

4G Camera Solution

4G WiFi M2M Router
NTC-140W
Security Camera
ACTi B97



Introduction

The NetComm Wireless **4G Camera Solution** has been developed to improve productivity and increase profitability of system integrators.

The demand for wireless camera solutions is growing constantly. Applications include construction companies who want to visually track the progress of a project and share it with investors, retailers of all sizes who want a camera in their store to improve security, local governments who want to install cameras in remote locations to monitor traffic or improve on street security, etc.



NTC-140W - 4G WiFi M2M Router ACTi B97 - Security Camera

Designed to serve as either a standalone solution or a starter kit to a more complex solution, the NetComm Wireless **4G Camera Solution** will guide you through the setup and configuration of a design which includes an industrial grade NetComm Wireless 4G WiFi M2M Router, an ACTi B97 IP Security Camera and all other accessories to make the solution work – first time.

Although this document guides you through an example setup, we at NetComm Wireless hope to leave you with a great impression of how easy it is to work with our robust and powerful M2M equipment and that you may gain the skills and experience to consider far more complex solutions using similar equipment.

This bundle is useful in many applications including remotely monitoring a construction site, a car park or an outdoor event.



Package contents

The 4G Camera Solution includes:



NetComm Wireless NTC-140W
4G WiFi M2M Router



ACTi B97 IP
Security Camera



1 x Power over Ethernet
(PoE) Injector (PSU-0015)



1 x NTC-140W Power
supply unit (PSU-0039)

Pre-requisites

- 📶 A SIM card with a publically routable IP address – if you wish to access the camera or its video stream remotely (from a machine not connected to the local area network).
- 📶 An additional Ethernet cable for configuration from a laptop.
- 📶 Depending on your chosen location for the Router, the Power over Ethernet Injector and the Camera, you may require an additional Ethernet cable to cover this distance.

Router configuration

For installation instructions, please refer to the Quick Start Guide included in the 4G M2M WiFi Router package. When you have installed the router as described in the Quick Start Guide, continue to the next section of this guide to configure the router and camera for use together.

Configuring the NetComm Wireless router for use with the camera

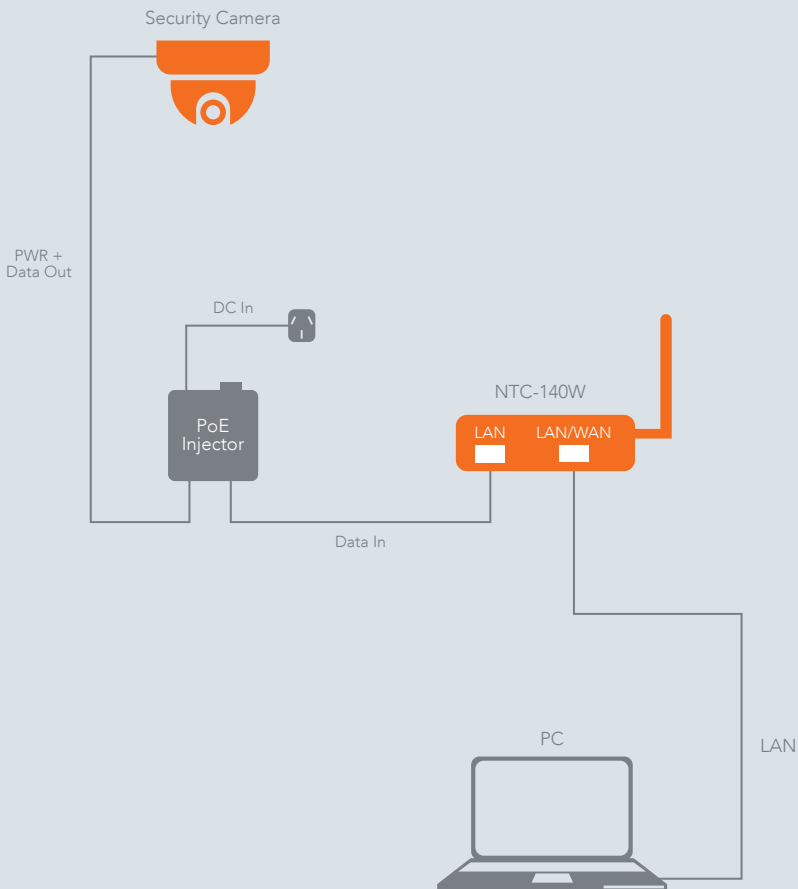
Configuring the router for use with the camera involves the following steps:

