



Vodafone MachineLink

Event Notification Configuration Guide

Document History

This guide covers the following products:

- Vodafone MachineLink 4G Lite NWL-221
- Vodafone MachineLink 4G Lite NWL-222
- Vodafone MachineLink 4G Lite NWL-224

Ver.	Document Description	Date
v. 1.0	Initial document release.	November 2019

Table i - Document revision history



Note – Before performing the instructions in this guide, please ensure that you have the latest firmware version installed on your router.

Visit <http://vodafone.netcommwireless.com> to download the latest firmware.



Note – The functions described in this document require that the router is assigned with a publicly routable IP address.

Please ensure that your mobile carrier has provided you with a publicly routable IP address before performing the instructions in this document.

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Note – This document is subject to change without notice.

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Introduction

This document provides you all the information you need to set up, configure and use the Vodafone- MachineLink Series routers.

Target audience

This document is intended for system integrators or experienced hardware installers who understand telecommunications terminology and concepts.

Prerequisites

In order to configure your Vodafone- MachineLink Series router you will need an electronic computing device with a working Ethernet network adapter and a web browser such as Internet Explorer®, Mozilla Firefox® or Google Chrome™.

Notation

Notation

The following symbols are used in this user guide:



Note – The following note provides useful information.



Important – The following note includes important information that may require attention.



Warning – The following note provides a warning.

