core.c:1500
*Mar 1 01:56:38.951: DTP-pkt:Fa0/24: Domain: ../dyntrk/dyntrk_core.c:1503
*Mar 1 01:56:38.951: DTP-pkt:Fa0/24: Status: TOS/TAS = TRUNK/ON ../dyntrk/dyntrk_core.c:1506
*Mar 1 01:56:38.951: DTP-pkt:Fa0/24: Type: TOT/TAT = 802.1Q/802.1Q ../dyntrk/dyntrk_core.c:1508
*Mar 1 01:56:38.951: DTP-pkt:Fa0/24: ID: 0019569D571A ../dyntrk/dyntrk_core.c:1511
*Mar 1 01:56:38.959: DTP-pkt:Fa0/24:Sending packet ../dyntrk/dyntrk_process.c:1248
*Mar 1 01:56:38.959: DTP-pkt:Fa0/24: TOS/TAS = TRUNK/ON ../dyntrk/dyntrk_process.c:1251
*Mar 1 01:56:38.959: DTP-pkt:Fa0/24: TOT/TAT = 802.1Q/802.1Q ../dyntrk/dyntrk_process.c:1254
*Mar 1 01:56:38.959: DTP-pkt:Fa0/24:datagram_out ../dyntrk/dyntrk_process.c:1286
*Mar 1 01:57:08.948: DTP-pkt:Fa0/24:Invalid TLV (type 0, len 0) in received packet. ../dyntrk/dyntrk_core.c:1334
*Mar 1 01:57:08.957: DTP-pkt:Fa0/24:Good DTP packet received: ../dyntrk/dyntrk_core.c:1500
*Mar 1 01:57:08.957: DTP-pkt:Fa0/24: Domain: ../dyntrk/dyntrk_core.c:1503
*Mar 1 01:57:08.957: DTP-pkt:Fa0/24: Status: TOS/TAS = TRUNK/ON ../dyntrk/dyntrk_core.c:1506
*Mar 1 01:57:08.957: DTP-pkt:Fa0/24: Type: TOT/TAT = 802.1Q/802.1Q ../dyntrk/dyntrk_core.c:1508
*Mar 1 01:57:08.957: DTP-pkt:Fa0/24: ID: 0019569D571A ../dyntrk/dyntrk_core.c:1511
*Mar 1 01:57:08.965: DTP-pkt:Fa0/24:Sending packet ../dyntrk/dyntrk_process.c:1248
*Mar 1 01:57:08.965: DTP-pkt:Fa0/24: TOS/TAS = TRUNK/ON ../dyntrk/dyntrk_process.c:1251
*Mar 1 01:57:08.965: DTP-pkt:Fa0/24: TOT/TAT = 802.1Q/802.1Q ../dyntrk/dyntrk_process.c:1254
*Mar 1 01:57:08.965: DTP-pkt:Fa0/24:datagram_out ../dyntrk/dyntrk_process.c:1286
SW2(config-if)#
SW2(config-if)#
SW2(config-if)#

```

Let's take a look at DTP negotiation and how to disable it. I'll be using two switches for this:



I didn't configure anything on my switches, let's see what the default settings are:

```
SW1#show interfaces fa0/24 switchport
```

```
Name: Fa0/24
```

```
Switchport: Enabled
```

```
Administrative Mode: dynamic auto
```

```
Operational Mode: static access
```

```
Administrative Trunking Encapsulation: negotiate
Operational Trunking Encapsulation: native
Negotiation of Trunking: On
```

```
SW2#show interfaces fastEthernet 0/24 switchport
Name: Fa0/24
Switchport: Enabled
Administrative Mode: dynamic auto
Operational Mode: static access
Administrative Trunking Encapsulation: negotiate
Operational Trunking Encapsulation: native
Negotiation of Trunking: On
```

Without configuring anything on the interfaces, we are using **dynamic auto** mode and as a result the interfaces are in **access** mode.



Depending on the switch model and IOS version, the default might be “dynamic auto” or “dynamic desirable”. The switches in my example are Cisco Catalyst 3560 switches.

There are two ways to disable DTP negotiation:

- Configure the interface for access mode.
- Use the **switchport nonegotiate** command on the interface.

Configuring the interface for trunking does not disable DTP negotiation, let me give you an example. First we'll configure the interfaces for access mode:

```
SW1(config)#interface fastEthernet 0/24
SW1(config-if)#switchport mode access
```

```
SW2(config)#interface fastEthernet 0/24
SW2(config-if)#switchport mode access
```

When we look again at the switchport settings we can see that DTP negotiation is now disabled:

```
SW1#show interfaces fastEthernet 0/24 switchport
```

```
Name: Fa0/24
Switchport: Enabled
Administrative Mode: static access
Operational Mode: static access
Administrative Trunking Encapsulation: negotiate
Operational Trunking Encapsulation: native
Negotiation of Trunking: Off
```

So configuring an interface yourself to use access mode disables DTP negotiation. How about creating a trunk ourselves?

