



**Wireless Internet Service  
Provider (WISP):**

**Network and Subscriber  
Management System**

**User Manual**

**January, 2022**

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**cloud4WISP**  
**Wireless Internet Service Provider (WISP)**  
**Subscriber and Network Management System:**  
**User Manual**

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2. Installing the Access Control Software
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4. cloud4WISP deployment
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7. Customer Relationship Management (CRM) portal
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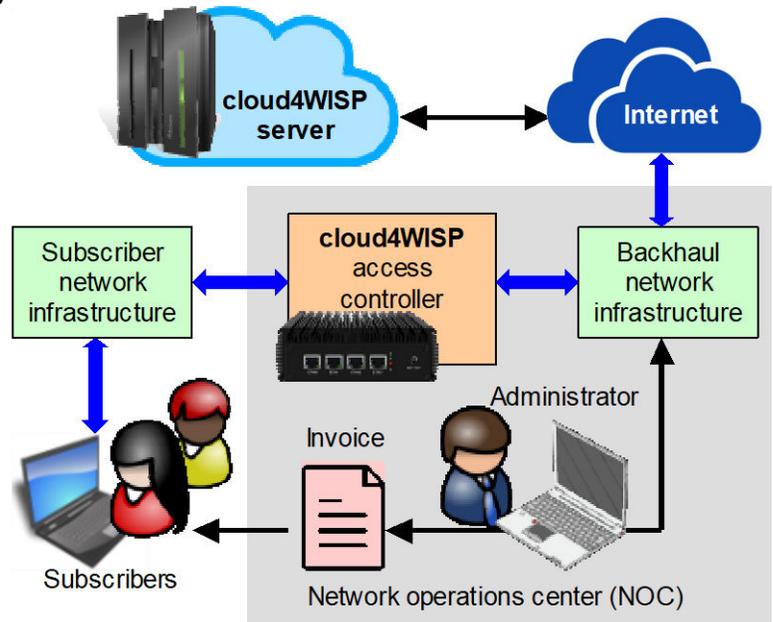
**I M P O R T A N T   N O T I C E**

*Free online technical support is provided for cloud4WISP customers. Go to the cloud4WISP website and click on the support tab. The cloud4WISP system has been designed to be very intuitive in order to minimize the requirement for technical support. Technical support staff will refer customers to this manual and so we request that customers read this manual carefully before contacting technical support. Please note that cloud4WISP does not provide telephone support.*

## 1. Introduction to the cloud4WISP system

### 1.1. The cloud4WISP management system

The cloud4WISP management system was designed using telecommunications industry best practices; the OSS/BSS process model for telecom business management. The cloud4WISP provides all the systems functionality that is required to manage a WISP business. The cloud4WISP is integrated with the cloud4WISP access controller that is installed at the Network Operations Center (NOC) to manage the flow of subscriber data traffic. A cloud4WISP account can manage multiple cloud4WISP access controllers concurrently for WISP's that have more than one NOC, or else install access control at the PtMP tower. There is no limit to the number of subscribers that can be managed by a cloud4WISP account.



### 1.2. Feature Overview

cloud4WISP provides the billing, subscriber management, network supervision and CRM functionality that a Wireless Internet Service Provider (WISP) business requires. The cloud4WISP management feature summary is listed below.

- **Sales:** Add and manage subscribers.
- **Provisioning:** Create work orders to schedule subscriber installations..
- **Activation:** Activate new subscribers onto the network.
- **Authentication:** The CPE MAC address is entered to authenticate the subscriber.
- **Subscriber rate plans:** Create multiple cost/performance plans for subscribers to choose.
- **Fixed broadband billing:** Subscriber pre- and post-paid billing, with invoicing, collection notification and past-due automatic disable.
- **Mobile broadband service:** Access code generation and authentication for a non-subscriber Hotspot service.
- **Network monitoring:** Detection and alarm of cloud4WISP gateway and subscriber network to CPE data link failures.
- **Customer relationship management:** A CRM portal that subscribers use to access account data and submit a support request.
- **Helpdesk:** Support staff respond to ticket requests, and escalate issues to other staff and management.
- **Reports:** Report categories include billing, maintenance, data traffic and support.

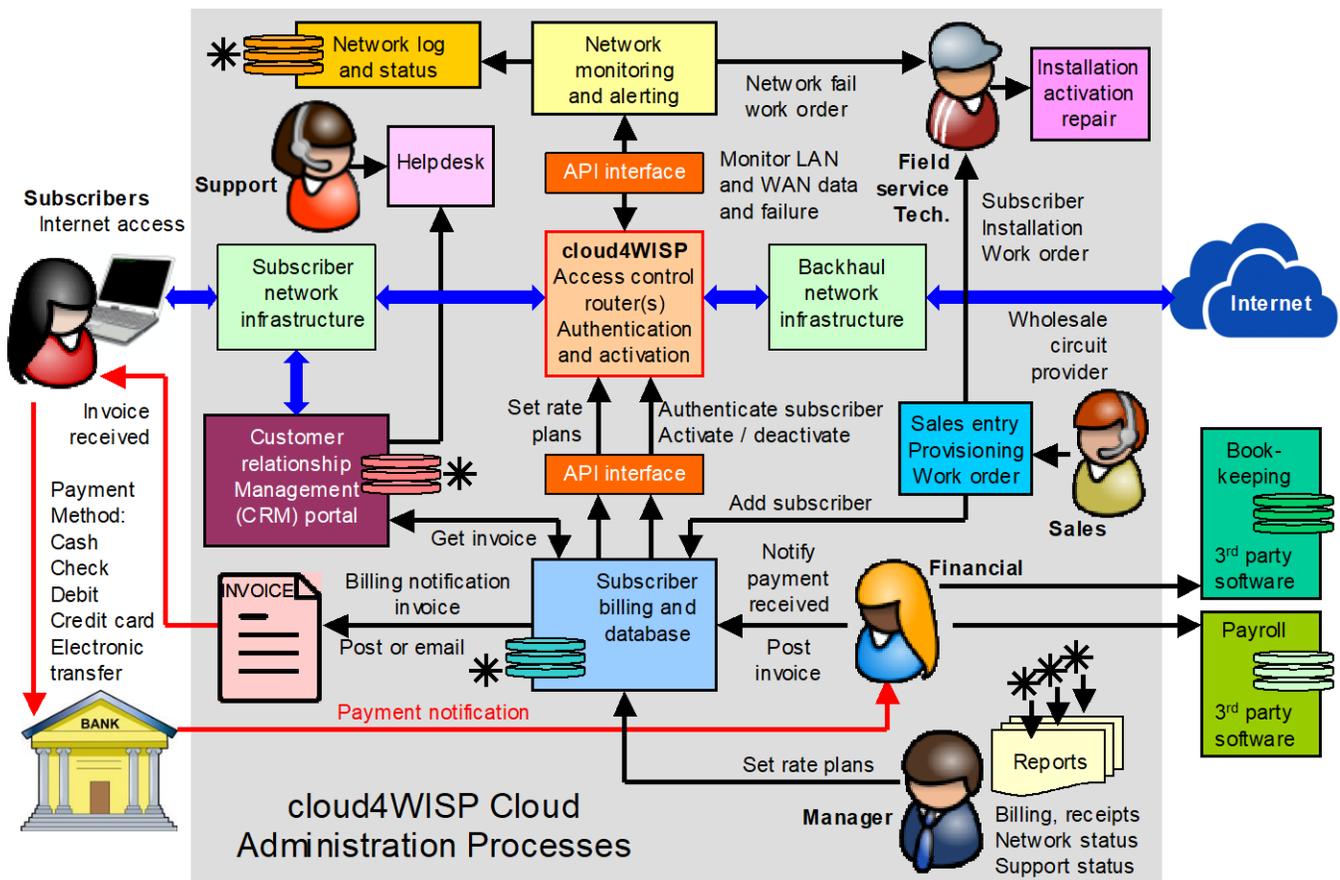
### 1.3. A world-class WISP management system with minimum cost

WISP's are accustomed to paying a fee which might be \$1 or more for each subscriber each month when using a cloud management system. Not with cloud4WISP, the subscription account charge is a few cents per subscriber per month. There is no limit to the number of subscribers and multiple cloud4WISP access controllers can be added to one cloud4WISP account. This is possible because each cloud4WISP controller is a computing element in the Cloud network and processes all access transactions. The Cloud manages batch tasks, which greatly reduces the operating overhead. Once programmed by the Cloud, each cloud4WISP access controller manages network access without supervision.