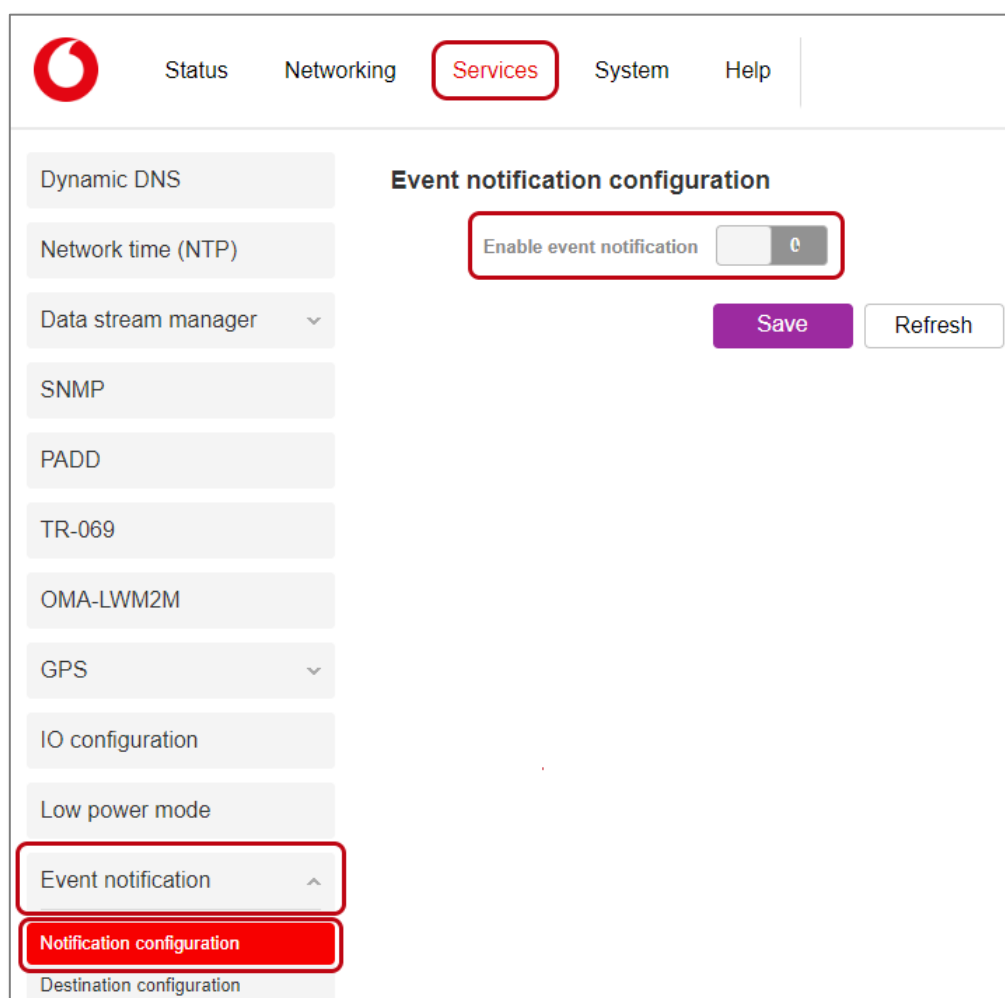
Event notification Overview

The event notification feature is an advanced remote monitoring tool providing you with the ability to send alerts via SMS, e-mail, TCP or UDP when pre-defined system events occur.

This document describes the types of events for which alerts can be sent and outlines the steps necessary to configure a notification.

To enable this feature click **Services** on the main menu at the top, then select **Event notification** from the menu on the left.

The **Event notification configuration** screen with **Enable event notification** switch set to “0” will show.



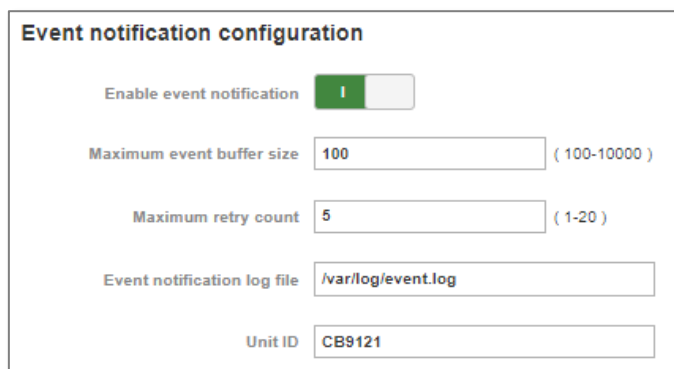
Slide the with **Enable event notification** switch to the left until it changes colour to green and is set to “1”.

The **Event notification configuration** options will show.

Event notification configuration

The **Event notification configuration** screen is used to select the event types, methods of notification and the destinations for the notifications.

Up to four types of alerts for a particular event may be sent to a single destination profile containing the contact details.



The screenshot shows the 'Event notification configuration' interface. It includes a toggle switch for 'Enable event notification' which is currently turned on (green). Below this are three input fields: 'Maximum event buffer size' set to 100 (range 100-10000), 'Maximum retry count' set to 5 (range 1-20), and 'Event notification log file' set to /var/log/event.log. At the bottom, the 'Unit ID' is set to CB9121.

Item	Description
Enable event notification	Toggles the event notification feature on and off.
Maximum event buffer size	Specifies the buffer size for event notifications which failed to be delivered or are yet to be sent. The minimum size is 100 and the maximum is 10000.
Maximum retry count	Specifies the maximum number of attempts that the router will make to deliver an event notification. The range is between 1 and 20.
Event notification log file	Specifies to the location and name of the file used to log the event notification activity.
Unit ID	This is the identifier for the router which is sent in the event notifications so that you know which router has had an event.

Event types

The screenshot below shows the event configuration screen for the Vodafone- MachineLink Series routers. Hovering the mouse over the event description on the user interface provides more details of the event notification type.

