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Factory default Setting
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Abstract

This document defines a method to reset a YANG datastore to its factory-default content. The reset operation may be used e.g. during initial zero-touch configuration or when the existing configuration has major errors, so re-starting the configuration process from scratch is the best option.

A new reset-datastore RPC is defined. Several methods of documenting the factory-default content are specified.

Optionally a new "factory-default" read-only datastore is defined, that contains the data that will be copied over to the running datastore at reset.

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Internet-Draft

Factory Default Setting

October 2018

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Table of Contents

1.	Introduction	2
1.1.	Terminology	3
2.	Reset-Datastore RPC	3
3.	Factory-Default Datastore	4
4.	YANG Module	5
5.	IANA Considerations	7
6.	Security Considerations	7
7.	Acknowledgements	8
8.	Contributors	8
9.	References	8
9.1.	Normative References	8
9.2.	Informative References	9
Appendix A.	Open Issues	9
Appendix B.	Changes between revisions	9
	Authors' Addresses	9

[1.](#) Introduction

This document defines a method to reset a YANG datastore to its factory-default content. The reset operation may be used e.g. during initial zero-touch configuration or when the existing configuration has major errors, so re-starting the configuration process from scratch is the best option. When resetting a datastore all previous configuration settings will be lost and replaced by the factory-default content.

A new reset-datastore RPC is defined. Several methods of documenting the factory-default content are specified.

Optionally a new "factory-default" read-only datastore is defined, that contains the data that will be copied over to the running

datastore at reset. This datastore can be used in <get-data> or <copy-config> operations.

NETCONF defines the <delete> operation that allows resetting the <startup> datastore, and the <discard-changes> operation that copies the content of the <running> datastore into the <candidate> datastore. However it is not possible to reset the running datastore, to reset the candidate datastore without changing the running datastore or to reset any dynamic datastore.

A RESTCONF server MAY implement the above NETCONF operations, but that would still not allow it to reset the running configuration.

[1.1](#). Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [BCP 14](#) [[RFC2119](#)] [[RFC8174](#)] when, and only when, they appear in all capitals, as shown here.

The following terms are defined in [[RFC8342](#)] and are not redefined here:

- o startup configuration datastore
- o candidate configuration datastore
- o running configuration datastore
- o intended configuration datastore
- o operational state datastore

The following terms are defined in this document as follows:

- o factory-default datastore: A read-only datastore holding a preconfigured minimal initial configuration that can be used to initialize the configuration of a server. The content of the datastore is usually static, but MAY depend on external factors like available HW.

[2.](#) Reset-Datastore RPC

A new "reset-datastore" RPC is introduced. It will have a target datastore as a parameter. Upon receiving the RPC the YANG server resets the content of the target datastore to its factory-default content. Only writable datastores can be specified as a target.

Read-only datastores receive their content from other datastores (e.g. <intended> gets its content from <running>).

Factory-default content SHALL be specified by one of the following means in order of precedence

1. For the <running>, <candidate> and <startup> datastores as the content of the <factory-default> datastore, if it exists
2. YANG Instance Data [[I-D.lengyel-netmod-yang-instance-data](#)]
3. In some implementation specific manner
4. For dynamic datastores unless otherwise specified the factory-default content is empty.

[3.](#) Factory-Default Datastore

This document introduces a new datastore resource named 'Factory-Default' that represents a preconfigured minimal initial configuration that can be used to initialize the configuration of a server.

- o Name: "factory-default"
- o YANG modules: all
- o YANG nodes: all "config true" data nodes

- o Management operations: The content of the datastore is set by the YANG server in an implementation dependent manner. The content can not be changed by management operations via NETCONF, RESTCONF, the CLI etc. unless specialized, dedicated operations are provided. The contents of the datastore can be read using NETCONF, RESTCONF <get-data> operation. The operations <reset-datastore> or <copy-config> can be used to copy the content of the datastore to another datastore. The content of the datastore is not propagated automatically to any other datastores.
- o Origin: This document does not define a new origin identity as it does not interact with <operational> datastore.
- o Protocols: All e.g. Restconf, Netconf
- o Defining YANG module: "ietf-factory-reset"

The datastore content is usually defined by the device vendor. It is usually static, but MAY change e.g. depending on external factors like HW available or during device upgrade.

