

Developer Days  
Automation

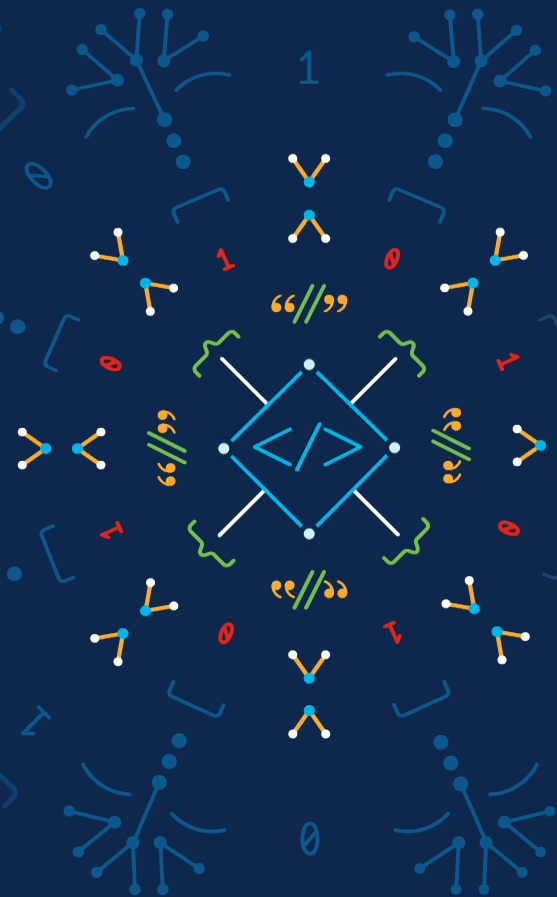


The bridge to possible

# NSO Developer Studio

For Visual Studio Code

Niraj Pravin Chandak  
Software Developer  
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# Agenda



Introduction



Why



What



How



Questions

“Give people the right tools, and they will design and build the most extraordinary things”

Neil Gershenfeld



The right tools increase Efficiency

# NSO Developer Studio

The image displays two screenshots of the Visual Studio Marketplace interface, showing the details for two different extensions related to NSO Developer Studio.

**Top Screenshot: NSO Developer Studio - Explorer**

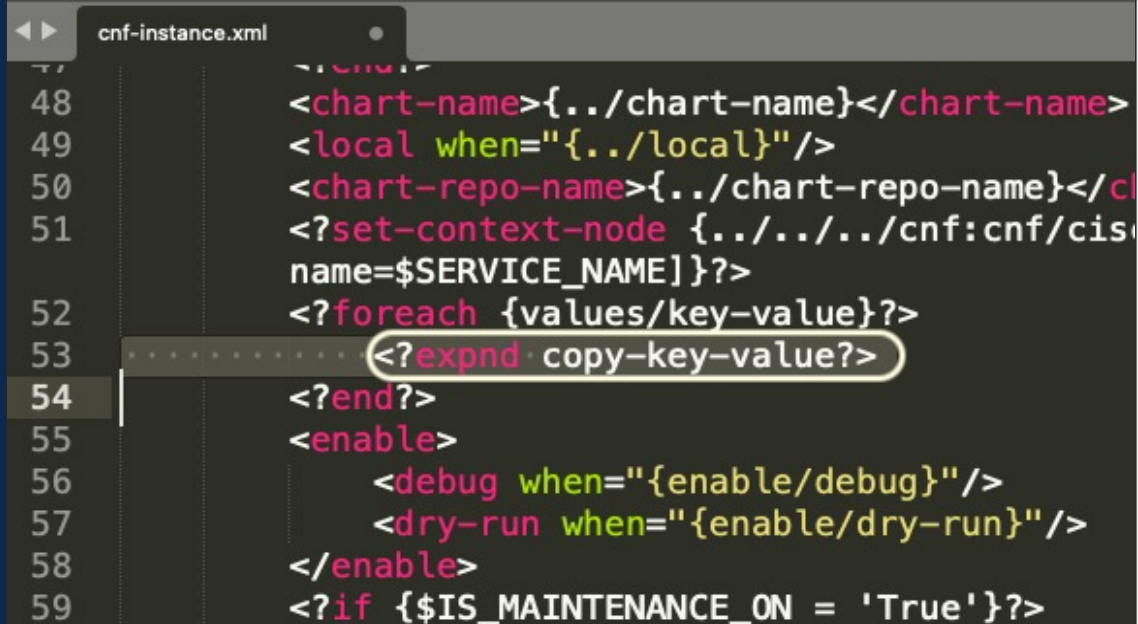
- Extension Name:** NSO Developer Studio - Explorer
- Publisher:** Cisco Crosswork NSO
- Installs:** 461
- Rating:** 5 stars (1 review)
- Price:** Free
- Buttons:** Install, Trouble Installing?
- Overview:** This is the codebase for the NSO Explorer Visual Studio Code extension.
- Pre-requisites:** Ensure the following are installed:
  - JDK 11 is installed
  - Python is installed
- Categories:** Other
- Tags:** Cisco Crosswork, Cisco NSO, Network Service Orchestrator, nso
- Works with:** Universal

