



Data Formats: Reading and writing JSON – XML - YAML

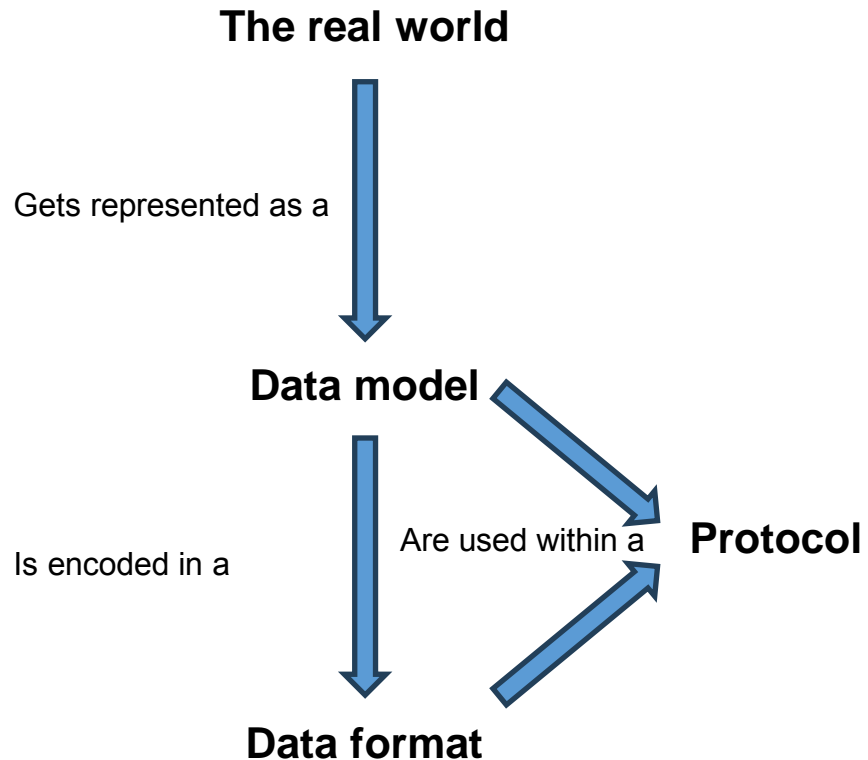
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Public (PU)

Definitions

- Data modelling (YANG, TOSCA)
 - Defines a representation of real-world entities, their relationships and structure
- Data formats (XML, JSON, YAML)
 - Define how to encode the information in a standardized way
- Protocols (NETCONF, RESTCONF, gRPC...)
 - Define the operations, the requests and responses of interactions



Data Serialisation Examples – Human Readable

```
<network>
  <device>
    <type>router</type>
    <vendor>MyOAVvendor</vendor>
    <ports>4</ports>
    <description>Access</description>
  </device>
</network>
```

XML



```
{
  "device": {
    "type": "router",
    "vendor": "MyOAVvendor",
    "ports": 4,
    "description": "Access"
  }
}
```

JSON



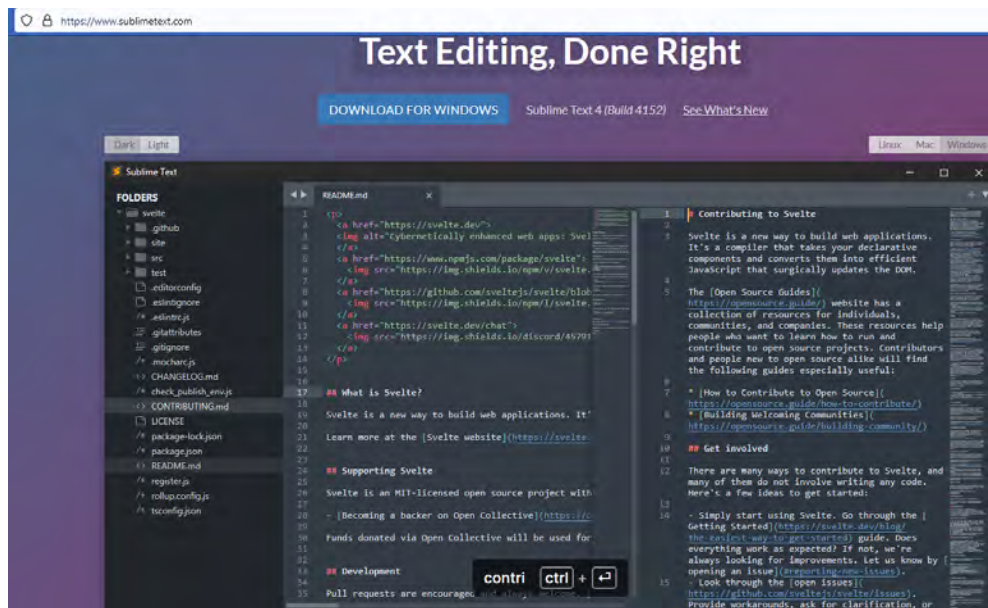
```
---
device:
  type: router
  vendor: MyOAVvendor
  ports: 4
  description: Access
```

