Quick Note 35

Configuring SMS alerting on a TransPort

Digi Technical Support
September 2016
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1 INTRODUCTION

1.1 Outline
This document contains information regarding the configuration and use of syslog alerting.

All Digi TransPort products contain an Event Log. Whenever the TransPort firmware does any significant operation, an event is stored in the Event Log. Each event can be used to trigger an automatic email, SNMP trap, syslog alert, or an SMS message (on products with GPRS/WCDMA).

1.2 Assumptions
This guide has been written for use by technically competent personnel with a good understanding of the communications technologies used in the product, and of the requirements for their specific application.

This Application Note (AN) applies to:

Models shown: Digi TransPort WR21.
Other Compatible Models: All Digi TransPort products.
Firmware versions: 5.146 or newer.

Configuration: This AN assumes that the Digi TransPort product has a PPP instance configured to connect to the Internet. The SIM card in use on the router is activated correctly and supports sending SMS text messages.

Alerts will be configured to notify a mobile phone via SMS when the PPP connection on the WAN interface changes its UP/DOWN status.

1.3 Corrections
Requests for corrections or amendments to this AN are welcome and should be addressed to:
tech.support@digi.com

Requests for new ANs can be sent to the same address.

1.4 Version & Revision History

<table>
<thead>
<tr>
<th>Version Number</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>Published</td>
</tr>
<tr>
<td>1.1</td>
<td>Updated screenshots and instructions for new web interface, rebranding (Sept 2016)</td>
</tr>
</tbody>
</table>
2  CONFIGURATION

2.1  Configuring the Event Logcodes

First, it is necessary to choose which events should trigger the SMS alerts.

The Event Logcodes are configured from Configuration - Alarms > Event Logcodes. The list of events and trigger priorities is held in a file called logcodes.txt. When the event logcodes are changed, the changes will not appear in the config.dao or logcodes.txt files, but are stored in the logcodes.dif file once the changes have been saved.

In order to send an SMS alert when a particular event occurs, the Alarm Priority for the event should be changed. There can be a number of reasons for each event. Each event can be configured with a global Alarm Priority which applies to all the reasons. It is also possible to override the global event Alarm Priority with a different Alarm Priority for each reason.

In the example below, the Event 5 “%e %a down” will be used to trigger an SMS alert when PPP 1 is down, and Event 153 “PPP 1 up” will be used to trigger an SMS alert when PPP 1 is up.

Navigate to Configuration - Alarms > Event Logcodes

The logcodes describe the logged events. It is possible to configure each event / reason with a specific priority which can be used to control when that event / reason causes an alarm to be created.

<table>
<thead>
<tr>
<th>Event Description</th>
<th>Filter</th>
<th>Event Priority</th>
<th>Reasons</th>
<th>Reason Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Power-up [%a]</td>
<td></td>
<td>1 Reboot command</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 Reboot command via web</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 Message shortage reboot</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 Buffer shortage reboot</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 Buffers excessive</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 MsgLog</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 High CPU usage</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8 Locked task %c</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>9 Watchdog timeout</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 Reboot command via [Digi Server</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>11 Python script watchdog</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>12 ESPAD request</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>13 ASY transmit watchdog</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>14 Cloud SMS command</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 Power failure</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The following table describes the meaning of each column:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event</td>
<td>A numerical value that represents the event.</td>
</tr>
<tr>
<td>Description</td>
<td>The main description of the event.</td>
</tr>
<tr>
<td>Filter</td>
<td>If the Filter is ON, this event will not be logged.</td>
</tr>
<tr>
<td>Event Priority</td>
<td>The priority that the event current has assigned. This is the alarm priority.</td>
</tr>
<tr>
<td>----------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Reasons</td>
<td>The reason that the event is triggered.</td>
</tr>
<tr>
<td>Reason Priority</td>
<td>The priority that the reason currently has assigned. This is the alarm priority.</td>
</tr>
</tbody>
</table>

