

# simTestPing

## To avoid the SIM for a backup 3G interface becoming dormant



Issue v1.3

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# 1 Introduction

3G SIMs can become dormant if data is not sent over the 3G link during a defined period of time. Use simTestPing script to periodically send data over the 3G link to avoid the SIM becoming dormant.

This document describes how to use simTestPing script. The script is commonly used in a scenario shown below. The primary connection is via an Ethernet link to an ADSL modem. Note that the script is not concerned with the type of primary link and can be used with any 3G compatible model.

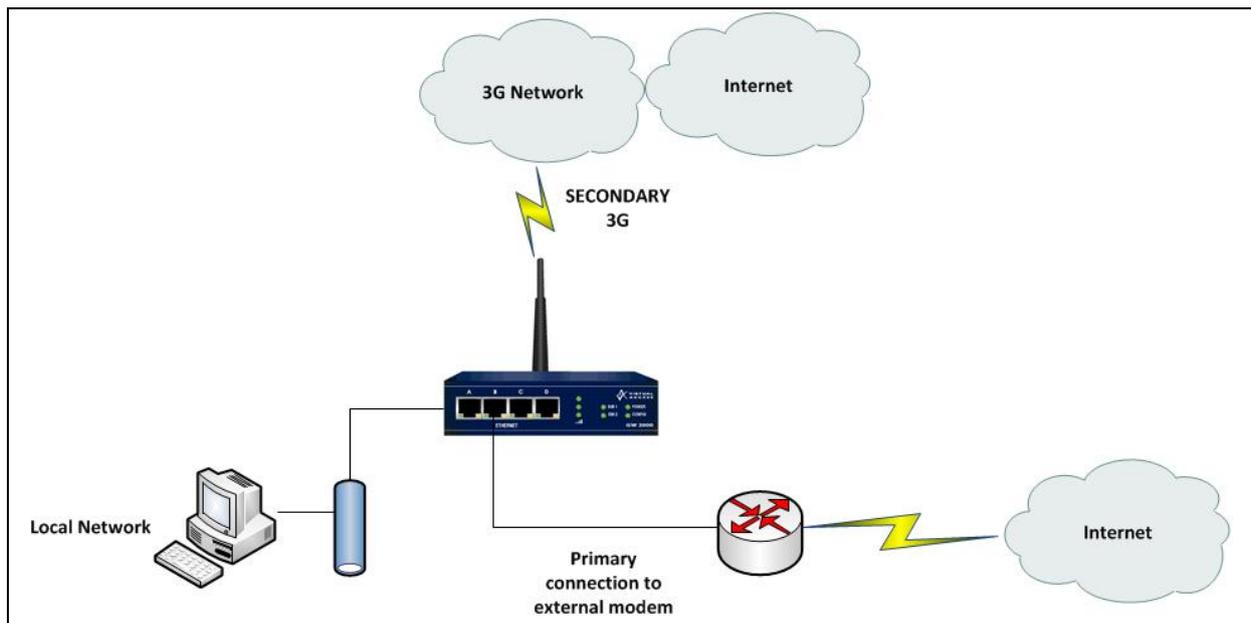


Figure 1: Network architecture

## 2 Configuring a simTestPing script

### 2.1 Script overview

The script is designed to be run on boot. On boot, the script does the following:

- Waits for a configurable period of time. The default period is 180 seconds.
- Checks for a good PPP connection on the 3G link. The script manually connects the 3G link if PPP is down. The script will wait for a configurable period of time for the PPP connection to come up.
- If PPP comes up, static routes are enabled on the fly to the ping targets.
- Three pings are sent to each ping target.
- The static routes are disabled again.
- An event is generated to record the output of the test.
- Waits for a configurable period before repeating the test.

The script will automatically enable static routes at index 39 and 40 to the ping target destinations at the beginning of the test and then disable again at the end

**Note:** This script is not embedded in any firmware image. Copy the script from Section5 'SimTestPing script' and paste into the script editor in the web interface.

### 2.2 Script parameters

The script name is simTestPing and it takes in three required parameters. These parameters are described in the example and table below.

```
simTestPing ppp-2, 1.1.1.1, 2.2.2.2
```

Parameter	Description
ppp-2	The ppp interface for the 3G link.
1.1.1.1	The first IP destination to ping.
2.2.2.2	The second IP destination to ping (this should be set to 0 if no 2nd IP is required).