YAML

indentation 

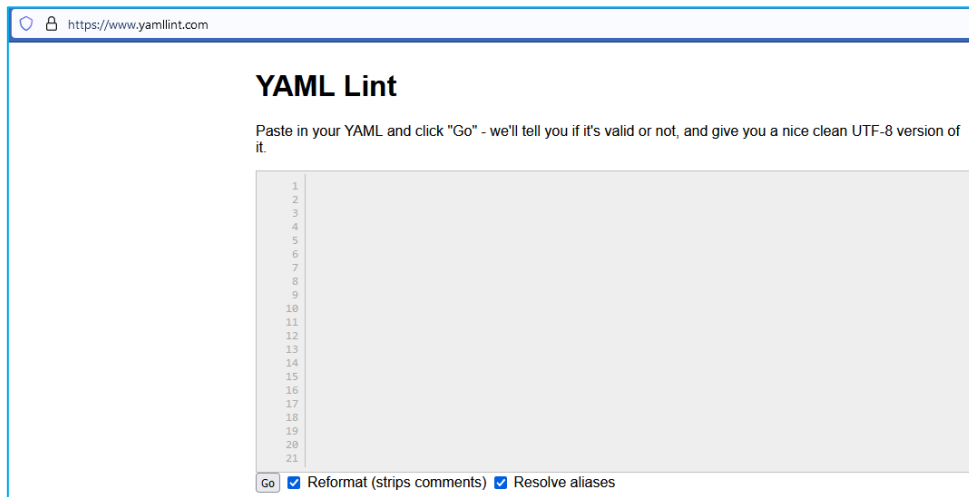
Writing JSON, XML and YAML files

- You can write JSON, XML and YAML files with any text editor like [vim](#) or [emacs](#)
- If you like syntax highlighting, editors/IDEs such as [Visual Studio Code](#), [Notepad++](#), [Sublime](#).



Some Free Tools to Help You Write, Validate and Convert Your Files

- You can check your syntax, format your files or convert them using useful free tools:
 - <https://www.freeformatter.com>
 - <https://www.liquid-technologies.com/online-xml-validator>
 - <https://onlineyamltools.com/edit-yaml>
 - <https://www.yamllint.com/>
 - <https://www.json2yaml.com/>



Some Cases Where We Use JSON, YAML, XML

JSON:

- Web API output (AWS, Google maps, Github, X,...)
- Jenkins
- ELK stack (Elasticsearch, Logstash, Kibana)

XML:

- Jenkins
- NETCONF
- RESTCONF

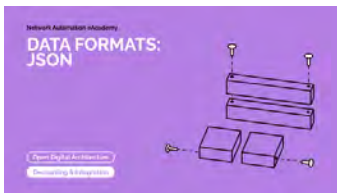
YAML:

- Ansible
- Kubernetes
- Docker

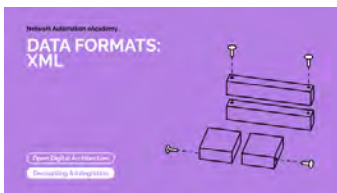
```
<copy-config>
  <target>
    <startup/>
  </target>
  <source>
    <running/>
  </source>
</copy-config>
```

```
- hosts: core
  tasks:
  - name: Describe router interfaces
    ios_interface:
      name:      "{{ item.name }}"
      description: "{{ item.description }}"
      state: present
      provider: "{{ credentials }}"
    with_items:
      - { name: Ethernet0/0, description: "One" }
      - { name: Ethernet0/1, description: "Two" }
```

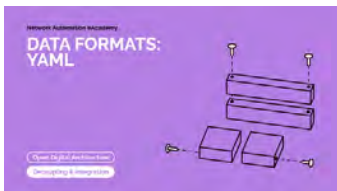
More Information in the Network Automation eAcademy



- [Formats: YAML](#) (30')



- [Formats: XML](#) (60')



- [Formats: JSON](#) (45')



Thank You!

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