1. Determining the camera's DHCP IP address
2. Configuring the camera with a static IP address
3. Forwarding the required ports to the camera
4. Configuring the Dynamic DNS (required for remote access if mobile broadband account does not have a static IP address)

1. Determining the camera's DHCP IP address

When the camera is connected to the router, it is assigned an address dynamically. In order to connect to the camera for the initial setup, you need to find out its address.

a) Connect the IP security camera to the router as pictured below.



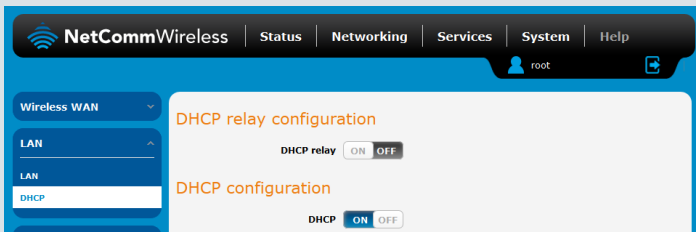
b) Using a web browser, navigate to **http://192.168.1.1**. Log in to the 4G WiFi M2M Router with the following credentials:

Username: **root**

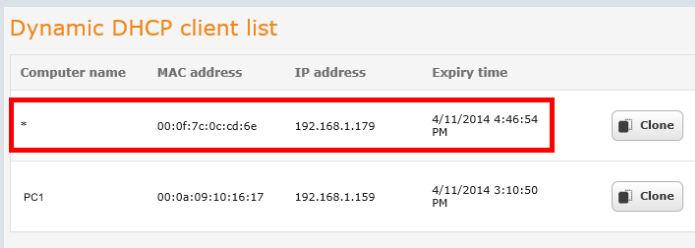
Password: **admin**

Further instructions on logging in to the router are described in the 4G WiFi M2M Router Quick Start Guide.



c) Select the **Networking** menu item, then the **LAN** menu on the left and finally select the **DHCP** item.



d) Scroll to the bottom of the page to the **Dynamic DHCP client list**.



The screenshot shows the 'Dynamic DHCP client list' table. The table has four columns: 'Computer name', 'MAC address', 'IP address', and 'Expiry time'. There are two entries: one with a '*' in the computer name and IP address 192.168.1.179, and another with 'PC1' as the computer name and IP address 192.168.1.159. Each entry has a 'Clone' button to its right. The first entry is highlighted with a red border.

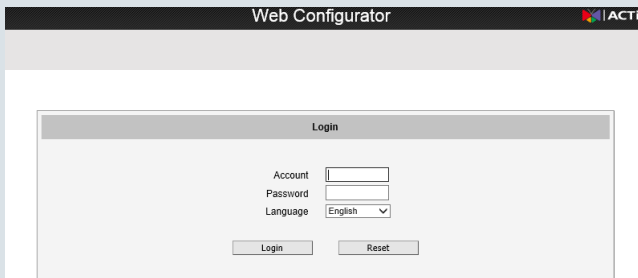
Computer name	MAC address	IP address	Expiry time	
*	00:0f:7c:0c:cd:6e	192.168.1.179	4/11/2014 4:46:54 PM	
PC1	00:0a:09:10:16:17	192.168.1.159	4/11/2014 3:10:50 PM	

The camera and your connected computer appear in the DHCP client list. To identify the camera's IP address, use a process of elimination. By first identifying your computer in the list (usually via the hostname), you can determine which entry is the camera's. When you have done so, take note of the camera's IP address. In this example, it is 192.168.1.179.

2. Configuring the camera with a static IP address

So that you can access the camera with the same address in future, it is important to assign the camera with an IP address that doesn't change.

