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You make possible

API Metadata

Why You Should Care!

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@johnamcdonough

DEVLIT-4012

cisco Live!
Barcelona | January 27-31, 2020

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1. Find this session in the Cisco Events Mobile App
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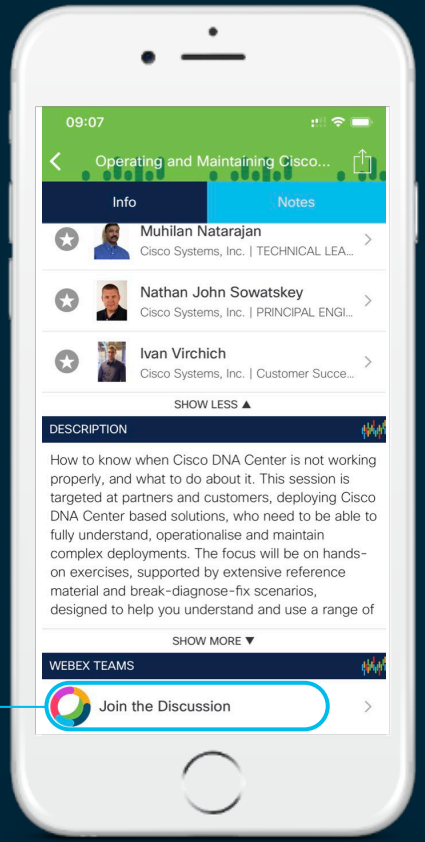

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Agenda

- DEVLIT-4012 - API Metadata Why You Should Care!

- What is API Metadata?
- Does Every API have Metadata?
- Why do I care about API Metadata?
- What can I do with API Metadata?

- Conclusion

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What is API Metadata?

What is Metadata

- Metadata is

"data that provides information about other data"

In other words, it is "data about data”

Wikipedia - Metadata

Ownership / Location / Description / Longevity / Constraints

More...

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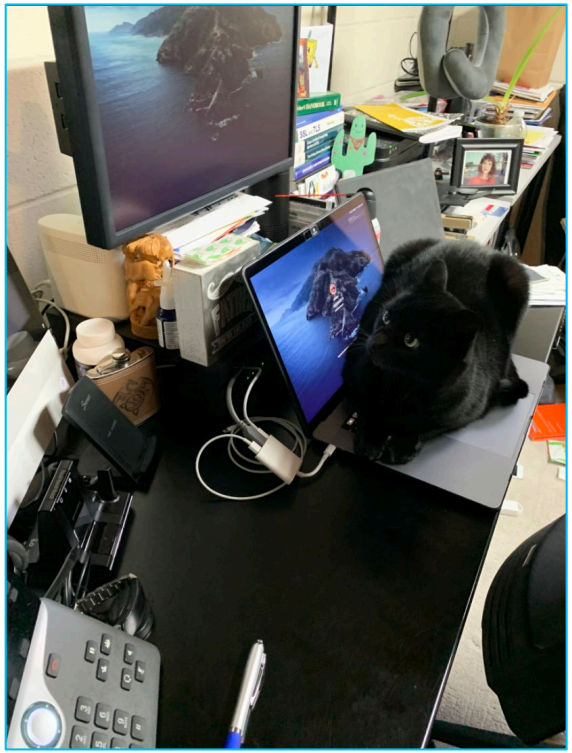
What is Metadata