### 1.4. Cloud4WISP overview

The administration process flow is initiated by sales adding a subscriber to the system. The subscriber information is added to the billing database and an installation work order is created and sent to the technician. The subscribers billing cycle is initiated upon activation.

Financial staff issue invoices as indicated by the billing cycle and post notifications of receipts. Each cloud4WISP access controller is monitored and an alert advises the administrator of a failure. Each subscriber has access to the CRM Portal to check the account and open a support ticket. The manager can obtain reports from each of the sub-systems to monitor the operation of the business.



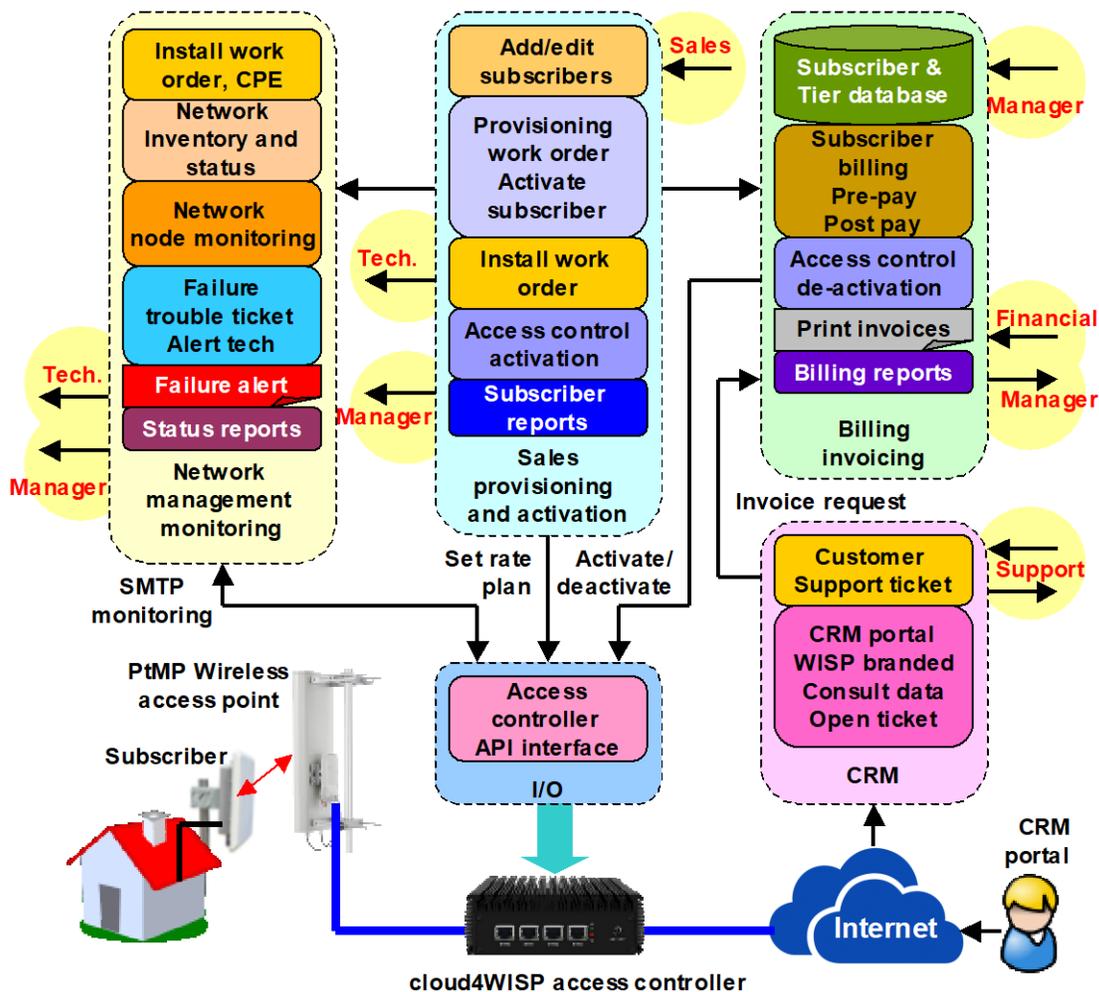
### 1.5. Cloud4WISP staff roles

Cloud4WISP has five roles and each role has unique access privileges. Each role can have an unlimited number of staff login credentials.

- **Manager:** responsible for supervision of all roles and business decisions, access to operational reports.
- **Sales:** responsible for acquiring new subscribers and adding subscribers to the system.
- **Customer service:** responsible for the customer interface regarding any questions, problems, terminations, requests for upgrades, etc.
- **Finance:** responsible for income and expenses, principle tasks are to maintain the billing system and ensure that subscribers pay invoices.
- **Technical:** responsible for work orders, installation of new subscribers, maintenance of existing subscribers, repairs to the network, and expansion of the network.

### 1.6. Cloud4WISP sub-systems

Cloud4WISP sub-systems and sub-system processes are illustrated in the diagram.



## **1.7. Subscriber billing**

The WISP creates a number of rate plans, each is a data speed and corresponding charge. A new subscriber chooses a rate plan that is added to the subscriber's profile. Activation of the subscriber initiates the start of the billing cycle. An invoice is issued for each billing cycle and the subscriber payment is noted in the billing system by the financial staff. The billing system sends the subscriber activation and rate plan instructions to the respective cloud4WISP access controller. In the case of non-payment the subscriber is deactivated.

## **1.8. Sales, provisioning and activation**

Sales staff can add new subscribers and change subscriber information. The subscriber chooses a rate-plan. Entry of a new subscriber initiates a workflow process that will generate a work order for technical staff to install the CPE wireless equipment at the subscriber premises. Subscriber billing information is added to the billing database. On completion of the subscriber installation the technician activates the subscriber and initiates the billing cycle.

## **1.9. Customer relationship management (CRM)**

Each new subscriber receives a login credential for the CRM portal. This is a WISP branded website that the subscriber can login to see information about the account and retrieve billing invoices. The subscriber can open a customer support ticket that is sent to the support staff for answer. On-line payments can be made through the CRM portal. In the case that the Internet is not available due to circuit failure or non-payment then the captive portal displays a message.

## **1.10. Network monitoring and reporting**

cloud4WISP monitors all access controllers for failure and sends an alert to the administrator if this occurs. Support staff can test the circuit to the subscriber CPE wireless when the subscriber reports no connection. Data traffic through each cloud4WISP access controller is monitored and a bandwidth use time graph indicates when a WAN circuit is nearing congestion. The administrator can see a status report for each cloud4WISP access controller.

## **1.11. Billing rate plans**

The WISP can install an unlimited number of rate plans for fixed broadband subscribers. Each rate plan specifies a maximum download / upload speed and the corresponding plan charge. When enrolling a new subscriber the rate plan is chosen based on cost or data speed. Billing invoices charge the customer at the chosen rate plan. The billing system sends the customers chosen data speed to the cloud4WISP access controller.