Event description	Event ID	Email	TCP	UDP	SMS	Command	Destination profile	Filter
Unit powered up	1	☒	☐	☐	☒	☐	Default v	
Unit rebooted	2	☐	☐	☐	☐	☐	Default v	
Link status change	3	☐	☐	☐	☒	☐	Default v	
WWAN IP address change	4	☐	☐	☐	☐	☐	Default v	
WWAN Registration change	5	☐	☐	☐	☐	☐	Default v	
WWAN Cell ID change	6	☐	☐	☐	☐	☐	Default v	
WWAN technology change	7	☒	☐	☐	☐	☐	Default v	
Number of connected Ethernet interfaces change	8	☐	☐	☐	☐	☐	Default v	
Login status	10	☐	☐	☐	☒	☐	Default v	
WAN failover instance occurred	12	☒	☐	☐	☒	☐	Default v	
Digital input change	15	☐	☐	☐	☐	☐	Default v	Configure
Analog input threshold	16	☐	☐	☐	☐	☐	Default v	Configure
Digital output change	17	☐	☐	☐	☐	☐	Default v	Configure
FOTA/DOTA status	20	☐	☐	☐	☐	☐	Default v	
Hardware reset settings change	21	☐	☐	☐	☐	☐	Default v	
VRRP mode change	22	☐	☐	☐	☐	☐	Default v	
USB OTG status change	23	☐	☐	☐	☐	☐	Default v	
GPS GEOFENCE status change	24	☐	☐	☐	☒	☐	Default v	

The table below lists all the event types that are currently available on Vodafone- MachineLink Series routers.

No.	Event	Description	Example message
1	Unit powered up	Notification is sent when the unit is powered up through connection of a power source or after a soft-reset.	Power is up
2	Unit rebooted	Notification is sent when the unit is rebooted via Web UI, SMS diagnostics or via command line/telnet session.	Rebooting triggered by internal application
3	Link status change	Notification is sent if the status of the data connection profile or any IPSec/OpenVPN/PPTP/GRE tunnel endpoint changes i.e. the link goes up or down.	Profile 1 WWAN status changed : down --> up
4	WWAN IP address change	Notification is sent if an active data connection profile's WWAN IP address changes.	WWAN IP address changed : N/A --> 10.103.4.149
5	WWAN Registration change	Notification is sent if the network registration status changed between "registered", "unregistered" or "roaming".	WWAN registration status changed : Not registered --> Registered to home network
6	WWAN Cell ID change	Notification is sent if the router connects to a different cell, marked by a changed in the Cell ID.	Cell ID changed : --> 15224145 Cell ID changed : 15224148 --> 15224145
7	WWAN technology change	Notification is sent if the router connects to a different network technology, e.g. 3G/2G.	WWAN network changed : N/A --> 3G(UMTS) WWAN network changed : 3G(UMTS) --> 2G(GSM)
8	Number of connected Ethernet interfaces change	Notification is sent if there is a change to the number of directly connected Ethernet interfaces.	Ethernet device number changed : 0 --> 1
10	login status	Notification is sent when the root or admin account logs in, fails to log in (e.g. authentication failure), logs out manually or logs out by session timeout.	Failover instance occurred: N/A --> wwan.0 Failover instance occurred: eth.0 --> wwan.0
11	WAN failover instance occurred	Notification is sent if the WAN connection fails over between WAN interfaces.	Failover instance occurred: N/A --> wwan.0 Failover instance occurred: eth.0 --> wwan.0
12	Digital input change	Notification is when a digital input pin changes state for the time configured in the filter.	IO pin 1 now high IO pin 2 now low
13	Analog input threshold	Notification is sent if an IO pin configured as an analog input reaches a specified high or low voltage for a specified period.	IO pin 1 now high IO pin 2 now low
14	Digital output change	Notification is sent if an IO pin configured as a digital output goes high or low for a specified period.	IO pin 1 now high IO pin 2 now low
15	FOTA/OTA status	Notification is sent with the result of the Firmware Over-The-Air via SMS or TR-069.	FOTA/OTA: upgrading firmware successful
16	Hardware reset settings change	Notification is sent when the reset button is enabled or disabled in the web user interface.	Reset button is enabled
17	VRRP mode change	Notification is sent when VRRP mode changes between master to slave.	VRRP is in backup mode
18	USB OTG status change	Notification is sent when a USB device is connected or disconnected.	USB OTG status changed: disabled → connected
19	GPS GEOFENCE status change	Notification is sent when entering or leaving a geofence radius.	GPS GEOFENCE status changed (latitude: -33.807242, longitude: 151.148293, radius 15 km): out → in