Sat, Dec 28, 2019 · 9:48 AM

LOCATION

Sparta, NJ
41.087, -74.607

DETAILS

IMG_4922.HEIC
12.2MP 3024 x 4032 1.7 MB

iPhone XR
ƒ/1.8 1/30 4.25mm ISO640

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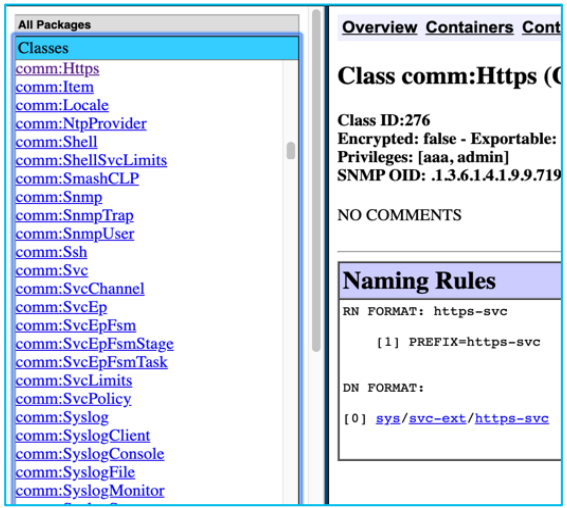
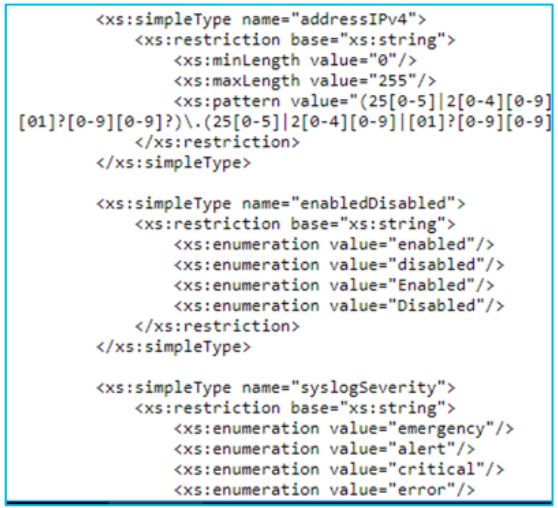
What is API Metadata?

- Docs



- Schema

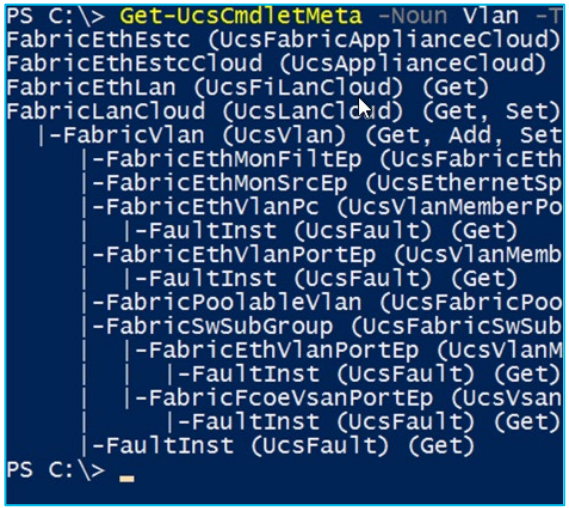


```
        <xs:simpleType name="addressIPv4">
            <xs:restriction base="xs:string">
                <xs:minLength value="0"/>
                <xs:maxLength value="255"/>
                <xs:pattern value="(25[0-5]|2[0-4][0-9]
[01]?[0-9][0-9]?)\.(25[0-5]|2[0-4][0-9]|[01]?[0-9][0-9]
            </xs:restriction>
        </xs:simpleType>

        <xs:simpleType name="enabledDisabled">
            <xs:restriction base="xs:string">
                <xs:enumeration value="enabled"/>
                <xs:enumeration value="disabled"/>
                <xs:enumeration value="Enabled"/>
                <xs:enumeration value="Disabled"/>
            </xs:restriction>
        </xs:simpleType>

        <xs:simpleType name="syslogSeverity">
            <xs:restriction base="xs:string">
                <xs:enumeration value="emergency"/>
                <xs:enumeration value="alert"/>
                <xs:enumeration value="critical"/>
                <xs:enumeration value="error"/>
```