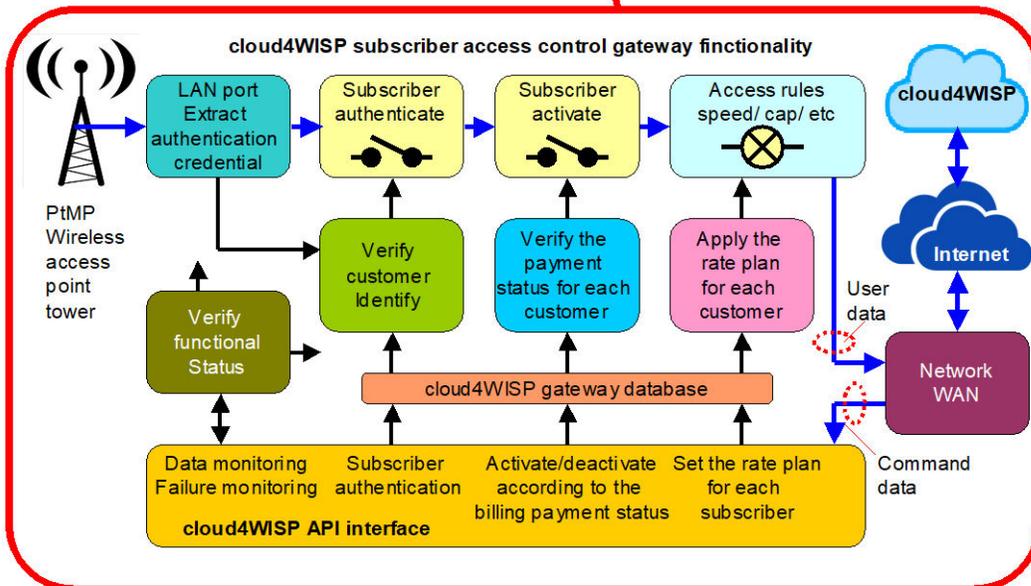
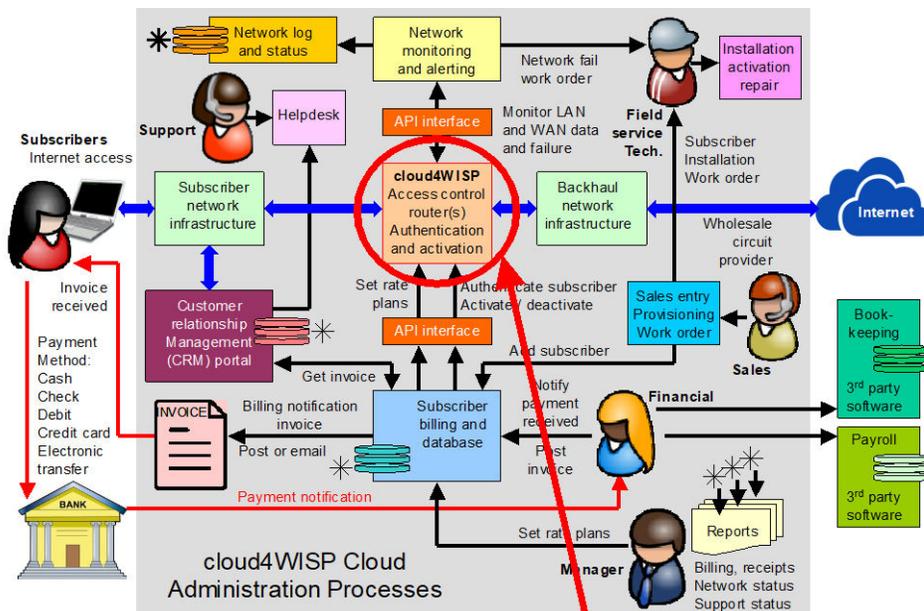
## **1.12. Mobile broadband billing**

Mobile broadband provides Internet access for customers who are not subscribers. The billing system issues access codes that have the parameters of duration and data speed. The customer will access an unencrypted WiFi wireless access point using a mobile device. cloud4WISP manages handoff of customers from one AP to the next to implement roaming. Mobile broadband eliminates the cost of fixed broadband premises installation and a monthly payment obligation.

### 1.13. Cloud4WISP access controller functions

Each cloud4WISP access controller implements several tasks:

- Authenticate each subscriber CPE onto the network.
- Apply subscriber rate plans.
- Enable/disable subscriber access.
- Monitor CPE status.
- Update the Cloud with network status and traffic.
- Captive portal for CRM and status.
- Mobile broadband authentication.