IO event configuration

IO events have an additional configuration screen which can be accessed by clicking on the **Configure** button for the chosen event type. Note that pins which do not have a configuration that matches the event type have their options greyed out, for example, a pin configured as an analogue input or digital output may not be configured to notify on digital input change. Check the configuration of the IO pins before configuring the event notification for IO events.

Each IO event can be configured to notify both when a high and a low value is reached for a specified period of time provided in milliseconds. The analog input IO event also allows you to specify the high and low voltage thresholds that must be reached for the specified period before a notification is sent.



Note – Take care when setting the IO event notification values since certain configurations may result in a large number of notifications being sent and this can cause additional data to be consumed or SMS messages to be sent which can lead to additional charges on your wireless broadband account.

Digital input change

Event notification configuration
Filter: Digital input change
Pin types are configured in IO Configuration

Pin	Notify when high	Notify when low	Must be high for (ms)	Must be low for (ms)
Pin 1	☐	☐	500	500
Pin 2	☐	☐	500	500
Pin 3	☐	☐	500	500

Save
Cancel

Analog input threshold

Event notification configuration

Filter: Analog input threshold

Pin types are configured in IO Configuration

Pin	Notify when high	Notify when low	Must be high for (ms)	Must be low for (ms)	High threshold (V)	Low threshold (V)
Pin 1	☐	☐	500	500	0	0
Pin 2	☐	☐	500	500	0	0
Pin 3	☐	☐	500	500	0	0

Save
Cancel

Digital output change

Event notification configuration

Filter: Digital output change

Pin types are configured in IO Configuration

Pin	Notify when high	Notify when low	Must be high for (ms)	Must be low for (ms)
Pin 1	☐	☐	500	500
Pin 2	☐	☐	500	500
Pin 3	☐	☐	500	500

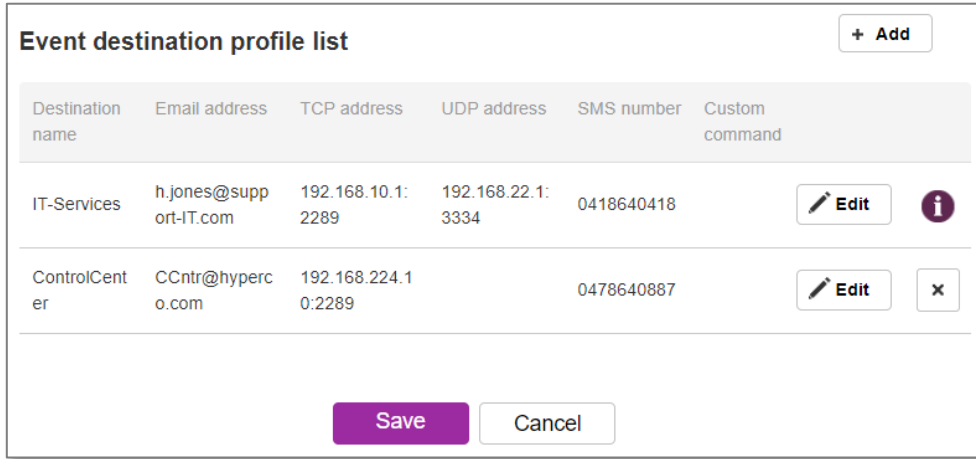
Save
Cancel

Destinations

A “destination” is a profile on the router containing the contact details of a recipient of event notification alerts i.e. the e-mail address, SMS number, TCP or UDP server addresses of the recipient. The destination profile must contain the details of at least one destination type in order to be used.

Destination configuration

The Destination configuration screen displays a list of the destination “profiles” that have been configured on the device as well as providing the option to add new profiles.