- Embedded



```
PS C:\> Get-UcsCmdletMeta -Noun Vlan -T
FabricEthEstc (UcsFabricApplianceCloud)
FabricEthEstcCloud (UcsApplianceCloud)
FabricEthLan (UcsFiLanCloud) (Get)
FabricLanCloud (UcsLanCloud) (Get, Set)
  |-FabricVlan (UcsVlan) (Get, Add, Set
     |-FabricEthMonFiltEp (UcsFabricEth
     |-FabricEthMonSrcEp (UcsEthernetSp
     |-FabricEthVlanPc (UcsVlanMemberPo
     |  |-FaultInst (UcsFault) (Get)
     |-FabricEthVlanPortEp (UcsVlanMemb
     |  |-FaultInst (UcsFault) (Get)
     |-FabricPoolableVlan (UcsFabricPoo
     |-FabricSwSubGroup (UcsFabricSwSub
     |  |-FabricEthVlanPortEp (UcsVlanM
     |  |  |-FaultInst (UcsFault) (Get)
     |  |-FabricFcoeVsanPortEp (UcsVsan
     |     |-FaultInst (UcsFault) (Get)
     |-FaultInst (UcsFault) (Get)
PS C:\>
```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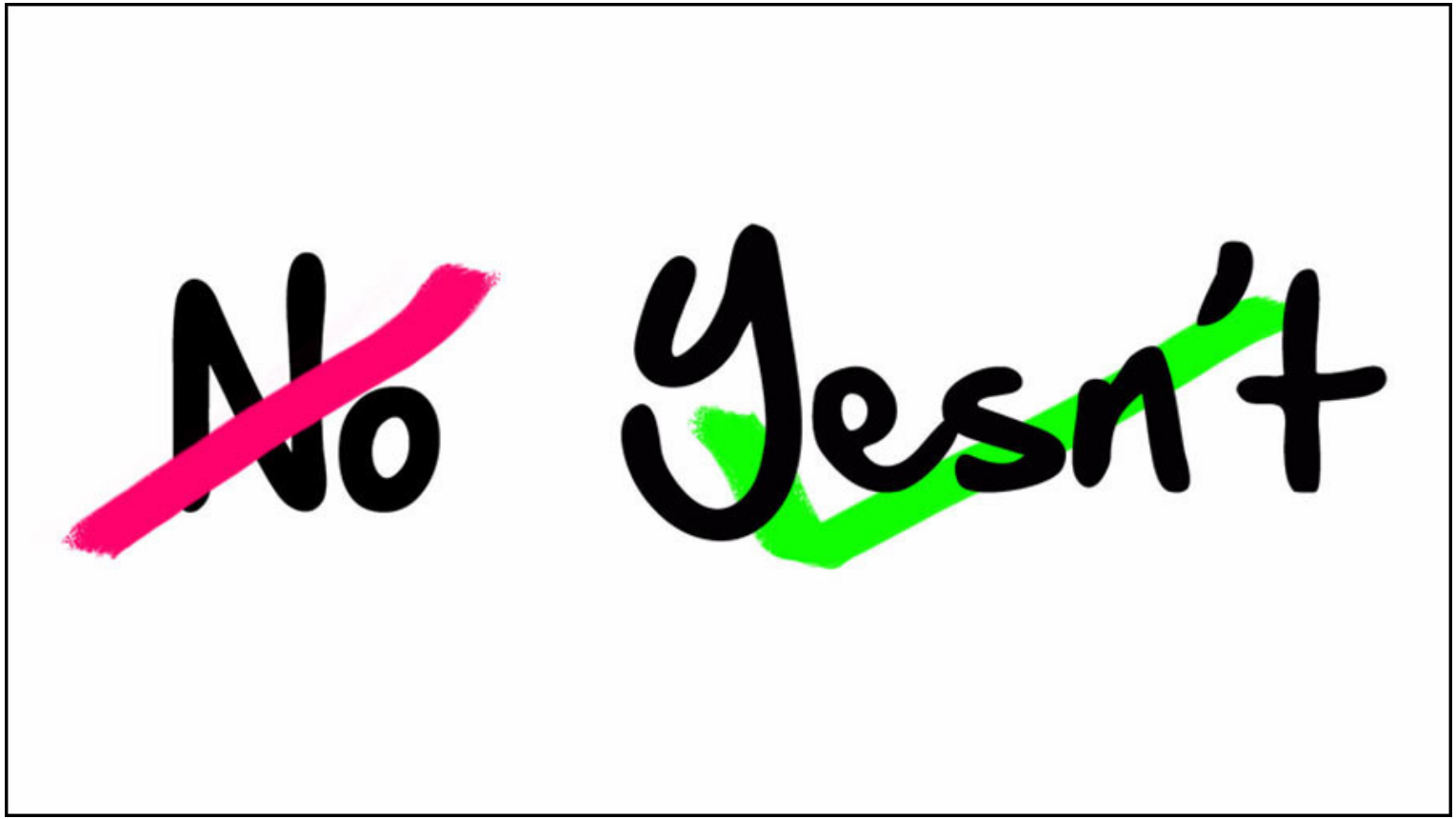
Examples

Does Every API Have Metadata?