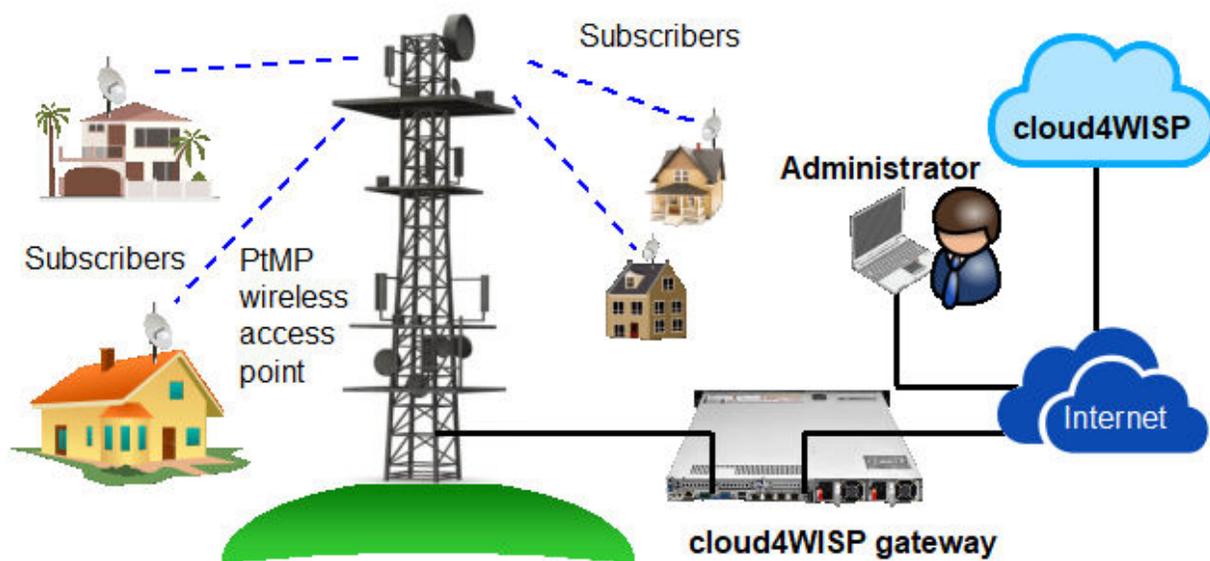


### 1.14. Cloud4WISP network implementation

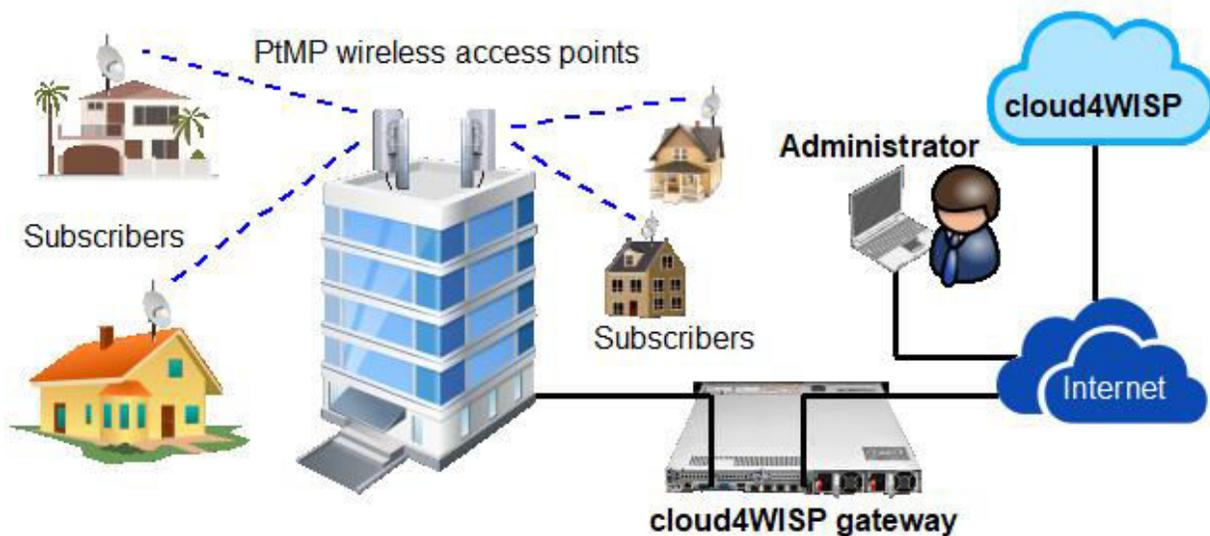
cloud4WISP can manage multiple cloud4WISP access controllers. Install a cloud4WISP controller at the network operations center (NOC) and install additional cloud4WISP controllers at tower sites or tall buildings that have Internet access, eliminating a point-to-point wireless backhaul from the tower to the NOC.

When a subscriber is added to the billing system the cloud4WISP controller that will service the subscriber is specified, this might be a NOC or one of the PtMP towers. Each cloud4WISP controller downloads a partial database for the subscribers assigned to that controller. The cloud4WISP access controller functions autonomously and only receives updates from the Cloud when a new subscriber is added to that controller.

Cloud4WISP tower installation



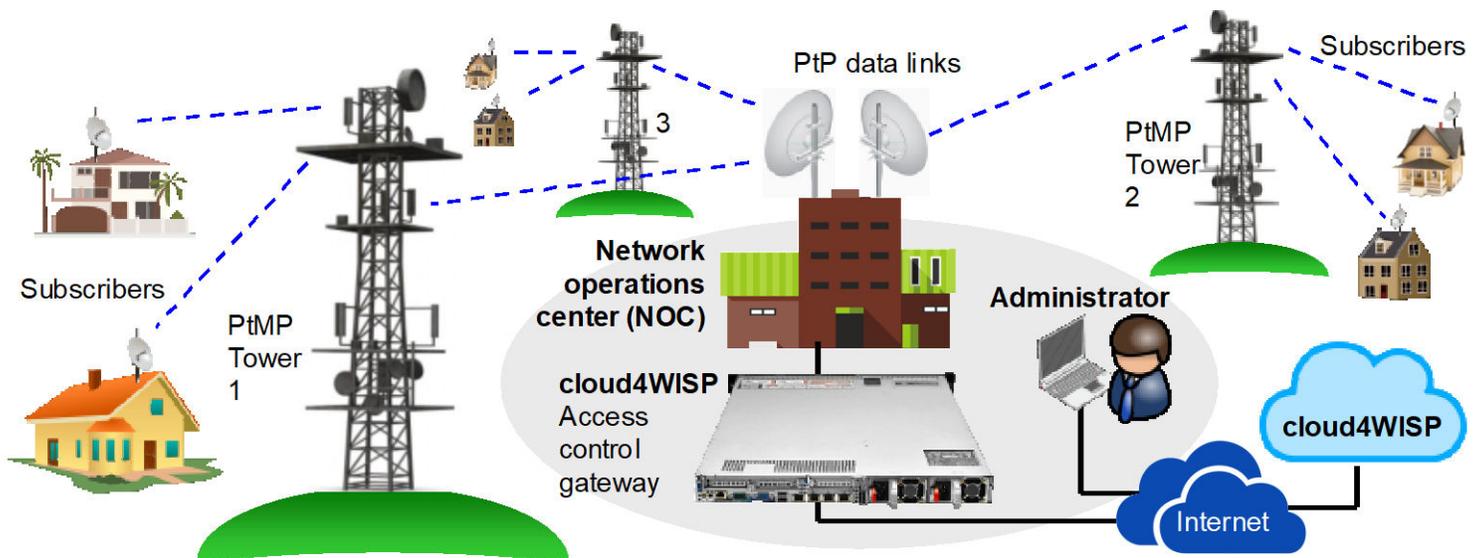
Cloud4WISP building installation



## 2. Installing the access control software on the Intel compatible computer

### 2.1. How is cloud4WISP installed?

cloud4WISP is a cloud system for WISPs that automates the management of the business and the management of the network. cloud4WISP is a computer system that has two parts, the Cloud and the access control gateway. The cloud4WISP cloud account provides all the management features and the WISP pays a subscription to maintain an account with cloud4WISP. An access control gateway installed in the network between the subscribers and the wholesale data circuit. The access control gateway receives instructions from cloud4WISP to control the Internet access and apply the rate plan chosen by each subscriber. The administrator and staff use the cloud4WISP Cloud to add subscribers, bill subscribers and to manage the network. The Cloud account can manage many gateways that are installed at different locations and can manage an unlimited number of subscribers. The features page describes all the benefits for the WISP owner.



### 2.2. You provide the gateway hardware

The free cloud4WISP access control software is installed on any Intel x.86 compatible PC, this can be older re-purposed hardware, pre-used hardware purchased from a data center, or a new industrial PC.

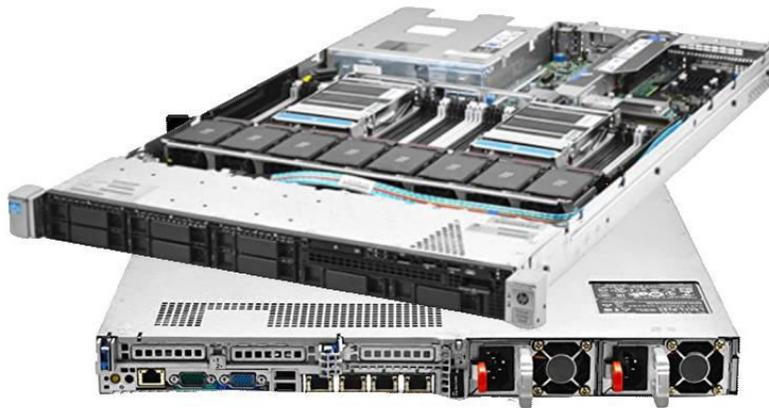
The only criteria for the access control computer is that it must have an Intel compatible CPU, 32 or 64 bits and it must have two Ethernet ports of 1Gb/s, one for the LAN and one for the WAN. The cloud4WISP software can be booted from a flash drive plugged into a USB port, or else the software can be installed on a hard drive in the PC unit. The flash drive or hard drive is used for temporary storage, not for long-term storage. The access controller constantly sends data to the cloud4WISP servers for long term storage.

The access control software is provided for the WISP as part of the cloud4WISP account creation process. The software is not specific for one PC and can be installed many times on different PC's

Any type of x.86 computer can be used for the access control. The WISP can use an old computer because even a slower processor can handle the traffic for a few hundred subscribers.



The WISP can purchase a high performance ex-data center server for less then \$200 which will be sufficient to manage several thousand subscribers.



The wisp can purchase a new industrial computer for under \$300 that is robust and can be installed at a tower site to connect directly to an Internet wholesale service at the tower.