Destination name	Email address	TCP address	UDP address	SMS number	Custom command
IT-Services	h.jones@support-IT.com	192.168.10.1:2289	192.168.22.1:3334	0418640418	
ControlCenter	CCntr@hyperco.com	192.168.224.10:2289		0478640887	

To add a new destination profile:

- 1 Click the **+Add** button at the top right corner of the window. The Event destination edit screen is displayed.
- 2 In the **Destination name** field enter a name for the destination profile then enter the contact details for the each type of destination i.e. Email address, TCP address and port, UDP address and port and/or SMS number.
- 3 Click the **Save** button when you have entered the required details.

To edit a destination profile:

- 1 From the Event destination list, click the edit button for the corresponding destination profile. The Event destination edit page is displayed. Make the required changes.
- 2 Click the **Save** button.

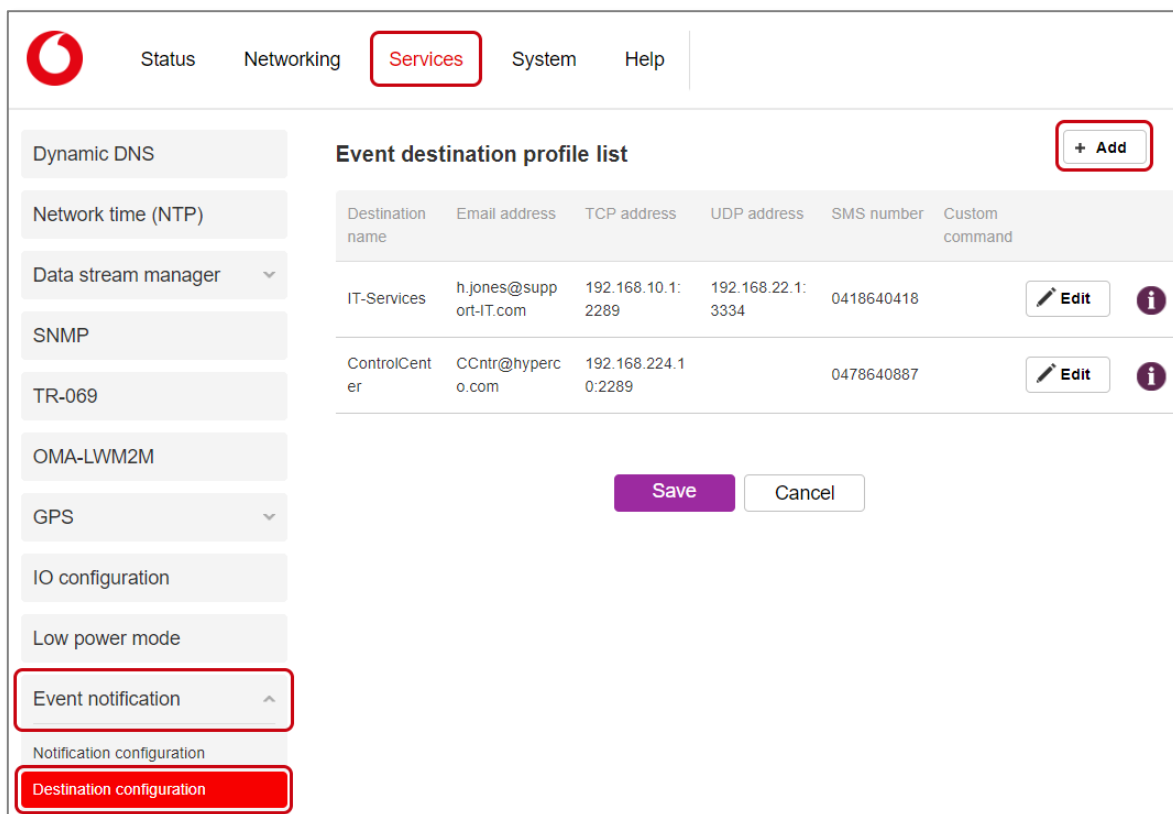
To delete a destination profile:

- 1 From the Event destination list, select the delete button for the corresponding destination profile that you would like to delete. If the destination profile is linked to an event notification type, the **i** button is displayed instead of the delete button. In this case, you must go to the **Notification configuration** screen and remove the check marks from all the notification types for each event for which the destination profile is configured. When you have done that, return to the Event destination list and select the delete button.
- 2 Click the **Save** button.

