NETCONF Light
draft-schoenw-netconf-light-01

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Motivation

- Constrained devices with limited amounts of memory and processing power can only support a subset of the NETCONF protocol operations.

- Adding full NETCONF support to devices often requires several release cycles (e.g., early releases only support `<copy-config>` but not yet `<edit-config>`).
NETCONF Light uses the NETCONF message framing as defined in [RFC6241]. In particular, it uses the same XML encoding and XML namespace.

A NETCONF Light implementation may choose to not support all NETCONF base operations.

The set of operations supported by a NETCONF Light server is announced to a NETCONF client as features.

A NETCONF Light implementation may support only a limited number of concurrent sessions.

The `<hello>` exchange announces which operations a NETCONF Light server supports.
<hello xmlns="urn:ietf:params:xml:ns:netconf:base:1.0">
    <capabilities>
        <capability>
            module=ietf-netconf-light&
            revision=2012-01-12&
            features=get-config,copy-config
        </capability>
    </capabilities>
    <session-id>4</session-id>
</hello>
⇒ The latest I-D does not require any of the NETCONF operations to be implemented by a NETCONF Light server.
- This avoids defining yet another (sub)set of required protocol operations and provides the greatest amount of implementation flexibility.
- The `<hello>` exchange ensures that clients can determine upfront whether a NETCONF Light implementation supports what is needed.
- Some WG members feel that this is too much flexibility and they prefer that a minimal set of NETCONF operations must be supported by NETCONF Light implementations.
- How much NETCONF is needed for NETCONF Light?
NETCONF [RFC6241] requires implementations to support the SSH transport defined in [RFC6242].

- Some constrained devices do not support SSH and most likely only TLS/DTLS (the security solution for CoAP for example).
- Adding SSH support on such devices just to support NETCONF is very costly.
- Proxying over insecure TCP connections is security wise not an acceptable solution.
- Having different mandatory to implement secure transports for NETCONF and NETCONF Light likely causes interoperability problems.
- Perhaps a REST interface for NETCONF (compatible with CoAP) could solve this problem?
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Network Configuration Protocol (NETCONF).
RFC 6241, Juniper Networks, Tail-f Systems, Jacobs University, Brocade, June 2011.

M. Wasserman.
Using the NETCONF Protocol over Secure Shell (SSH).

Network Configuration Protocol for Constrained Devices (NETCONF Light).
Internet-Draft (work in progress) <draft-schoenw-netconf-light-01>, Jacobs University, Nokia Siemens Networks, Juniper Networks, January 2012.