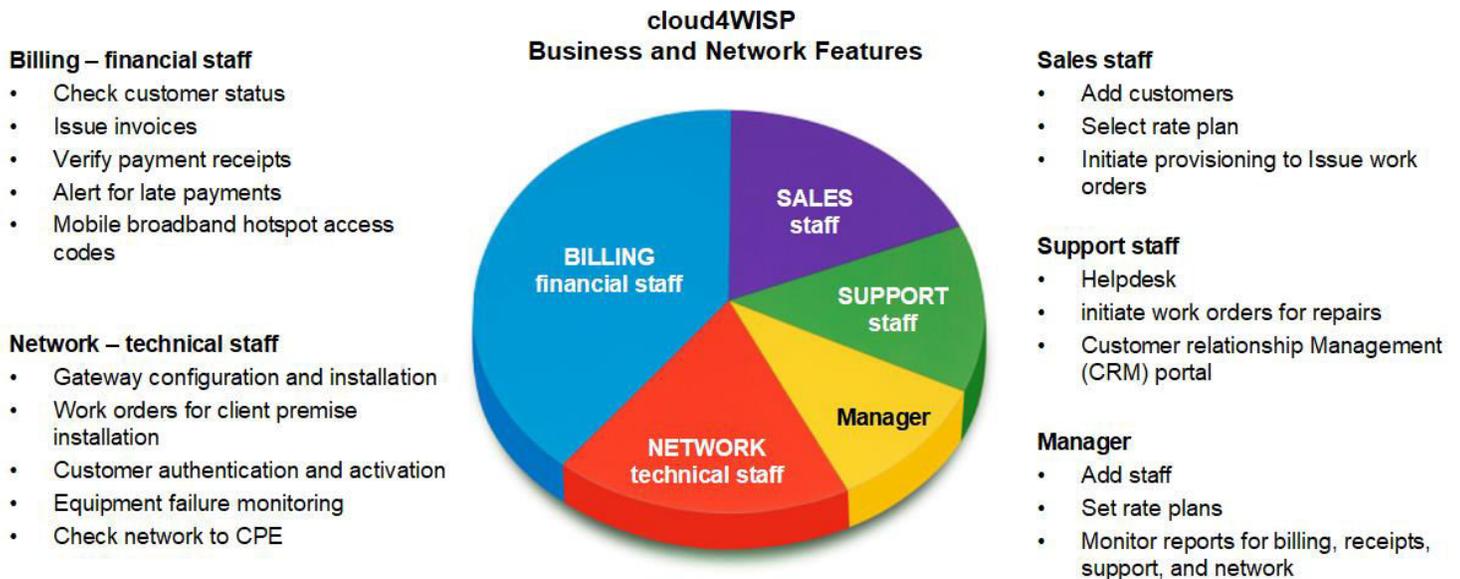


cloud4WISP has no limit to the number of PC computer gateways that can be added to the cloud4WISP account, there is no charge for the gateway. This means that the WISP can have any type of network design. For example, the WISP can install a Starlink antenna at each wireless tower to provide access for the subscribers.

### 3. WISP management features

#### 3.1. Overview of the Cloud management system features

cloud4WISP incorporates all the business management features that your WISP business requires, in a simple and intuitive user interface.

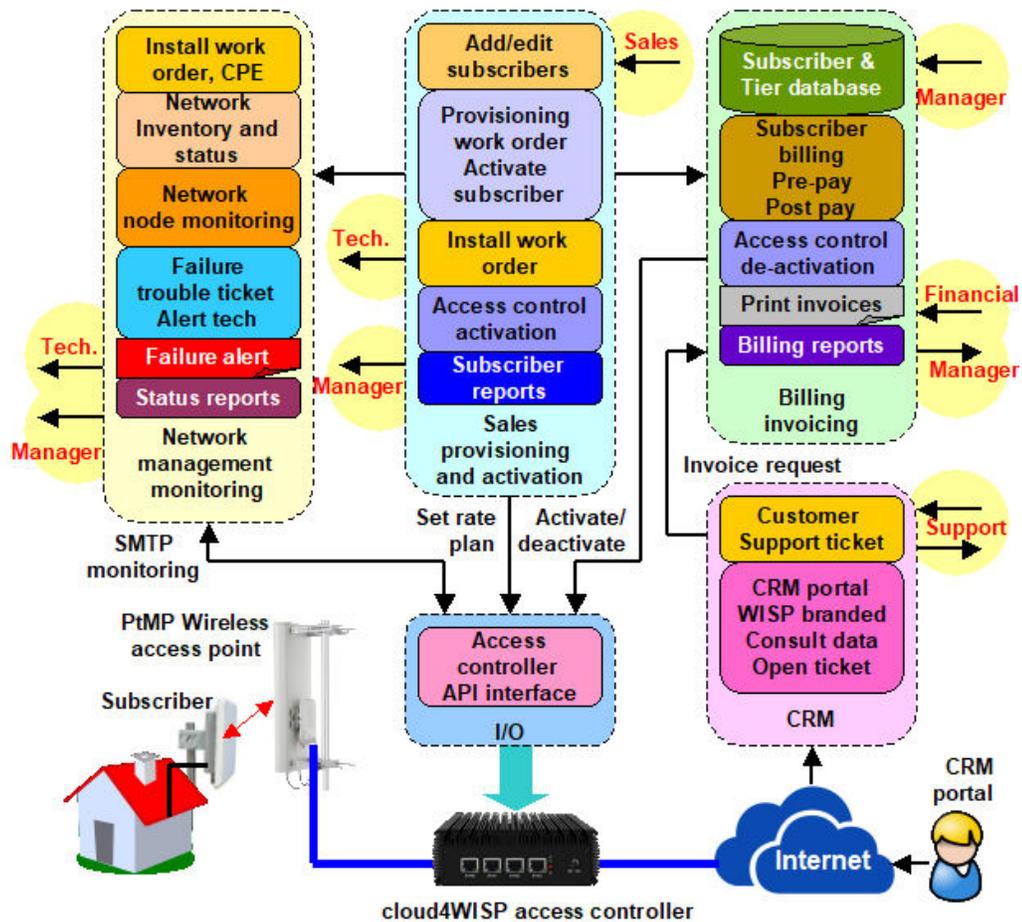


#### 3.2. The cloud4WISP cloud subsystems

The cloud4WISP cloud management system has five subsystems that includes the API interface to one or more cloud4WISP gateways. The subsystems are shown in the diagram with the staff interfaces to each.

- Billing and invoicing:
- Sales provisioning and activation:
- Network management and monitoring:
- Customer Relationship Management (CRM) and helpdesk:
- API interface to one or more cloud4WISP gateways:

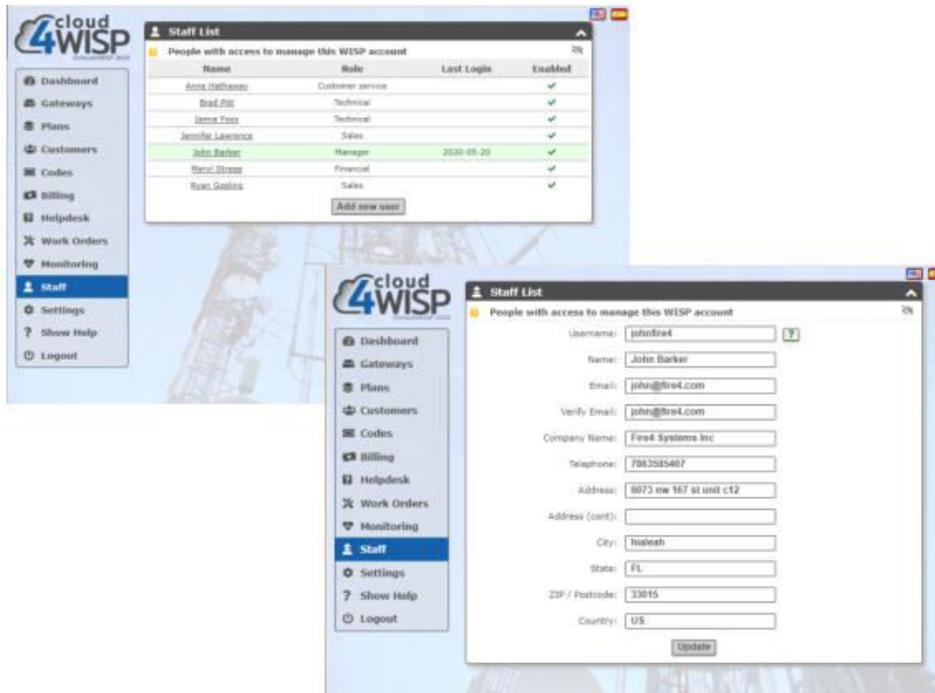
Each function of the cloud4WISP Cloud is described in the sections which follow.