Configuring Event notification

To configure the event notification feature:

- 1 Click the **Services** menu item at the top of the screen. From the **Event notification** menu on the left of the screen, select the **Destination configuration** menu item.



The screenshot shows the NetCommWireless configuration interface. The top navigation bar includes 'Status', 'Networking', 'Services' (highlighted with a red box), 'System', and 'Help'. On the left sidebar, the 'Event notification' menu item is highlighted with a red box, and its sub-item 'Destination configuration' is also highlighted with a red box. The main content area is titled 'Event destination profile list' and features a '+ Add' button (highlighted with a red box). Below the title is a table with the following data:

Destination name	Email address	TCP address	UDP address	SMS number	Custom command	
IT-Services	h.jones@support-IT.com	192.168.10.1:2289	192.168.22.1:3334	0418640418		 
ControlCenter	CCntr@hyperco.com	192.168.224.10:2289		0478640887		 

At the bottom of the table, there are 'Save' and 'Cancel' buttons.

- 2 Click the **+Add** button at the top right corner of the window.
The **Event destination profile settings** screen is displayed.

Event destination profile settings

Destination name

Email address Requires [Outbound email](#) configuration

TCP address

TCP port (1-65535)

UDP address

UDP port (1-65535)

SMS number

Custom command

Note: The SMS messages sent by the Event notification feature are regarded as Diagnostic messages. This should be taken into consideration when configuring the maximum number of Diagnostic text messages that the router may send over a specified period. See the [Diagnostics](#) section for details on limiting the number of sent text messages.

- 3 In the **Destination name** field enter a name for the destination profile then enter the contact details for each type of destination i.e. Email address, TCP address and port, UDP address and port and/or SMS number.
- 4 Click the **Save** button when you have entered the required details.
- 5 From the Event notification menu on the left of the screen, select the **Notification configuration** menu item.
- 6 Select the **Enable event notification** toggle key to turn it to the **ON** position.

Event notification configuration

Enable event notification ☒

- 7 If desired, set the following:
 - a **Maximum event buffer size**
 - b **Maximum retry count**
 - c **Event notification log file**
 - d **Unit ID**

 **Note** – Refer to the **Event notification configuration** section on page 6 of this guide for more information on these settings.

- 8 From the **Destination profile** column, use the drop-down menus to select the desired destination profiles to use for the corresponding events. In the example the two destinations are *IT-Services* and *ControlCenter*.

Event description	Event ID	Email	TCP	UDP	SMS	Command	Destination profile	Filter
Unit powered up	1	☐	☐	☐	☒	☐	ControlCenter	
Unit rebooted	2	☒	☐	☐	☒	☐	IT-Services	
Link status change	3	☐	☐	☐	☐	☐	ControlCenter	
WWAN IP address change	4	☐	☒	☐	☐	☐	IT-Services	
WWAN Registration change	5	☐	☐	☐	☐	☐	ControlCenter	

- 9 Move your mouse over the selected **Destination profile** to see address and action details set for each to the profiles.
- 10 Based on those notification destination settings, select the ☒ checkboxes for the types of notifications to send to the chosen destination profile.

If the Destination profile does not contain the required contact details, a pop-up warns you to enter the required details in the Destination profile.

- 11 Click the **Save** button.



Note – If you have selected the Email notification type for any of the events, you must also configure Email client settings to allow the router to send e-mail messages.