Click on the **%e %a down** event (event number 5):

| 5   | %e %a down |
| 1   | Inactivity |
| 2   | Remote disconnect |
| 3   | LL disconnect |
| 4   | Upper layer reg |
| 5   | Negotiation failure | 2 |
| 6   | Retransmit failure |
| 7   | DISC transmit |
| 8   | TEL failure |
| 9   | TEL lost | 5 |
| 10  | Lower deactivated |
| 11  | DISC receive |
| 12  | B Channel clr |
| 13  | Protocol failure |
| 14  | PPP Ping Failure |
| 15  | PPP Tx Link Failure |
| 16  | Call Req Timeout |
| 17  | LCP Echo Failure |
| 18  | Rebooting |
| 19  | Firewall Request |
| 20  | Timeband Off |
| 21  | Max up time |
| 22  | Max negotiation time |
| 23  | LL remote disconnect |
| 24  | WEP request |
| 25  | CLI request |
On the following page, configure the Alarm Priority:

**Configuration - Alarms > Event Logcodes**

- **Event Settings**
- **Event Logcodes**

**Event: %e %a down**
- Do not log this event
  - Log Priority: [0]
  - Alarm Priority: [9]

- Alarm Priority is dependent on the event being logged by Entity [All]
  - instance [0]

Priority only applies to:
- [PPP 0]
- [PPP 1]
- [PPP 2]
- [PPP 3]
- [PPP 4]
- [PPP 5]
- [PPP 6]
- [PPP 7]

- Store a snapshot of the Traffic Analyser trace on the log drive if this event creates an Email alarm
  - [Attach a snapshot of the Traffic Analyser trace]
    - After this event:
      - [Leave the Analyser trace]
      - [Freeze the Analyser trace]
      - [Delete the Analyser trace]

- [Attach a snapshot of the Event Log]
  - After this event:
    - [Leave the Event Log]
    - [Delete the Event Log]

Attachment List ID: [0]

If this event creates a Syslog alarm, use
- Syslog Priority: [Info]
- Syslog Facility: [User]

**Apply**

Click the “Apply” button.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm Priority</td>
<td>9</td>
<td>Change the Alarm Priority to 9; this will be used later.</td>
</tr>
</tbody>
</table>
Repeat the process for Event 153, 'PPP 1 up':

**Configuration - Alarms > Event Logcodes**

<table>
<thead>
<tr>
<th>Event Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>153</td>
<td>PPP 1 up</td>
</tr>
<tr>
<td>154</td>
<td>PPP 2 up</td>
</tr>
<tr>
<td>155</td>
<td>PPP 3 up</td>
</tr>
<tr>
<td>156</td>
<td>PPP 4 up</td>
</tr>
</tbody>
</table>

**Event Settings**

**Event Logcodes**

- **Save All Event Code Changes**

**Event: PPP 1 up**

- Do not log this event
- Log Priority: 0
- Alarm Priority: 0

- Alarm Priority is dependent on the event being logged by Entity:
  - All
  - Instance 0

**Priority only applies to**

- PPP 0
- PPP 1
- PPP 2
- PPP 3
- PPP 4
- PPP 5
- PPP 6
- PPP 7

- Store a snapshot of the Traffic Analyser trace on the log drive
- If this event creates an Email alarm
  - Attach a snapshot of the Traffic Analyser trace
    - After this event: Leave the Analyser trace
    - Freeze the Analyser trace
    - Delete the Analyser trace
  - Attach a snapshot of the Event Log
    - After this event: Leave the Event Log
    - Delete the Event Log

**Attachment List ID:** 0

- If this event creates a Syslog alarm, use
  - Syslog Priority: Info
  - Syslog Facility: User

**Apply**

Click the “Apply” button.
Optional step:

If required, alerts can be locked to a specific PPP interface by using the parameter “Alarm Priority is dependent on the event being logged by Entity” and configuring it as the PPP interface in use.

When all changes to the Logcodes are complete, scroll to the top of the screen, and then click ‘Save All Event Code Changes’ to save the changes to the logcodes.dif file.
2.2 Configuring the Event Settings

In the Event Settings, the delay after power up should be long enough for the router to detect and register on the mobile network. Increase this if required.

The mobile number entered to send SMS alerts to should be in MSISDN format. The ‘+’ symbol and/or leading zero should not be used. The Country Code should be included.

UK example: 44xxxxyyyyyy
US example: 1xxxxyyzzzz

The SMS alarm priority (Send SMS messages to <MSISDN> if the alarm priority is at least <nn>) should be set to a number the same or higher than the alarm priority configured for the event in the previous steps.