**Bottom Screenshot: NSO Developer Studio - Developer IDE**

- Extension Name:** NSO Developer Studio - Developer IDE
- Publisher:** Cisco Crosswork NSO
- Installs:** 410
- Rating:** 5 stars (1 review)
- Price:** Free
- Buttons:** Install, Trouble Installing?
- Overview:** This is the codebase for the NSO IDE Visual Studio Code extension.
- Pre-requisites:** Ensure the following are installed:
  - JDK 11 is installed
  - Python is installed
- Categories:** Other
- Tags:** Cisco Crosswork, Cisco NSO, Network Services Orchestrator, nso
- Works with:** Universal

# Common Mistakes

```
admin@ncs> show packages package oper-status
packages package cisco-cnfo
oper-status file-load-error
oper-status error-info [ "cnf-instance.xml:53
Unknown processing instruction." ]
packages package cisco-ios-cli-6.90
oper-status up
```



```
cnf-instance.xml
48 <chart-name>{../chart-name}</chart-name>
49 <local when="{../local}"/>
50 <chart-repo-name>{../chart-repo-name}</chart-repo-name>
51 <?set-context-node {../../../cnf:cnf/cis
name=$SERVICE_NAME}}?>
52 <?foreach {values/key-value}?>
53 ..... <?expnd copy-key-value?>
54 <?end?>
55 <enable>
56     <debug when="{enable/debug}"/>
57     <dry-run when="{enable/dry-run}"/>
58 </enable>
59 <?if {$IS_MAINTENANCE_ON = 'True'}?>
```

# Why VS Code

# NSO Tools



Zoom in NSO CDB in entirely different way



Integrated Environment



Simplify Service Development



Guide developers to easily create Yang, Templates and Service logic

# NSO Explorer



Connect to running instances of NSO



Browse entire CDB: Configuration data, Operational data, Actions



Capture KeyPath and XPath values



Run Actions

# NSO Developer IDE



Create new NSO packages

Create service points and actions from your Yang file with simple wizards

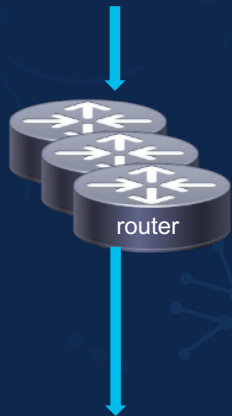
Commonly used code snippets for Yang, Templates, Python and Java

Auto-complete, Navigation, etc.. etc..

# Demo - Explorer

# Demo - IDE

router-service



```
router bgp 200
vrf <SERVICE>-testXR
rd auto
address-family ipv4 unicast
redistribute connected
redistribute static
nexthop trigger-delay critical 2000
!
neighbor 10.10.1.2
remote-as 20
address-family ipv4 unicast
nexthop trigger-delay critical 3000
!
```

# Demo - IDE

Features:

15+

Shortcuts

Create NSO Java package

Common code snippets for yang, java and template

Yang diagram, groupings, types

XML Template processing instructions, context, variable, macro, if, loop

Get KeyPath, Get xml config

General NSO extension IDE features



router-service



```
router bgp 200
vrf <${SERVICES}>-testXR
rd auto
address-family ipv4 unicast
redistribute connected
redistribute static
nexthop trigger-delay critical 2000
!
neighbor 10.10.1.2
remote-as 20
address-family ipv4 unicast
nexthop trigger-delay critical 3000
!
```

# Roadmap



Xpath tools



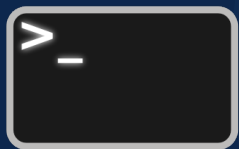
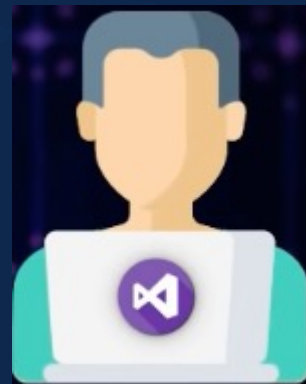
Kicker Helpers

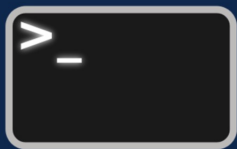
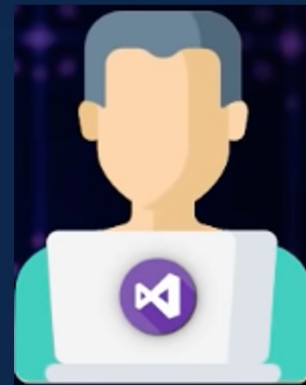


Nano-services designer



Template designer





# Links



## Developer IDE

<https://marketplace.visualstudio.com/items?itemName=CiscoCrossworkNSO.nso-ide>



## Explorer

<https://marketplace.visualstudio.com/items?itemName=CiscoCrossworkNSO.nso-explorer>



## Demo: Python make package

<https://www.youtube.com/watch?v=eJ9VSyjTq4A>



## Feedback

[nsovscode@cisco.com](mailto:nsovscode@cisco.com)

*“A good tool improves the way you work. A great tool improve the way you think”*

Jeff Duntemann



The bridge to possible