### 3.3. cloud4WISP Cloud staff roles

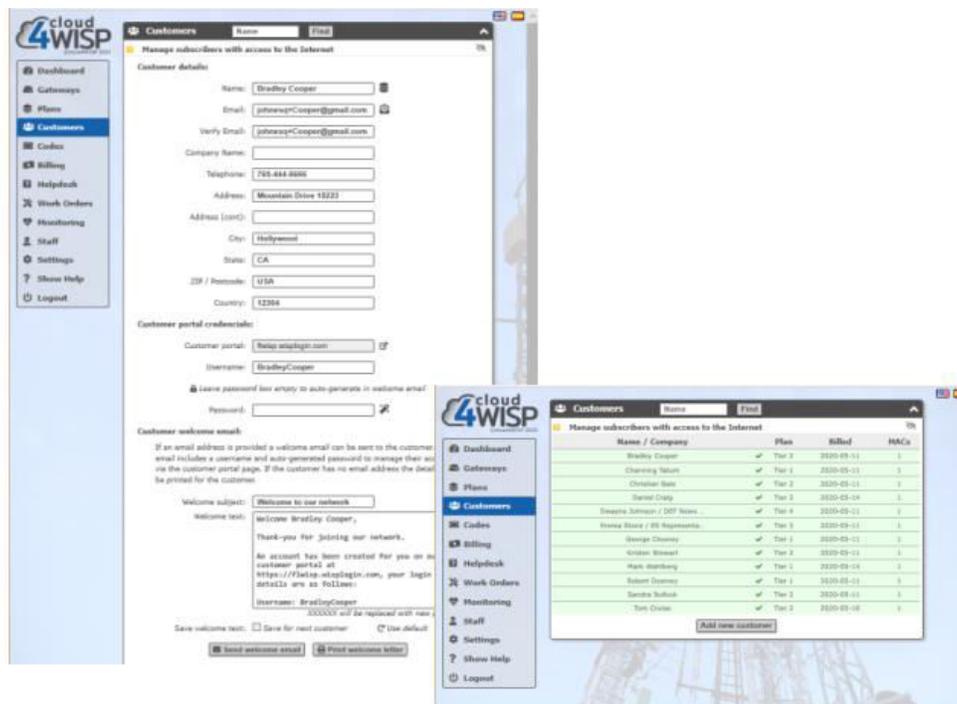
The cloud4WISP Cloud management system has five roles and each role has unique access privileges. Each role can have an unlimited number of staff login credentials.

- **Manager:** responsible for adding staff, setting rate plans and analysis of operational reports.
- **Sales:** responsible for acquiring new subscribers, adding subscribers to the system, initiate provisioning and generate a work order for the customer installation.
- **Customer service:** responsible for the customer interface, responding to questions and helpdesk support.
- **Finance:** responsible for billing and collections, issuing invoices and ensuring that subscribers pay by the due date. Financial staff also provide bookkeeping and payroll services using 3rd party software.
- **Technical:** responsible for fulfilling work orders, installation of new subscribers, maintenance of existing subscribers, repairs to the network, and expansion of the network.



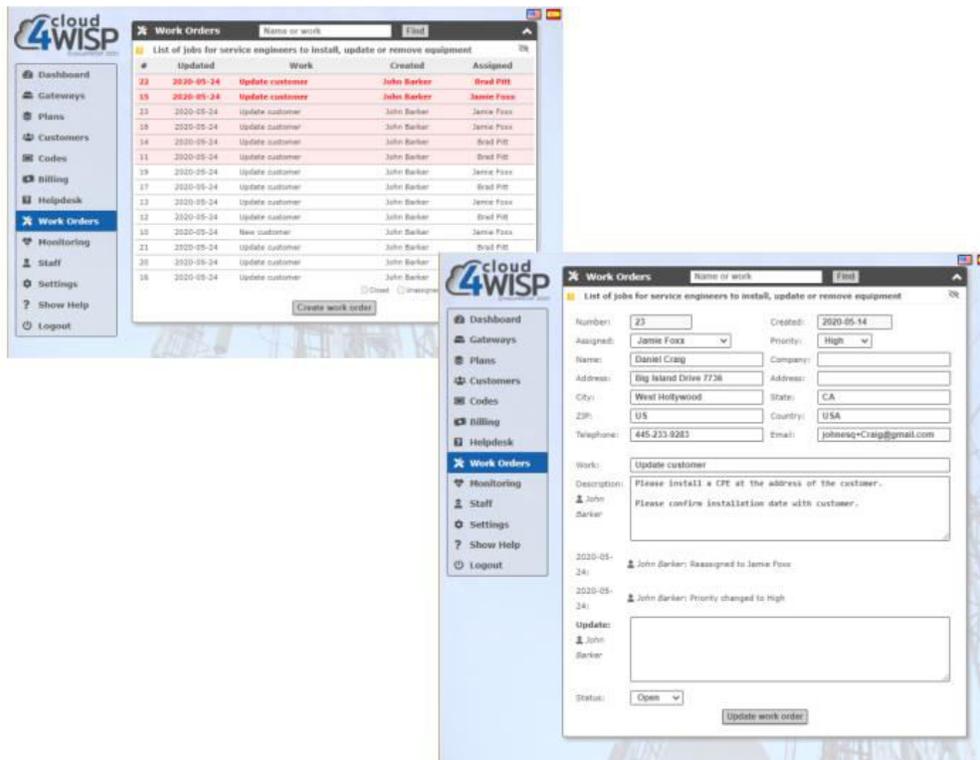
### 3.4. Sales

Sales staff add new subscribers and update subscriber information. The new subscriber chooses a rate-plan which is added to the customer record. Subscriber billing information is added to the billing database. Entry of a new subscriber can initiate a work order for technical staff to install the customer equipment.



### 3.5. Provisioning the service

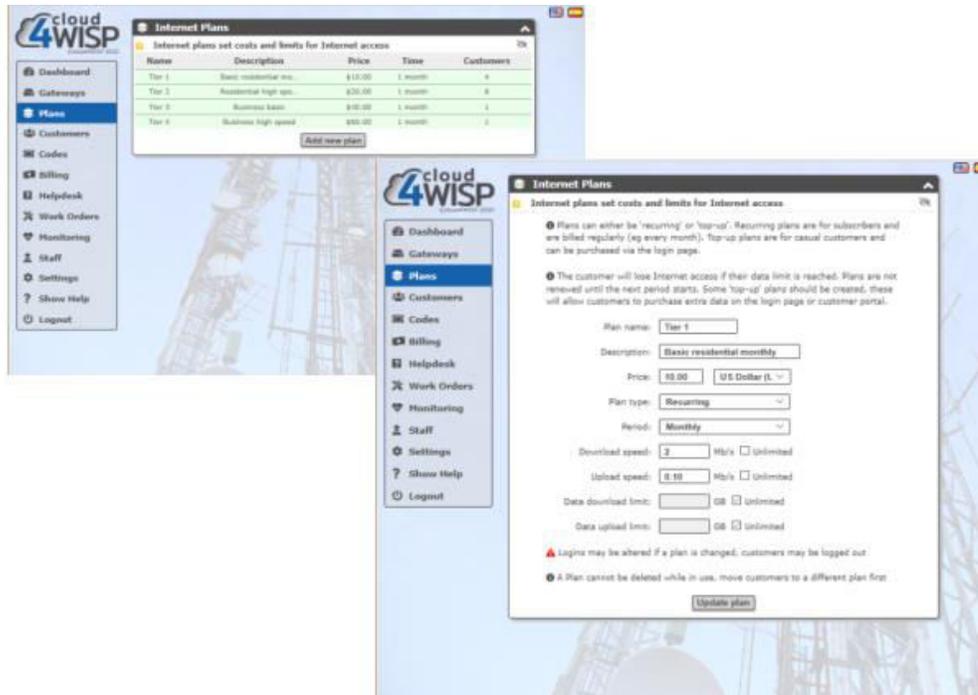
Entry of a new subscriber by sales staff initiates a workflow process that will generate a work order for technical staff to install the CPE wireless equipment at the subscriber premises. The technician will set the installation date then take equipment to the customers premises for installation. On completion of the installation the technician activates the subscriber and initiates the billing cycle.