```
SW1(config)#interface fastEthernet 0/24
SW1(config-if)#switchport trunk encapsulation dot1q
SW1(config-if)#switchport mode trunk
```

```
SW2(config)#interface fastEthernet 0/24
SW2(config-if)#switchport trunk encapsulation dot1q
SW2(config-if)#switchport mode trunk
```

Does this mean that DTP negotiation will also be disabled?

```
SW1#show interfaces fastEthernet 0/24 switchport | include Negotiation
Negotiation of Trunking: On
```

Unfortunately not. If you configure a trunk yourself, DTP negotiation is still enabled. We can disable it but there's another command we have to use:

```
SW1(config)#interface fastEthernet 0/24
SW1(config-if)#switchport nonegotiate
```

```
SW2(config)#interface fastEthernet 0/24
SW2(config-if)#switchport nonegotiate
```

This disables DTP for trunk interfaces. Let's verify it:

```
SW1#show interfaces fastEthernet 0/24 switchport | include Negotiation
Negotiation of Trunking: Off
```

Now it's disabled! You have now learned the two methods to disable DTP negotiation. If you have any questions, feel free to leave a comment.

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- March 11, 2014 at 22:06 [#12022 Reply](#)



zahir

Thanks Rene very useful

October 6, 2015 at 12:22 [#17823 Reply](#)



Prince

Participant

Dear René,

Is it to avoid a security issue that we disable DTP ? If someone bring a rogue switch and plug it et voilà we negotiate a trunk ?

Thks,

Prince

October 6, 2015 at 20:53 [#17863 Reply](#)



Rene Molenaar

Keymaster

Hi Prince,

That's correct, this could be dangerous if your interface is configured for "dynamic auto" or "dynamic desirable".

If you configured the interface in static "access" or "trunk" then negotiatin can't change it anymore but you are still sending DTP packets which is a bit pointless, better to just disable them.

Rene

October 7, 2015 at 10:11 [#17870 Reply](#)



Prince

Participant

Thanks for the reply René,

Prince

December 4, 2015 at 17:38 [#20056 Reply](#)



Jesse G
Participant
Rene,

Watching you switching videos and I like the background of your terminal. Tale me, which terminal program and font are you using. I would like to use such a background.

December 7, 2015 at 17:06 [#20113](#) [Reply](#)

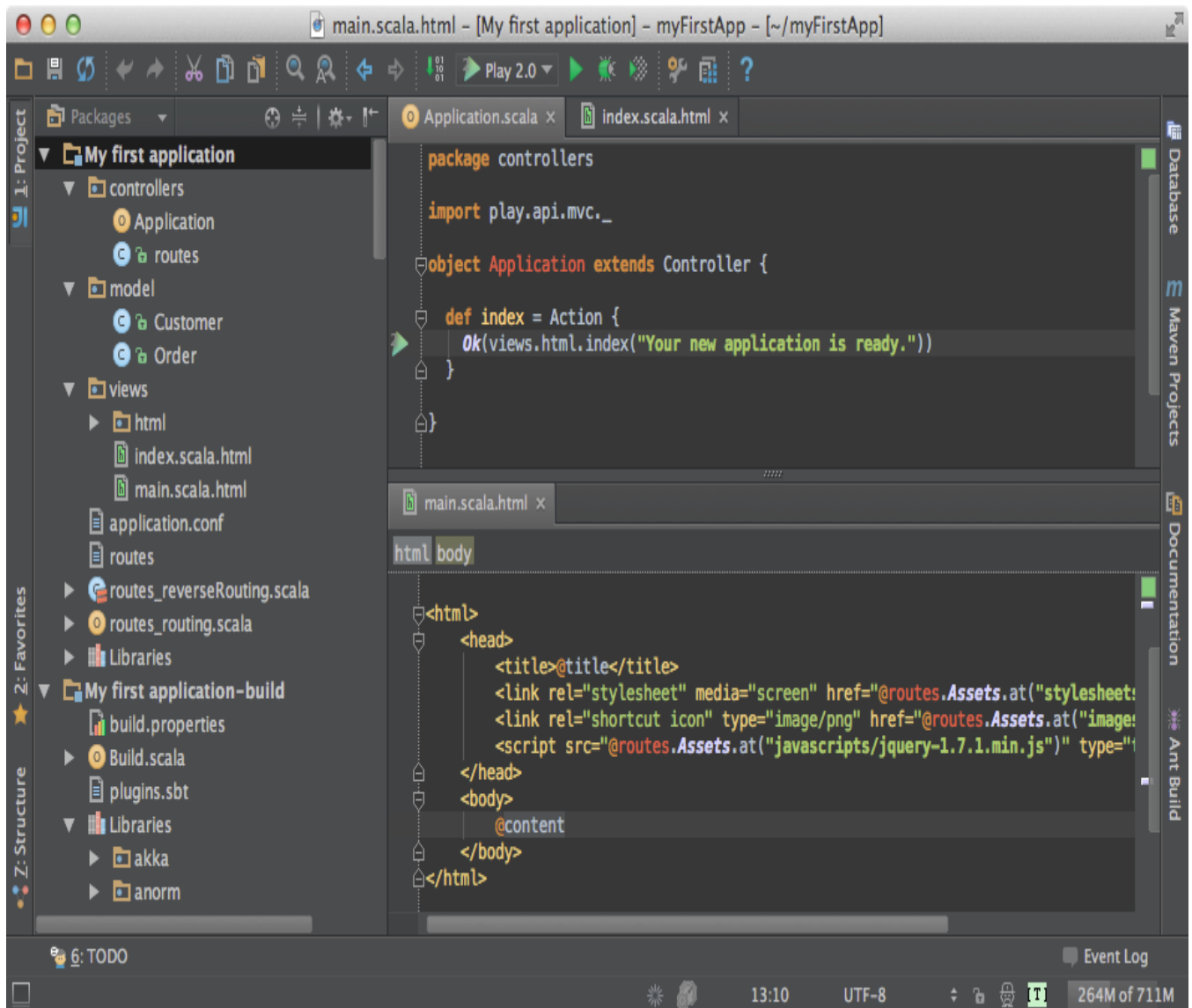


Rene Molenaar
Keymaster
Hi Jesse,

Which video did you see?

For a long time I used Linux Mint (Mate edition) with the mate-terminal to record these videos. It was the default font, not sure which one that was.

Nowadays I use secureCRT configured to use the same colors as Pycharm's darcula (I liked their colors):



Here's a screenshot of what my SecureCRT looks like:

```

        [0, 1, 2, ..., 999]
        """
        "whitespace normalization": r"""
        If the whitespace normalization flag is used, then
        differences in whitespace are ignored.
        >>> print range(30) #doctest: +NORMALIZE_WHITESPACE
        [0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14,
         15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26,
         27, 28, 29]
        """
    }

def _test():
    testfiles = [arg for arg in sys.argv[1:] if arg and arg[0] != '-']
    if not testfiles:
        name = os.path.basename(sys.argv[0])
        if '__loader__' in globals(): # python -m
            name, _ = os.path.splitext(name)
        print("usage: {0} [-v] file ...".format(name))
        return 2
    for filename in testfiles:
        if filename.endswith(".py"):
            # It is a module -- insert its dir into sys.path and try to
            # import it. If it is part of a package, that possibly
            # won't work because of package imports.
            dirname, filename = os.path.split(filename)
            sys.path.insert(0, dirname)
            m = __import__(filename[:-3])
            del sys.path[0]
            failures, _ = testmod(m)
        else:
            failures, _ = testfile(filename, module_relative=False)
        if failures:
            return 1
    return 0

if __name__ == "__main__":
    sys.exit(_test())

```

I'm not sure if this is the best for videos but it's easy on the eyes, even after hours of hardcore Cisco console work 😊

Rene

April 21, 2016 at 02:26 #23537 Reply



Navdip N
Participant

Very good information.

- Author
Posts

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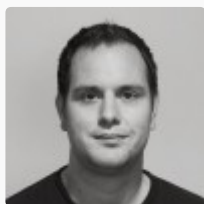
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