

## Quarch Technology Ltd

### Torridon Mini SAS Cable Pull Module

#### Example Scripts:

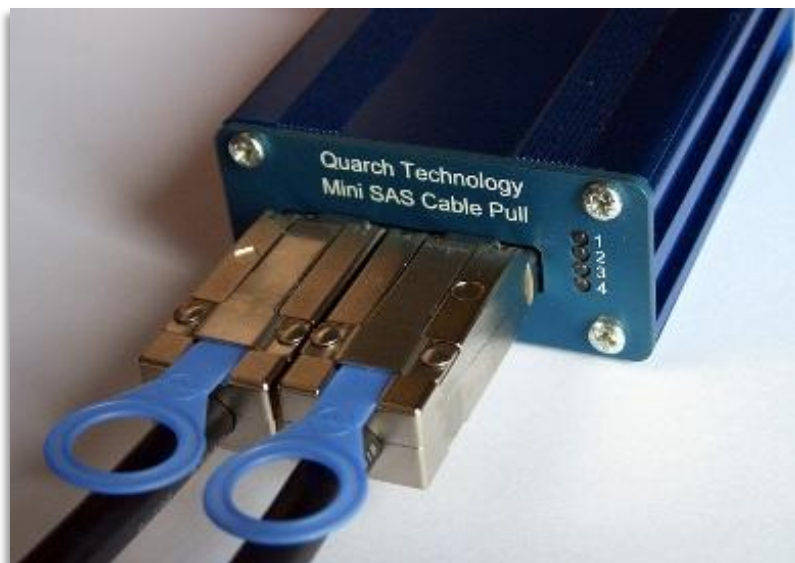
## Fault Injection (Failure in interconnect cable)

For use with:

**QTL1253 – Torridon Mini SAS Cable Pull Module**

Using Quarch firmware version 3.5x

Friday, 20 August 2010



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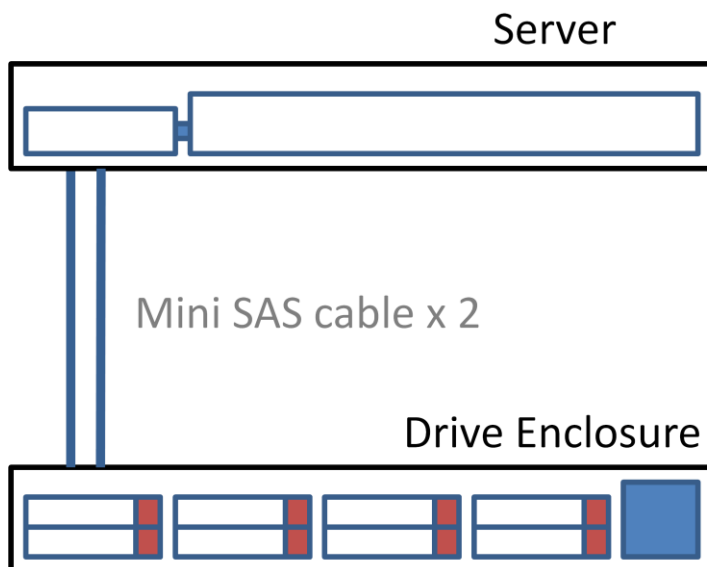
## Failure when drive is plugged

### Introduction

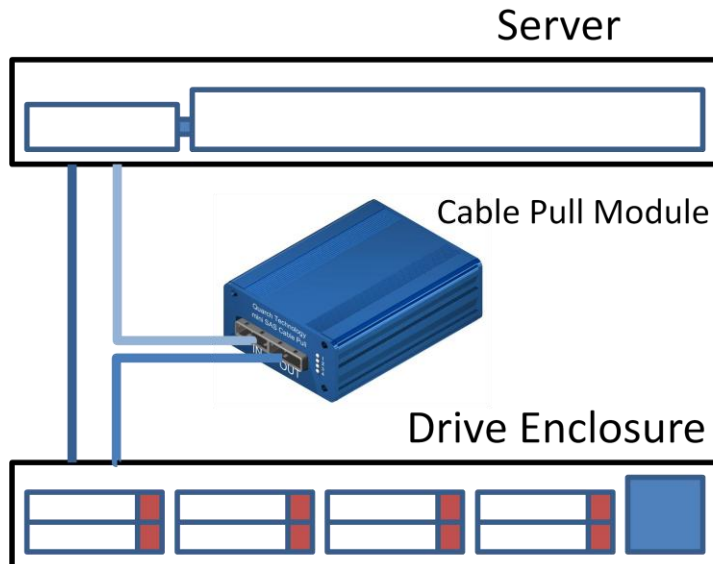
This document demonstrates the use of a Quarch Mini SAS cable pull module in a test environment to intentionally insert a cable fault into a storage system, allowing the systems response to be observed.

Connections can be switched individually or in groups to cause either a fault in a cable or its complete removal, depending on the desired test situation.

In an example configuration, there are two mini-SAS cables between the server and the drive enclosure.



In order inject faults into the system; a mini-SAS cable pull module is connected in series with one of the cables.



Faults can now be injected into the cable.

## Prerequisites

When first connected, the cable-pull module will be in the 'powered up' (connected) state and the system should be running normally. If the cable pull module is not connected, use the command:

*Run:power up* : Initiate a 'plug' operation

## Test Procedure

First we decide which pin(s) to fail. In this case we will choose to fail the entire of lane 0. Lane 0 consists of two differential pairs, one transmitting data in each direction. A total of 4 signals will be disconnected.

In order to disconnect a signal, we need to assign it to a source that is not active. Source 0 is 'always off' so any signal assigned to it will be immediately disconnected.

*>signal:LANE0:source 0*                      -Disconnect the entire of Lane 0

As soon as the command is issued, the lane 0 signals will be disconnected. You should now check your system diagnostics to ensure that the link is correctly marked as failed and that no adverse effects have occurred.

To reconnect the lane, assign LANE0 to a source that is currently active. We will assign the signals back to source 1 (the default). Send the command:

*>signal:LANE0:source 1*                      -Reconnect the entire of Lane 0

## The Final Script

```
# Basic fault injection – Failed lane  
#  
# Add a custom power up sequence here if desired. See tutorial: “Standard Hot-Plug Script”  
#  
# Disconnect the entire of lane 0  
signal:LANE0:source 0  
#WAIT HERE until you have confirmed the action  
#Reconnect lane 0  
signal:LANE0:source 1
```

## Script Variations

### Fail the Tx side of Lane 0

```
# Basic fault injection – Fail Tx side of lane 0  
#  
# Add a custom power up sequence here if desired. See tutorial: “Standard Hot-Plug Script”  
#  
# Disconnect Tx signals on lane 0  
signal:TX0_PL:source 0  
signal:TX0_ML:source 0  
#WAIT HERE until you have confirmed the action  
#Reconnect the signals  
signal:TX0_PL:source 1  
signal:TX0_MN:source 1
```