If the alarm priority on the Event Settings page is set to 9, then every event (or event reason) with an alarm priority of 9=> will trigger an SMS alert. i.e. 9, 10, 11, 12....

The SMS template should be set to event.sms to use the included factory default template. Custom templates can be created if required.

The maximum number of SMS per day should be configured to take into account the SMS charges on the tariff in use.
Navigate to Configuration - Alarms > Event Settings > SMS and configure the following parameters:

**Configuration - Alarms > Event Settings**

**Event Settings**

Only log events with a log priority of at least [ ]

Do not log the following events:

After power up, wait [60] seconds before sending Emails, SNMP traps, SMS or Syslog messages

Include event number in the event log and Email, SNMP traps, SMS or Syslog messages

**Email Notifications**

**SNMP Traps**

**SMS**

Send SMS messages to [1234567890] if the alarm priority is at least [9]

Send SMS messages to [ ] if the alarm priority is at least [0]

Send SMS messages to [ ] if the alarm priority is at least [0]

Use SMS template [event.sms]

Send a maximum of [20] SMS messages per day

0 SMS messages have been sent today

**Local Logging**

**Syslog Messages**

**Syslog Server 0**

**Syslog Server 1**

**Syslog Server 2**

**Syslog Server 3**

**Syslog Server 4**

Click the "Apply" button.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>After power up, wait ( nn ) seconds before sending Emails, SNMP traps,</td>
<td>60</td>
<td>Delay in seconds, after power up, before alerts will be sent.</td>
</tr>
<tr>
<td>SMS or Syslog messages</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Send SMS messages to...</td>
<td>Mobile phone number</td>
<td>Must be in MSISDN format.</td>
</tr>
<tr>
<td>...if the alarm priority is at least ( nn )</td>
<td>9</td>
<td>Events with an alarm priority equal or greater than this number will trigger an alert.</td>
</tr>
<tr>
<td>Use SMS template</td>
<td>event.sms</td>
<td>The message template to use.</td>
</tr>
<tr>
<td>Send a maximum of ( nn ) SMS messages per day</td>
<td>20</td>
<td>The maximum number of alerts to send per day. This counter is reset at midnight.</td>
</tr>
</tbody>
</table>
To test that the TransPort is configured correctly and prove that SMS alerts work when PPP is down (PPP status has no effect on SMS functions), the PPP interface should be set so it does not try and reconnect automatically when deactivated. The PPP interface will then be disconnected, when the SMS is received, the PPP interface will be re-activated and a second SMS will be sent when PPP is up.

Only perform this test when connected to the router via the LAN because the WAN connection will now be disconnected and will require a manual re-connect.

Configure the PPP interface to not reconnect automatically:

Navigate to Configuration - Network > Interfaces > Advanced > PPP 1 > Advanced

Remove the tick from ‘Enable "Always On" mode of this interface’ and click the Apply button:

Click the “Apply” button.
Navigate to **Management - Connections > PPP Connections > PPP 1** and click the **Drop Link** button.

**NOTE:** The connection to the Internet will disconnect.

**Management - Connections > PPP Connections > PPP 1**

![Image of PPP connection settings]

When the PPP link is dropped, this will create an event in the Event Log and an SMS will be sent.

The events in **Management - Event Log** will look similar to this:

14:56:19, 14 Sep 2016, SMS send, Sent OK
14:56:18, 14 Sep 2016, Modem disconnected on asy 4,1
14:56:17, 14 Sep 2016, PPP 1 down, WEB request

**NOTE:** The event that triggered the SMS is shown in red for clarification. Colouring of text in the actual Event Log does not happen.

The received SMS is shown here:

![Received SMS]

Event: 14:56:17, 14 Sep 2016, PPP 1 down, WEB request
Configure the PPP interface to reconnect automatically:

Navigate to **Configuration - Network > Interfaces > Advanced > PPP 1 > Advanced**

Insert the tick in ‘Enable "Always On" mode of this interface’.

Click the “Apply” button.