Does Every API Have Metadata?



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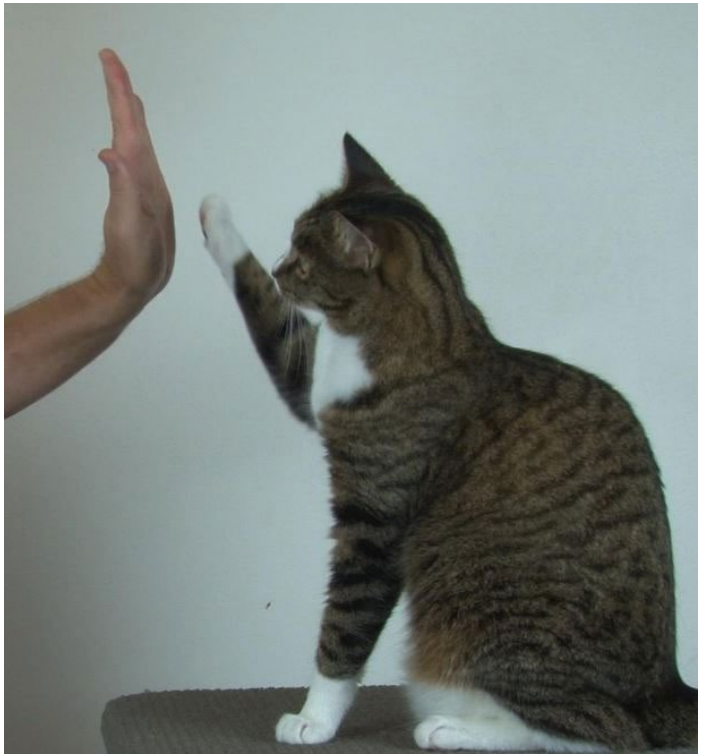
Does Every API Have Metadata?

- Ok Maybe there is some bit of Metadata
  - Docs
  - Examples
  - Webpage with object format
- Better APIs have Metadata Sources
  - Schema
  - Interactive API Docs
  - The Code Itself



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Examples

Why do I care about Metadata?

Why do I care about Metadata?

- Understand the API
- Dynamic Programming
- Less Code (maybe not)
- Better Code (probably)

