

Network Working Group  
Internet-Draft  
Intended status: Standards Track  
Expires: April 30, 2015

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October 27, 2014

NETCONF and persistent responses  
draft-mahesh-netconf-persistent-00

## Abstract

This document outlines a solution for NETCONF operations that might be initiated with a single request but require multiple responses to be received, with an ability to terminate the operation at any time.

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Internet-Draft

Persistent NETCONF

October 2014

## 1. Introduction

NETCONF [[RFC6241](#)] protocol is being positioned as a replacement for Command Line Interface (CLI) and Simple Network Management Protocol (SNMP). It is therefore expected that NETCONF will provide all the capabilities that CLI and SNMP offer today and more.

One of the operations that CLI offers today is the ability to issue an operation that might result in multiple responses being returned, till such time that a terminating condition is encountered or when the operation is cancelled. An example of such an operation is when the ping or a traceroute command is issued. In the former case, the operation can continue sending responses back till it is cancelled, while in the latter case there is usually a terminating condition that stops the responses. NETCONF protocol as defined today sends a single Remote Procedure Call (RPC) request and expects a single reply to that request. The "persistent" operation defined above expects multiple responses for a single request, till such time a terminating condition is encountered.

This problem should not be confused with "bulk responses" where one might be dealing with fragments of the same response. It is not enough to have the server collect all the possible responses before responding because in some cases there may not be a response, indicating a failure and it will hold up the NETCONF session till a response is received.

[Section 2](#) suggest at least one solution to this problem.

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in Key words for use in RFCs to Indicate Requirement Levels [[RFC2119](#)].

### 1.1. Terminology

+-----+-----+-----+-----+-----+-----+	
Acronym	Meaning
+-----+-----+-----+-----+-----+-----+	
CLI	Command Line Interface
RPC	Remote Procedure Call

## [2.](#) Solution

The proper solution should address the requirement of multiple responses, fragmented responses and an ability to terminate the request without terminating the NETCONF session. This can be best achieved at the messaging layer in NETCONF, where a single request can result in multiple responses being received and way to associate the multiple responses with the original request.

One of the suggested solutions would look like this. A request goes out with the operation to perform.

```
<rpc message-id="101" link-id="201" xmlns="...">  
  
</rpc>
```

And a reply can come back with either a <rpc-reply> as it happens today or a series of "linked replies" which would look like this.

```
<rpc-reply message-id="101" next-message-id="102" link-id="201"  
xmlns="...">
```

```
</rpc-reply>
```

```
<rpc-reply message-id="102" next-message-id="103" link-id="201"  
xmlns="...">
```

```
</rpc-reply>
```

with the last reply looking like this.

```
<rpc-reply message-id="101" message-id="103" link-id="201"  
xmlns="...">
```

```
</rpc-reply>
```

When the client wants to terminate the task, it issues an `<rpc-cancel>` to terminate the condition. Note, NETCONF currently does not support this particular operation.

```
<rpc-cancel link-id="201">
```

```
</rpc-cancel>
```

And a reply comes back acknowledging that the task was terminated.

```
<rpc-reply>
```

```
<ok/>
```

```
</rpc-reply>
```

### [3.](#) IANA Considerations

### [4.](#) Security Considerations

### [5.](#) Acknowledgements

### [6.](#) References

#### [6.1.](#) Normative References

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.

[RFC6241] Enns, R., Bjorklund, M., Schoenwaelder, J., and A. Bierman, "Network Configuration Protocol (NETCONF)", [RFC 6241](#), June 2011.

#### [6.2.](#) Informative References

[RFC6243] Bierman, A. and B. Lengyel, "With-defaults Capability for NETCONF", [RFC 6243](#), June 2011.

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