After a few seconds the PPP interface will reconnect. When PPP 1 is up, an SMS will be sent. This can be seen in the Event Log:

```
14:58:01, 14 Sep 2016, SMS send, Sent OK
14:57:51, 14 Sep 2016, PPP 1 up
14:57:51, 14 Sep 2016, PPP 1 Start
14:57:51, 14 Sep 2016, Modem connected on asy 4
14:57:47, 14 Sep 2016, Modem dialing on asy 4 #:*98*1#
14:57:39, 14 Sep 2016, Par change by username, ppp 1 autoassert to 1
```
The received SMS is shown here:

![Event:
14:57:51, 14 Sep
2016,PPP 1 up](image)

The number of SMS messages sent by the router since midnight can be checked by navigating to **Configuration - Alarms > Event Settings**. The number of messages sent is shown in the **SMS** section. This is the total number of alerts sent to all configured mobile numbers.

### Configuration - Alarms > Event Settings

- **Event Settings**
  - Only log events with a log priority of at least 0
  - Do not log the following events:
    - After power up, wait [60] seconds before sending Emails, SNMP traps, SMS or Syslog messages
    - Include event number in the event log and Email, SNMP traps, SMS or Syslog messages

- **Email Notifications**

- **SNMP Traps**

- **SMS**
  - Send SMS messages to [1234567890] if the alarm priority is at least 9
  - Send SMS messages to __ if the alarm priority is at least 0
  - Send SMS messages to __ if the alarm priority is at least 0

- Use SMS template `event.sms`
- Send a maximum of __20__ SMS messages per day

**5 SMS messages have been sent today**
4  CONFIGURATION FILES

4.1  TransPort Configuration Files

Relevant portions of the configuration are bold.

Command: config c show

Command result

eth 0 IPaddr "192.168.1.1"
addp 0 enable ON
lapb 0 ans OFF
lapb 0 tinact 120
lapb 1 tinact 120
lapb 3 dtemode 0
lapb 4 dtemode 0
lapb 5 dtemode 0
lapb 6 dtemode 0
ip 0 cidr ON
def_route 0 ll_ent "ppp"
def_route 0 ll_add 1
dhcp 0 respdelms 500
dhcp 0 mask "255.255.255.0"
dhcp 0 gateway "192.168.1.1"
dhcp 0 DNS "192.168.1.1"
sntp 0 server "time.devicecloud.com"
sntp 0 offset -8
snmp 0 dstonmon 1
snmp 0 dstonday 1
snmp 0 dstoffmon 12
snmp 0 dstoffday 31
dyndns 0 ifent "default"
ppp 0 timeout 300
ppp 1 name "W-WAN"
ppp 1 phonenum "+*98*1#"
ppp 1 IPIaddr "0.0.0.0"
ppp 1 timeout 0
ppp 1 use_modem 1
ppp 1 aodion 1
ppp 1 autoassert 1
ppp 1 r_chap OFF
ppp 1 radiuscfg 0
ppp 3 defpak 16
ppp 4 defpak 16
web 0 prelogin_info ON
modemcc 0 asy_add 4
modemcc 0 info_asy_add 2
modemcc 0 init_str "+CGREQ=1"
modemcc 0 init_str1 "+CGQMIN=1"
modemcc 0 apn "Your.APN.goes.here"
modemcc 0 link_retries 10
modemcc 0 stat_retries 30
modemcc 0 sms_interval 1
modemcc 0 sms_access 1
modemcc 0 sms_concat 0
modemcc 0 init_str_2 "+CGREQ=1"
modemcc 0 init_str1_2 "+CGQMIN=1"
modemcc 0 apn_2 "Your.APN.goes.here"
modemcc 0 link_retries_2 10
modemcc 0 stat_retries_2 30
modemcc 0 sms_access_2 1
modemcc 0 sms_concat_2 0
ana o l10n ON
ana o lapdon o
ana o asyon 1
ana o logsize 45
cmd o unitid "ss%s>"
cmd o cmdnua "99"
cmd o hostname "digi.router"
cmd o anonftp ON
cmd o tremto 86400
cmd o rcihttp ON
user o access 0
user 1 name "username"
user 1 epassword "PDZxUxQeFB0="
user 1 access 0
user 2 access 0
user 3 access 0
user 4 access 0
user 5 access 0
user 6 access 0
user 7 access 0
user 8 access 0
user 9 access 0
local o transaccess 2
event o sms_max 20
event o smstemp "event.sms"
event o sms_to "1234567890"
event o sms_trig 9
event o action_dly 60
sslcli o verify 10
sslsvr o certfile "cert01.pem"
Below are the contents of the logcodes.dif file. Manual configuration of the logcodes.dif is outside the scope of this AN; if further instruction is required, please contact tech.support@digi.com