### 3.6. Rate plans

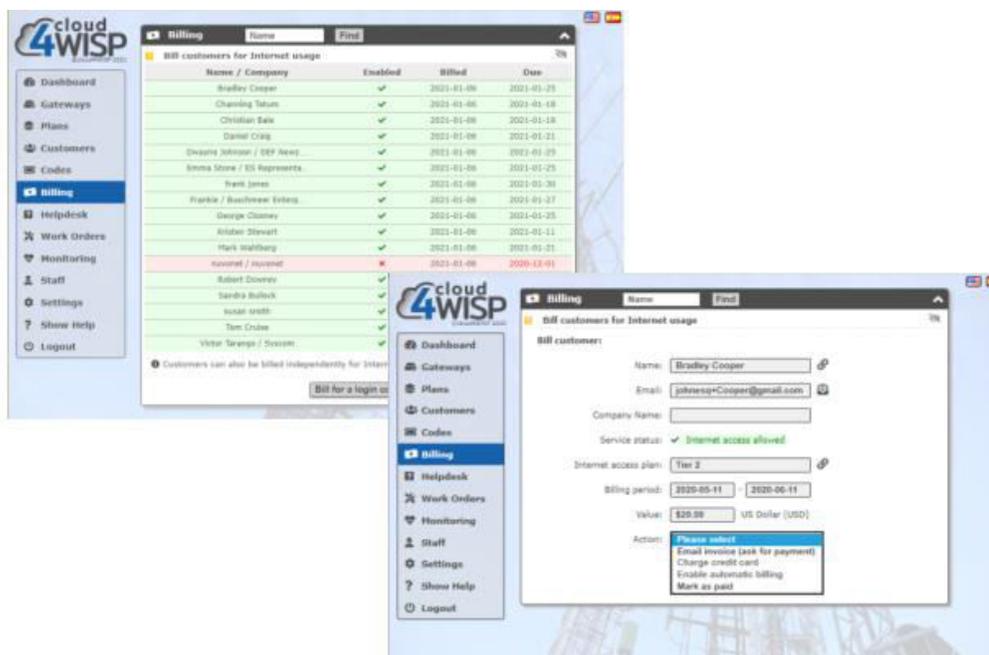
The WISP can install an unlimited number of rate plans for fixed broadband subscribers. Each rate plan specifies a maximum download / upload speed, the corresponding plan charge and an optional data cap. When enrolling a new subscriber the rate plan is chosen by the customer based on cost or data speed. Billing invoices charge the customer at the chosen rate plan value. The billing system sends the customers chosen data speed to the cloud4WISP access controller. Some examples of rate plan tiers are:

- Tier 1: data maximum download 1Mb/s, maximum upload 100Kb/s, monthly charge \$5.
- Tier 2: data maximum download 5Mb/s, maximum upload 500Kb/s, monthly charge \$15.
- Tier 3: data maximum download 10Mb/s, maximum upload 1Mb/s, monthly charge \$25.
- Tier 4: data maximum download 20Mb/s, maximum upload 2Mb/s, monthly charge \$45.



### 3.7. Subscriber billing

A new subscriber chooses a rate plan that is added to the subscriber's profile. Activation of the subscriber initiates the start of the billing cycle. An invoice is issued for each billing cycle and the subscriber payment is posted in the billing system by the financial staff. The billing system sends the subscriber activation and rate plan instructions to the respective cloud4WISP access controller. In the case of late-payment the subscriber is deactivated automatically by the billing system.



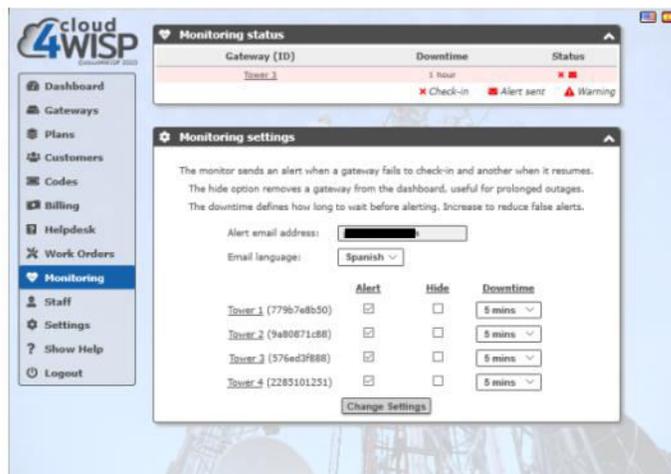
### 3.8. Mobile broadband service

Mobile broadband provides Internet access for customers who are not subscribers. The billing system issues access codes that have the parameters of duration and data speed. The customer will access an unencrypted WiFi wireless access point using a mobile device. The cloud4WISP Cloud authenticates the access code when the customer enters the code into the login page. Mobile broadband is ideal for customers who do not want a monthly payment obligation.



### 3.9. Network monitoring and alerting

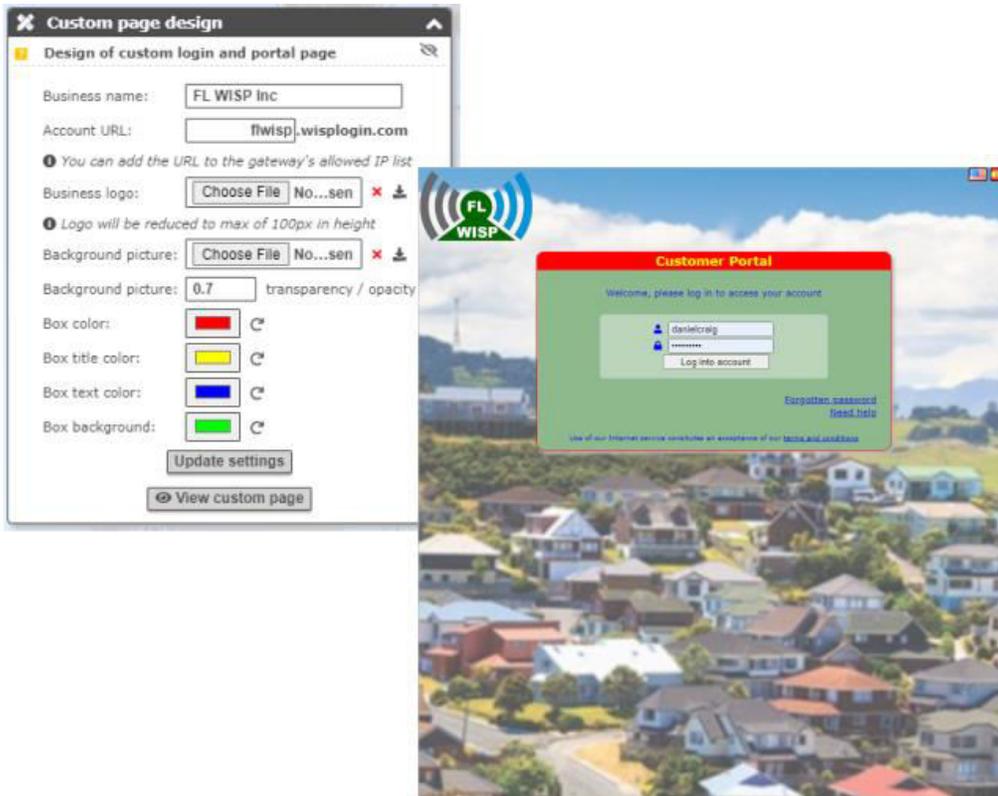
Data traffic through each cloud4WISP controller is monitored and a time graph of bandwidth use indicates when a WAN circuit is nearing congestion. The administrator can see a status report for each cloud4WISP controller. The cloud4WISP Cloud monitors all cloud4WISP controllers assigned to the account for failure and sends an email alert to the administrator if this occurs. Support staff can test the circuit to the subscriber CPE wireless when the subscriber reports no connection to identify if the problem is due to the network or at the subscribers premises.