- a) Open a new tab in your browser and navigate to the camera's dynamically assigned IP address. The screenshot below shows a browser accessing an ACTi camera via its dynamically assigned address of 192.168.1.179:



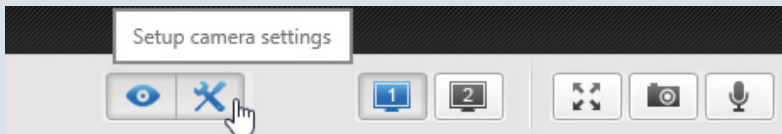
- b) Log in to the router using the following credentials:

Account: **Admin**

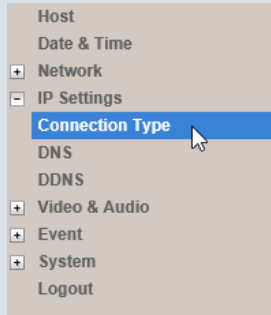
Password: **123456**

Click the **Login** button.

- c) From the menu bar along the top of the screen, select the **Setup camera settings** icon as shown below.



- d) Using the menu on the left of the screen, navigate to **IP Settings** -> **Connection Type**.



The Connection Type page is displayed.

Connection Type*

Dynamic IP Address

Use host name

Static IP Address

PPPoE

- e) Select the Static IP Address option then enter a static IP address for the camera within the router's IP address range. Since the NetComm Wireless router uses the DHCP range of 192.168.1.X, configure the camera's address to something in this range that is not in use, for example 192.168.1.101. Set the Gateway address to 192.168.1.1. An example screenshot is shown below.

Connection Type*

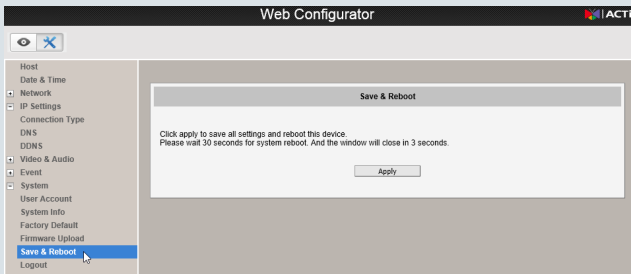
Dynamic IP Address

Static IP Address

IP Address
 Subnet Mask
 Gateway

PPPoE

- f) Select the **Apply** button. The camera informs you that the new IP settings will only take effect after you perform the **Save & Reboot** function of the camera. Select the **OK** button on the message window.
- g) From the menu on the left side of the screen, select the **System** menu then select the **Save & Reboot** item.

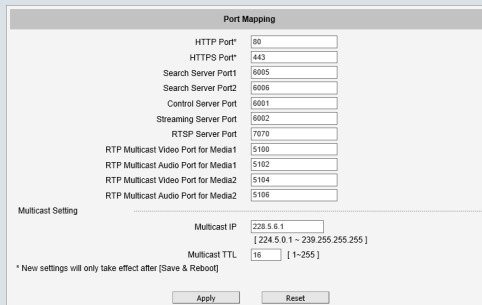


- h) Select the **Apply** button. The camera saves the settings and reboots. Wait 30 seconds for the camera to reboot before attempting to connect to it again.

3. Forwarding the required ports to the camera

Each model of camera uses a range of virtual network ports to send and receive data. Due to the nature of connecting through a router with network address translation, it is necessary to inform the router of the camera's ports so that all features work.

- a) In the same browser tab you used to access the camera, navigate to the camera's new IP address e.g. <http://192.168.1.101>. Log in again using the same credentials as before.
- b) From the menu on the left side of the screen, select the **Network** menu then select the **Port Mapping** item. The port mapping page is displayed.



