

# AN-101: DCAP Internet Connectivity

## Property Internet Requirements

The Internet service required by the DCAP is quite modest. In normal operation, the DCAP autonomously pushes out a daily report via email or FTP once a day, generally in the early morning hours, so the impact on a shared Internet connection is negligible. Only during system maintenance will access to the DCAP be required.

There are three options to provide the DCAP with Internet service.

### Share an existing Internet connection (most common)

Connect the DCAP to an existing Internet connection such as that used by the property manager or leasing office. The advantage is that the dedicated Internet connection costs can be avoided, and the property has a vested interest to ensure the Internet is up and functioning. In rare cases you may need to contact the property's IT group if they have setup any security measures on their router, but for the most part this is a plug and play operation.

### Use Tehama's CellConnect system

This plug and play solution includes the pre-configured cellular modem hardware *and* the Internet service plan on the Sprint cellular network all in a pre-paid package with one, two, or three year terms. The primary advantage to this option is that you don't need to rely on property infrastructure. Tehama manages the interface with the cellular provider and by aggregating the services of all CellConnect modems we are able to provide very low cost plans. After the initial term, a typical annual plan is \$150, or just \$12.50 a month.

### Dedicated Internet connection (least common)

Contract with the local Internet Service Provider (ISP), usually the local telephone or cable provider, to provide a dedicated Internet connection. The lowest or slowest speed grade/package from the ISP is more than sufficient. In most cases the ISP will provide a combined Modem/Router box to install at the site, with the Router functioning to create a local LAN to which you can connect the DCAP.

When choosing this option, a further choice needs to be made whether to purchase a less expensive package with a Dynamic IP address, or pay a little extra to get a Static IP address. There is little reason to select the Static option since our RemoteConnect access code does not depend on the IP of the service.

## RemoteConnect System

Regardless of the type of Internet connection used by the DCAP, access to the DCAP will most likely utilize our RemoteConnect mechanism in conjunction with an Access Code. The Access Code is a unique serial number programmed by Tehama into every DCAP. A PC with the CIT software and access to the Internet can then use the Access Code and password to connect to the DCAP.

Under normal operation the DCAP simply collects data from the radio network and pushes out the daily reads by email or FTP. There is no interaction required with the DCAP for it to operate once it has been configured.

When users need to access the DCAP remotely, for system maintenance or immediate data access for move-in/move-out or billing dispute issues, they use our CIT software which implements our RemoteConnect mechanism to access the DCAP behind the property/router firewall. This system works similar to Skype and other similar services by connecting through a relay server to facilitate the connection.

In most cases, there is absolutely no configuration needed at the property to support the RemoteConnect system. Just plug in the DCAP to the property router and you are good to go.

However, if you are unable to use an Access Code to remotely connect to a DCAP, it is likely that the property has implemented security measures and you will need to contact their IT department and give them the following information:

### RemoteConnect Connection specifics (for IT group):

Please contact Tehama for specific ports and IP addresses our DCAP needs to have a connection with.

## Port Forwarding

[Port forwarding](#) is the old way for our CIT software tool to access a remote DCAP over the Internet; it has been superseded by the RemoteConnect mechanism above and is unlikely to be needed. However for historical purposes the information is still presented here as some older DCAPs still use this method.

### Port Forwarding requirements (for IT group)

- Assign a stable IP using a [DHCP](#) reservation. The MAC address of each DCAP is labeled on the side or back panel.
- Enable port 1716 to be associated with the reserved IP address
- Enable port 1717 to be associated with the reserved IP address

Once this port forwarding setup is completed, you will be able to access the DCAP using the Router's public IP address, and the router will send the requests directly to the DCAP. When you setup a DHCP reservation in the router, you will need to power cycle the DCAP for it to use the newly assigned IP address.

If required by the IT department, the DCAP can be assigned a true static IP address, however this is not the preferred way of fixing the DCAP IP address.

### **Setting the DCAP to use a Static IP address**

If the IT group does not wish to set a DHCP reservation for fixing the internal IP address of the DCAP, you can configure the DCAP to use a fixed static IP behind the Router (aka the local LAN). This IP address must match the IP address set in the Port Mapping steps during Router Configuration.

To change the DCAP's IP to static:

- a) Attach the DCAP's Ethernet cable to the Router, and the USB cable to your laptop computer that is running the CIT tool.
- b) From the CIT's Menu, go to Config --> DCAP, then select the USB Connection tab. If a COM port field is blank, hit the Refresh button. Then click the "Get info" button.
- c) As sent from the factory, the DCAP will be set to DHCP mode (meaning it has a Dynamic IP address on the local LAN). The Dynamic IP address will be displayed in the Address field.
- d) If the DCAP is being configured at the Site, the address displayed gives you the first three digits of the Static IP to be assigned. If the DCAP is being configured in the office before site installation, the local LAN address range will need to be known.
- e) Select Static IP in the Mode drop-down.
- f) Take the Address from Step d), and enter it in the Address field. Change the last number to 90 (i.e. 192.168.1.90). If you are familiar with the network, you can select any address you like, but 90 is recommended to minimize interfering with the Router's DHCP lease pool which usually starts at 100. Make sure it is the same value used in Router configuration section above.
- g) In the Gateway field, set it to the same address in step 4, but with the last digit as a 1 (i.e. 192.168.1.1).
- h) The Mask field should be set to 255.255.255.0
- i) Hit the save button and let the DCAP reboot.

## Internet Protocol (IP) Address Tutorial

**Public IP:** The IP address visible to the world. You can access a device from anywhere in the world over the Internet using the public IP address. This is also called the External IP address (External to the LAN).

**Private IP:** The IP address of a device behind a Router or Firewall. Local IP addresses are not accessible from the public Internet unless Port Forwarding has been setup. This is also known as the Local or LAN IP address.

**LAN:** Acronym for Local Area Network, which is the local Ethernet and/or WiFi network administered by the router and protected from the public Internet by the router's firewall.

**Static IP address:** This is an IP address that is fixed and will not change.

**Dynamic IP address:** A Dynamic IP address is assigned through a mechanism called Dynamic Host Configuration Protocol or DHCP. The DCAP will query the DHCP server (usually in the Router) and request an IP address. This IP address comes with a "lease time" and is typically 24 hours. DHCP leases are renewed after the lease time expires, and will rarely change if the DCAP is always active (i.e the renewed lease will have the same IP address).

**DHCP Reservation:** A DHCP reservation tells the DHCP server to always associate the assigned IP address to a unit with the provided MAC address. MAC addresses are world wide unique for every Internet connected device,

Note: DCAPs are shipped from the factory set to use a DHCP assigned IP address.

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