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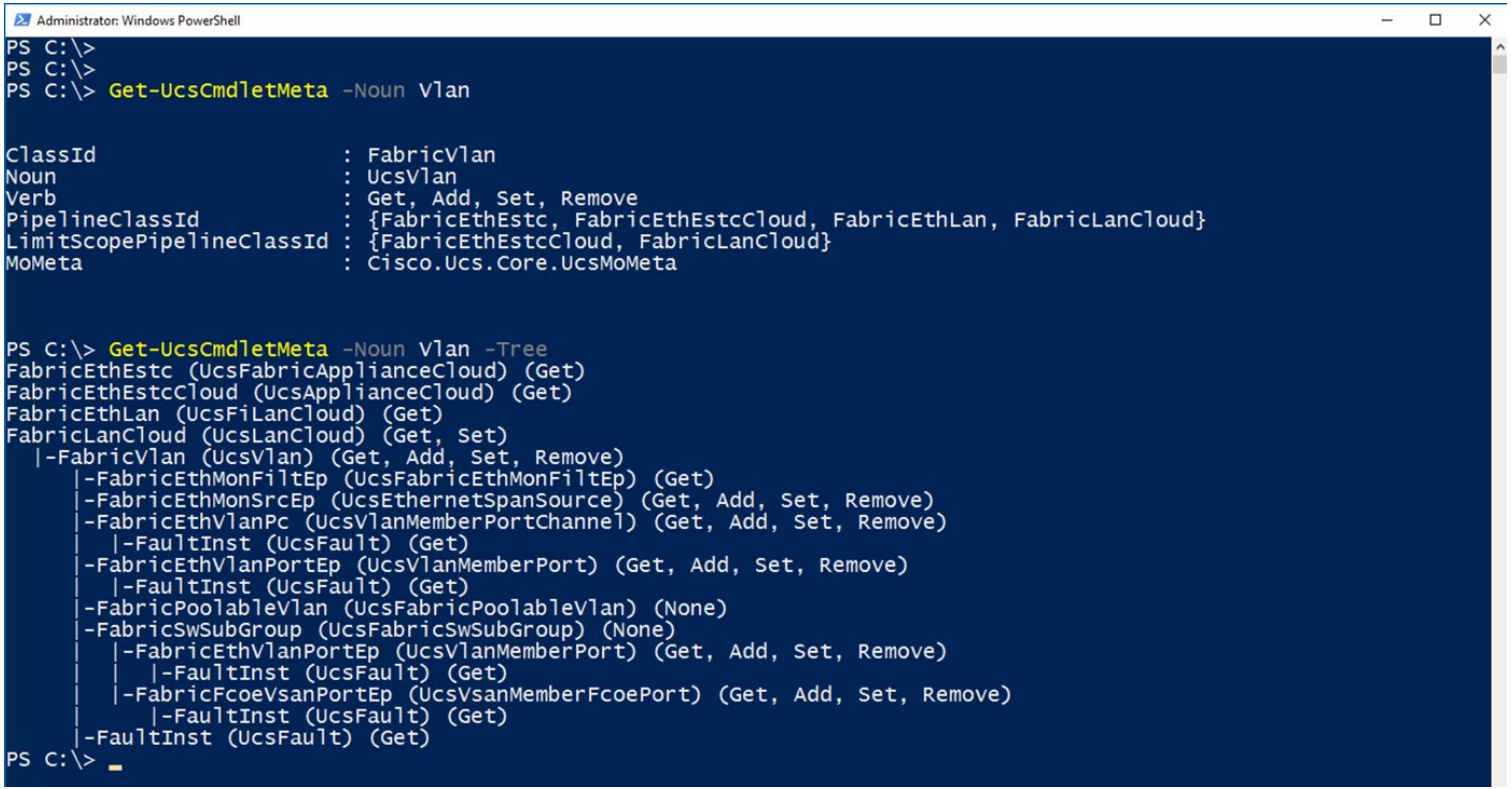
What Can I do with API Metadata?

What Can I do with API Metadata?

Understand the API



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What Can I do with API Metadata?

Dynamic Programming

```
Import-Module Cisco.UCSManager

# Get the Metadata
$mo_meta = Get-UcsCmdletMeta -Noun vlan

# Extract the Allowed Vlan Name pattern
$vlan_name_pattern = $mo_meta.MoMeta.PropertyMeta |`
    Where-Object{$_.Name -eq "Name"} |`
    ForEach-Object{$_.Restriction.Pattern}

# Extract the Allowed Vlan Ids
$vlan_id_ranges = $mo_meta.MoMeta.PropertyMeta |`
    Where-Object{$_.Name -eq "Id"}|`
    ForEach-Object{$_.Restriction.Range}

"`n"
"Vlan Name and Id Restrictions"
"Vlan Name Pattern: " + $vlan_name_pattern
"Vlan Id Allowed Range: " + $vlan_id_ranges
```


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What Can I do with API Metadata?

Dynamic Programming

```
"Entered Vlan Name and Id"
"Entered Vlan Name: " + $vlanName
"Entered Vlan Name Length: " + $vlanName.Length
"Entered Vlan Id: " + $vlanId

if ($vlanName -notmatch "^"+$vlan_name_pattern+"$") {
    throw "$vlanName is not a valid Vlan Name - enter a name that matches this regular expression " + $vlan_name_pattern
}

# Empty array
$vlan_ids = @()

# Check for allowed Vlan Id build a list of valid ids and check if id is in list
foreach($vlan_id_range in $vlan_id_ranges) {
    $vlan_id_range
    $vlan_ids += $([int]$vlan_id_range.Split('-')[0]..[int]$vlan_id_range.Split('-')[1])
}

if ($vlanId -notin $vlan_ids) {
    throw "$vlanId is not a valid Vlan Id - enter an Id that is in the allowed range " + $vlan_id_ranges
}
```


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Conclusion

Got Questions? Come find me!

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