**Table 1: Three required parameters and their descriptions**

simTestPing can also take a further three optional parameters. These parameters are described in the example and table below.

```
simTestPing 1.1.1.1, 2.2.2.2, 1, 120, 20, 604800
```

Parameter	Description	Default
120	The time to wait after boot in seconds before sending the first set of test pings.	180
20	The time to wait in seconds for PPP to come up after a manual connect of the 3G link before enabling the static routes and sending the set of test pings.	20
604800	The time to wait between tests in seconds.	604800 (7 days)

**Table 2: Three optional parameters and their descriptions**

## 2.3 Configuring the script

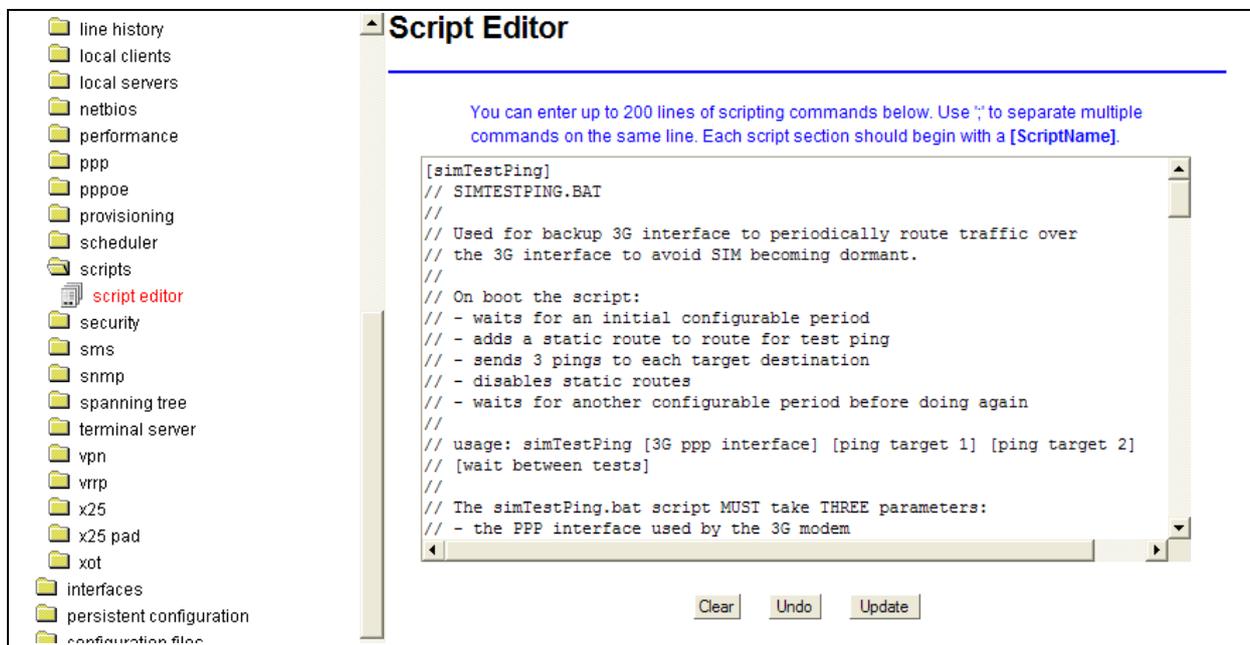
The script is currently not embedded in any firmware image. To use the script first paste the script from Section 5 'SimTestPing script' into the script editor and then use the scheduler to run the script at boot up.

From the start page, click **Advanced** to open the Expert View menu.

### 2.3.1 Pasting the script into the script editor

If you are using 9.09.xx firmware, in the Expert View menu, click **system > scripts > script editor**. The Script Editor page appears.

If you are using 10.00.xx firmware, in the Expert View menu, click **system > management > scripts > script editor**. The Script Editor page appears.



**Figure 2: The script editor page in version 9.09.xx**

Paste in the script from Section 5 'SimTestPing script' from this document. The first line of the script should begin with the script name in square brackets, [simTestPing]. This name will be used to call the script using the scheduler.