4.2  TransPort Firmware Versions

Firmware / hardware information from the unit:

**Command: ati5**

**Command result**

Digi TransPort WR21-U81B-DE1-XX Ser#:xxxxxx HW Revision: 1201a
Software Build Ver5.2.15.6.  Aug 17 2016 17:42:05  WW
ARM Bios Ver 7.56u v43 454MHz B987-M995-F80-O0,0 MAC:00042d042ac6
Power Up Profile: 0
Async Driver        Revision: 1.19 Int clk
Ethernet Port Isolate Driver Revision: 1.11
Firewall            Revision: 1.0
EventEdit           Revision: 1.0
Timer Module        Revision: 1.1
(B)USBHOST          Revision: 1.0
<table>
<thead>
<tr>
<th>Protocol</th>
<th>Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>L2TP</td>
<td>1.10</td>
</tr>
<tr>
<td>PPTP</td>
<td>1.00</td>
</tr>
<tr>
<td>TACPLUS</td>
<td>1.00</td>
</tr>
<tr>
<td>MODBUS</td>
<td>0.00</td>
</tr>
<tr>
<td>RealPort</td>
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<td>MultiTX</td>
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</tr>
<tr>
<td>LAPB</td>
<td>1.12</td>
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<tr>
<td>X25 Layer</td>
<td>1.19</td>
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<tr>
<td>MACRO</td>
<td>1.0</td>
</tr>
<tr>
<td>PAD</td>
<td>1.4</td>
</tr>
<tr>
<td>X25 Switch</td>
<td>1.7</td>
</tr>
<tr>
<td>V120</td>
<td>1.16</td>
</tr>
<tr>
<td>TPAD Interface</td>
<td>1.12</td>
</tr>
<tr>
<td>GPS</td>
<td>1.0</td>
</tr>
<tr>
<td>TELITUPD</td>
<td>1.0</td>
</tr>
<tr>
<td>SCRIBATSK</td>
<td>1.0</td>
</tr>
<tr>
<td>BASTSK</td>
<td>1.0</td>
</tr>
<tr>
<td>PYTHON</td>
<td>1.0</td>
</tr>
<tr>
<td>CLOUDSMS</td>
<td>1.0</td>
</tr>
<tr>
<td>TCP (HASH mode)</td>
<td>1.14</td>
</tr>
<tr>
<td>TCP Utils</td>
<td>1.13</td>
</tr>
<tr>
<td>PPP</td>
<td>5.2</td>
</tr>
<tr>
<td>WEB</td>
<td>1.5</td>
</tr>
<tr>
<td>SMTP</td>
<td>1.1</td>
</tr>
<tr>
<td>FTP Client</td>
<td>1.1</td>
</tr>
<tr>
<td>FTP</td>
<td>1.4</td>
</tr>
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<td>IKE</td>
<td>1.0</td>
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<tr>
<td>PollANS</td>
<td>1.2</td>
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<tr>
<td>PPPOE</td>
<td>1.0</td>
</tr>
<tr>
<td>BRIDGE</td>
<td>1.1</td>
</tr>
</tbody>
</table>
MODEM CC (GOBI UMTS)  Revision: 5.2
FLASH Write       Revision: 1.2
Command Interpreter  Revision: 1.38
SSLCLI       Revision: 1.0
OSPF          Revision: 1.0
BGP           Revision: 1.0
QOS           Revision: 1.0
PWRCTRL       Revision: 1.0
RADIUS Client  Revision: 1.0
SSH Server     Revision: 1.0
SCP            Revision: 1.0
SSH Client     Revision: 1.0
CERT           Revision: 1.0
LowPrio       Revision: 1.0
Tunnel        Revision: 1.2
OVPN          Revision: 1.2
TEMPLOG       Revision: 1.0
QDL            Revision: 1.0
OK