The screenshot shows the 'Port Mapping' configuration page. It contains a list of services with their corresponding ports in input fields:

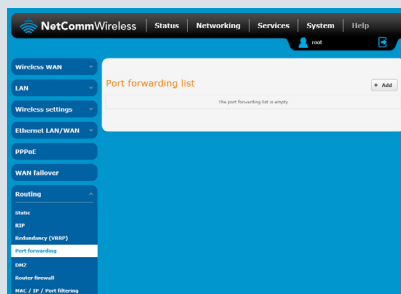
- HTTP Port*: 80
- HTTPS Port*: 443
- Search Server Port1: 6005
- Search Server Port2: 6006
- Control Server Port: 6001
- Streaming Server Port: 6002
- RTSP Server Port: 7070
- RTP Multicast Video Port for Media1: 5100
- RTP Multicast Audio Port for Media1: 5102
- RTP Multicast Video Port for Media2: 5104
- RTP Multicast Audio Port for Media2: 5106

Below this list is a 'Multicast Setting' section with the following fields:

- Multicast IP: 224.0.0.1
- Multicast TTL: 16

At the bottom, there are 'Apply' and 'Reset' buttons. A note states: '* New settings will only take effect after [Save & Reboot]'.

- c) If you wish to use the default ports, make a note of these port numbers so that you can forward them on the router in the next step. Otherwise, enter the ports you wish to use for the camera and click the **Apply** button.
- d) In the same browser tab you used to access the 4G WiFi M2M Router, log in to the NetComm Wireless router again as you did in step 1.b).
- e) Select **Networking -> Routing -> Port forwarding**



f) Select the **+Add** button. The Port forwarding settings page is displayed.

Port forwarding settings

Protocol: TCP

Original IP address:

Original port range (From): (1-65535) (To): (1-65535)

Destination IP address:

Destination port range (From): (1-65535) (To): (1-65535)

Buttons: Save, Reset, Cancel

g) Add the required forwarding rules one at a time. For example, to forward port 80 to the camera with a static IP address of 192.168.1.101, enter the details as follows:

Port forwarding settings

Protocol: All

Original IP address: 0 . 0 . 0 . 0

Original port range (From): 80 (1-65535) (To): 80 (1-65535)

Destination IP address: 192 . 168 . 1 . 101

Destination port range (From): 80 (1-65535) (To): 80 (1-65535)

Buttons: Save, Reset, Cancel

The **Original IP address** setting of 0.0.0.0 means that the router forwards traffic from any source address. You can add a range of ports by entering the first port in the range in the **(From)** fields and the last port in the **(To)** fields. Click the **Save** button when you have entered the required details.

The screenshot below shows the router configured to forward the required ports for an ACTi security camera configured with a static IP address of 192.168.1.101.

Port forwarding list


Protocol	Original IP address	Original port range	Destination IP address	Destination port range		
ALL	0.0.0.0	80 - 80	192.168.1.101	80 - 80		
ALL	0.0.0.0	5006 - 5006	192.168.1.101	5006 - 5006		
ALL	0.0.0.0	6001 - 6006	192.168.1.101	6001 - 6006		

+ Add

4. Configuring Dynamic DNS (required for remote access if mobile broadband account does not have a static IP address)

Most mobile broadband providers assign WAN IP addresses dynamically. If your carrier assigns IP addresses dynamically and you want to access the camera remotely, it is best to use a Dynamic DNS service so that you can use a single hostname to access the camera even when the IP address changes.

- a) Select **Services** then click the **DDNS configuration** toggle key to enable Dynamic DNS.
- b) Use the **Dynamic DNS** dropdown list to select your Dynamic DNS provider.
- c) Enter your **Host name**, **Username** and **Password** then click the **Save** button.



The screenshot shows the NetCommWireless web interface. The top navigation bar includes 'Status', 'Networking', 'Services', 'System', and 'Help'. The user is logged in as 'root'. On the left sidebar, 'Dynamic DNS' is selected. The main content area is titled 'DDNS configuration' and features a toggle switch for 'DDNS configuration' set to 'ON'. Below this, there is a dropdown menu for 'Dynamic DNS' with 'www.dhs.org' selected. There are four input fields: 'Host name', 'Username', 'Password', and 'Verify password'. A 'Save' button is located at the bottom right of the configuration area.

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The setup is complete. You can access the camera remotely using the Dynamic DNS host name. After logging in to the camera, a live view of the camera's vision is displayed.



Product Warranty

For product warranty terms and conditions please refer to the individual guides for your devices.

Safety and product care

Please refer to the user guide for safety and product care information.



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