If the number of script lines needs to be reduced, you can omit any line beginning with '/' as this denotes a comment tag. Also, you can enter multiple script lines onto the same script editor line separated by ';' (semi colon).

When you have completed the script, click **Update**.

### 2.3.2 Scheduling the script to run on boot

If you are using 9.09.xx firmware, in the Expert View menu, click **system > scheduler > scheduler tasks**. The Scheduler Task Entry page appears.

Click **add** in the Operation column of the list. The Scheduler Task form appears.

If you are using 10.00.xx firmware, in the Expert View menu, click **system > management > scheduler > scheduler tasks**. The Scheduler Task Entry page appears.

Click **add** in the Operation column of the list. The Scheduler Task form appears.

Figure 3: The scheduler task entry page in version 9.09.xx

Field	Description
Enabled	Enables or disables a particular schedule. Set to Yes.
Name	The name associated with the schedule. Enter a descriptive name
Date	The date the script initiates. This field is ignored when frequency is set to start up. Leave at default
Time	The time the script initiates. This field is ignored when frequency is set to start up. Leave at default
Frequency	Sets the frequency the script executes. Set to startup.
Window	This parameter sets how long the system will wait if it is busy before executing the script. For example if the script is set to execute at 10:00 and the window is set to 30 seconds, the system will try executing the script within this window only. Set to 30.
Script	The name of the script to be executed. Enter the script name, followed by the relevant parameters as shown in the above image. Separate the parameters by commas. Example: simTestPing ppp-2, 1.1.1.1, 0, 180, 20, 604800

**Table 3: The scheduler task fields and their descriptions**

### 3 Debugging commands

Useful debug commands via command line are described in the table below.

Diagnostic Command	Description
Show tasks	Displays all running tasks.
Show task <tasknum>	Displays running task. Also indicates position task is currently at.
Show task vars <tasknum>	Displays variables and variable values associated with task.
Show ip route	Displays routing table.
Show events	Displays event log.
Show change log	Displays recent configuration changes.
Dir scripts	Displays all scripts embedded in the firmware.
Show config script ALL	Displays all scripts in the script editor.
Show config script <scriptname>	Displays the <scriptname> script as configured in script editor. Includes line numbers.
Show config script -n <scriptname>	Displays the <scriptname> script as configured in the script editor. Does not include line numbers.

**Table 4: Debug command lines and their descriptions**

Useful trace commands via the command line are described in the table below.

Trace command	Description
++All 6	Traces all INFO events
++ip:icmp	Traces ICMP traffic
++script	Traces script events
--script	Stops script event tracing
--	Stops all event tracing
Trace on <script_name>	Traces each line in a script as it executes
Trace off <script_name>	Turns off tracing for script

**Table 5: Trace command lines and their descriptions**

## 4 Script events

Severity	Class	Subclass	Text
INFO	49	40	simTestPing script error invalid ping targets <ping_targets>
INFO	49	40	simTestPing target <ping_targets> via <ppp_interface> every <period_between_tests> secs
INFO	49	40	simTestPing monitoring def rt <route_index> using <ping target IPs>
INFO	49	40	simtestPing data transmitted and received successfully
INFO	49	40	simtestPing warning data transmitted but not received
INFO	49	40	simTestPing error PPP not establishing