On devices that support non-volatile storage, the contents of <factory > MUST persist across restarts

4. YANG Module

```
<CODE BEGINS> file "ietf-factory-reset.yang"
module ietf-factory-reset {
  yang-version 1.1;
  namespace urn:ietf:params:xml:ns:yang:ietf-factory-reset ;
  prefix fres ;

  import ietf-netconf { prefix nc ; }
  import ietf-datastores { prefix ds; }

  organization
    "IETF NETCONF (Network Configuration) Working Group";
  contact
    "WG Web:  <https://tools.ietf.org/wg/netconf/>
```

WG List: <mailto:netconf@ietf.org>

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description

"This module defines the

- reset-datastore RPC
- factory-default datastore
- an extension to the Netconf <copy-config> operation to allow it to operate on the factory-default datastore.

It provides functionality to reset a YANG datastore to its factory-default content.

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The key words 'MUST', 'MUST NOT', 'REQUIRED', 'SHALL', 'SHALL NOT', 'SHOULD', 'SHOULD NOT', 'RECOMMENDED', 'MAY', and 'OPTIONAL' in the module text are to be interpreted as described in [RFC 2119](#) (<https://tools.ietf.org/html/rfc2119>).

This version of this YANG module is part of RFC XXXX (<https://tools.ietf.org/html/rfcXXXX>); see the RFC itself for full legal notices.";

```

revision 2018-10-09 {
    description
        "Initial revision.";
    reference "RFC XXXX: Factory default Setting Capability for
        RESTCONF";
}

feature factory-default-as-datastore {
    description "Indicates that the factory default configuration is
        also available as a separate datastore";
}

rpc reset-datastore {
    description "The target datastore is reset to its factory
        default content. ";

    input {
        leaf-list target-datasore {
            type identityref {
                base "ds:datastore" ;
            }
            min-elements 1;
            description "The datastore(s) whose content will be
                replaced by the factory-default configuration.";
        }
        // Do we need an extra parameter that may order a restart of
        // the YANG-server or the whole system?
    }
}

identity factory-default {
    if-feature factory-default-as-datastore;
}

```

```

    base ds:datastore;
    description "The read-only datastore contains the configuration that
        will be copied into e.g. the running datastore by the
        reset-datastore operation if the target is the running
        datastore.";
}

augment /nc:copy-config/nc:input/nc:source/nc:config-source {

```

```

    if-feature factory-default-as-datastore;
    description " Allows the copy-config operation to use the
        factory-default datastore as a source";
    leaf factory-default {
        type empty ;
        description
            "The factory-default datastore is the source.";    }
    }
}
<CODE ENDS>

```

5. IANA Considerations

This document registers one URI in the IETF XML Registry [[RFC3688](#)]. The following registration has been made:

URI: urn:ietf:params:xml:ns:yang:ietf-factory-reset

Registrant Contact: The IESG.

XML: N/A, the requested URI is an XML namespace.

This document registers one YANG module in the YANG Module Names Registry [[RFC6020](#)]. The following registration has been made:

name: ietf-factory-reset

namespace: urn:ietf:params:xml:ns:yang:ietf-factory-reset

prefix: fres

RFC: xxxx

6. Security Considerations

The <reset-datastore> RPC can overwrite important and security sensitive information in one of the other datastores e.g. running, therefore it is important to restrict access to this RPC using the standard NETCONF/RESTCONF access control methods. [[RFC8341](#)]

sensitive as it is the same on any device of a certain type.

7. Acknowledgements

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9. References

9.1. Normative References

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[9.2.](#) Informative References

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[I-D.lengyel-netmod-yang-instance-data]

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[Appendix A.](#) Open Issues

- o Do we need a restart after <reset-datastore> ? What kind of restart, just the Yang-Server or the full system?
- o Do we need the concept of reboot? How is that different from a restart? Does it result in some sort of reset-datastore?

[Appendix B.](#) Changes between revisions

v02 - v03

- o Restructured
- o Made new datastore optional
- o Removed Netconf capability
- o Listed Open issues

v01 - v02

- o -

v00 - v01

- o -

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