**Table 6: Script events**

## 5 SimTestPing script

```
[simTestPing]
// SIMTESTPING.BAT
//
// Used for backup 3G interface to periodically route traffic over
// the 3G interface to avoid SIM becoming dormant. This script sends
// pings to one or two ping targets.
//
// On boot the script:
// - waits for an initial configurable period
// - adds static route(s) to route for test ping(s)
// - sends 3 pings to each target destination
// - disables static routes
// - waits for another configurable period before doing again
//
// usage: simTestPing [3G ppp if] [ping target 1] [ping target 2]
//
//           [wait between tests]
//
// The simTestPing.bat script MUST take THREE parameters:
// - the PPP interface used by the 3G modem
// - the first ping target
// - the second ping target (0 for no second target)
// - the wait between tests in seconds
//
// The simTestPing.bat script CAN take THREE optional parameters:
// - the initial wait in secs before sending first test pings
//   (def: 180 secs)
// - the time to wait in secs for PPP Up after manual connect
//   (default: 20 secs)
// - the wait between tests in seconds (def: 604800 secs)
//
// Configuration
// -----
// The script will automatically enabled and disable a static route
```

```
// at indexes 39/40 for the test pings
//
// EXAMPLES
// -----
// simTestPing ppp-2, 1.1.1.1, 0
// Waits 180 seconds before enabling a static route (index 39) to
// 1.1.1.1 via ppp-2. 3 test pings are sent to 1.1.1.1. Script
// then waits 7 days before doing again.
//

!arg pppIf, pingTarget1, pingTarget2

$bootWait = $4
$pppWait = $5
$testWait = $6

//defaults
$num_pings = 3
$rtIndex1 = 39
$rtIndex2 = 40
!if bootWait = ''
    $bootWait = 180
!endif
!if pppWait = ''
    $pppWait = 20
!endif
!if testWait = ''
    $testWait = 604800
!endif

//checking
!if pingTarget1 = ''
    $pingTarget1 = 0
!endif
!if pingTarget2 = ''
```

```
$pingTarget2 = 0
!endif

//logging
$logpingstr = $pingTarget1
!if $pingTarget2 <> 0
    $logpingstr = $logpingstr/$pingTarget2
!endif

!if $pingTarget1 = 0
    !if $pingTarget2 = 0
        !log simTestPing script error invalid ping targets $logpingstr
        !exit
    !else
        $pingTarget1 = $pingTarget2
        $pingTarget2 = 0
    !endif
!endif

!if $pingTarget2 = 0
    $rtIndex2 = 0
!endif

!log simTestPing target $logpingstr via $pppIf every $testWait secs

//create static routes but leave unconfigured
$z = `set IP Route Static Configured $rtIndex1 no`
$z = `set IP Route Static Numbered $rtIndex1 no`
$z = `set IP Route Static Target $rtIndex1 $pingTarget1`
$z = `set IP Route Static Mask $rtIndex1 255.255.255.255`
$z = `set IP Route Static Next Hop Interface $rtIndex1 $pppIf`
$z = `set IP Route Static Metric $rtIndex1 1`
!if $pingTarget2 <> 0
    $z = `set IP Route Static Configured $rtIndex2 no`
    $z = `set IP Route Static Numbered $rtIndex2 no`
```

```
$z = `set IP Route Static Target $rtIndex2 $pingTarget2`
$z = `set IP Route Static Mask $rtIndex2 255.255.255.255`
$z = `set IP Route Static Next Hop Interface $rtIndex2 $pppIf`
$z = `set IP Route Static Metric $rtIndex2 1`
!endif
$z = `commit`

!pause $bootWait

!while 1
    !label SIMTEST_START
    $pingPass = 0
    $i = 0
    $z = `sh state ppp $pppIf`
    !if $z[2] = Up
        !goto SIMTEST_PPPUP
    !else
        $z = `connect $pppIf`
    !endif

    //allow 20 secs for connect
    !waitevent ppp.12:$pppIf $pppWait

    !label SIMTEST_PPPUP
    !call simTestChangeRt yes, $rtIndex1, $rtIndex2
    $z = `st ping results reset`
    !while $i < $num_pings
        $z = `quiet ping $pingTarget1 -s e0`
        !if $pingTarget2 <> 0
            $z = `quiet ping $pingTarget2 -s e0`
        !endif
        !pause 3
        !inc i
    !endwhile

    $result = `sh ping replies`
```

```
!if $result > 0
    !log simtestPing data transmitted and received successfully
!else
    !log simtestPing warning data transmitted but not received
!endif

!call simTestChangeRt no, $rtIndex1, $rtIndex2

!endevent

!if $i = 0
    !log simTestPing error PPP not establishing
!endif

!pause $testWait

!endwhile

//toggles static route for test pings
[simTestChangeRt]
!arg enable, idx1, idx2

$z = `set IP Route Static Configured $idx1 $enable`
!if $idx2 <> 0
    $z = `set IP Route Static Configured $idx2 $enable`
!endif

$z = `commit`

$z = `set ip rt reconfigure`
```