### 3.10. Customer Relationship Management (CRM)

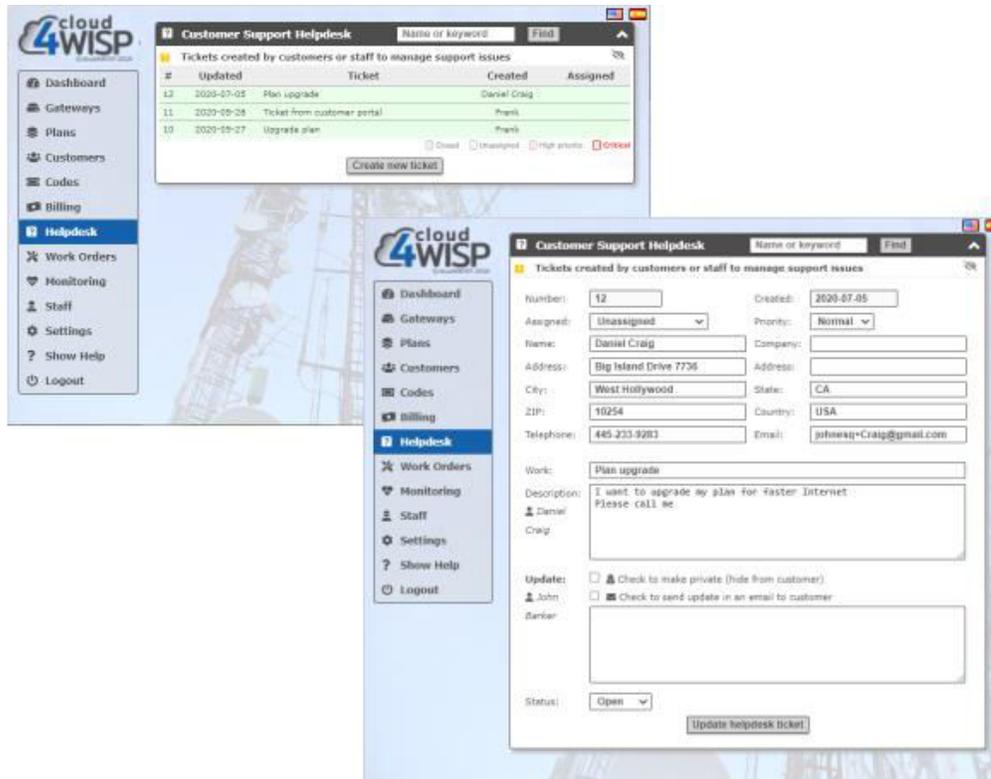
Each new subscriber receives a login credential for the CRM portal. This is a WISP branded website that the subscriber can login to see information about the account and retrieve billing invoices. The subscriber can open a customer support ticket that is sent to the support staff for answer. On-line payments can be made through the CRM portal. In the case that the Internet is not available due to circuit failure or non-payment then the captive portal displays a CRM message.

The WISP is solely responsible for answering subscriber tickets. cloud4WISP does not receive subscriber tickets.



### 3.11. Helpdesk

A subscriber can initiate a support request through the CRM portal. The support request is sent to the help desk for the support staff to answer. If the support staff cannot answer the question it can be escalated to other staff; financial, technical, sales or manager. A response might require a phone call to the customer.



### 3.12. Reporting

Reports are generated by the cloud4WISP Cloud to provide the WISP manager with data to monitor the performance of the business and performance of the network. The reports are listed below.

Reports for billing.

- List of subscribers, status enabled/disabled, billed date, due date.
- List of invoices issued to subscribers and payment status.

Reports for data traffic, time graphs can be selected from 1-hour to 1-week.

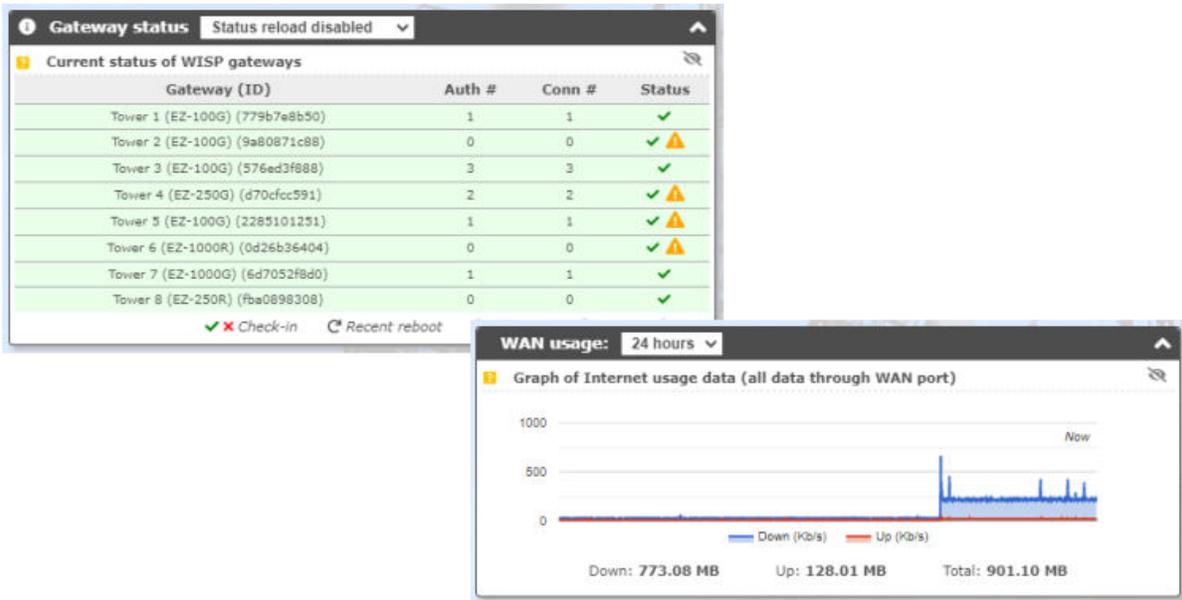
- Time graph of an cloud4WISP gateway connected and authenticated users.
- Time graph of an cloud4WISP gateway performance as a %.
- Time graph of an cloud4WISP gateway backhaul WAN usage in Mb/s.
- Authenticated user login information (currently using the network).
- Connected user login information (connected but not currently using the network).

Reports for the network.

- Monitoring status of all access control gateways on-line/off-line.
- Check subscriber CPE circuit status.
- List of outstanding work orders, see each work order status.

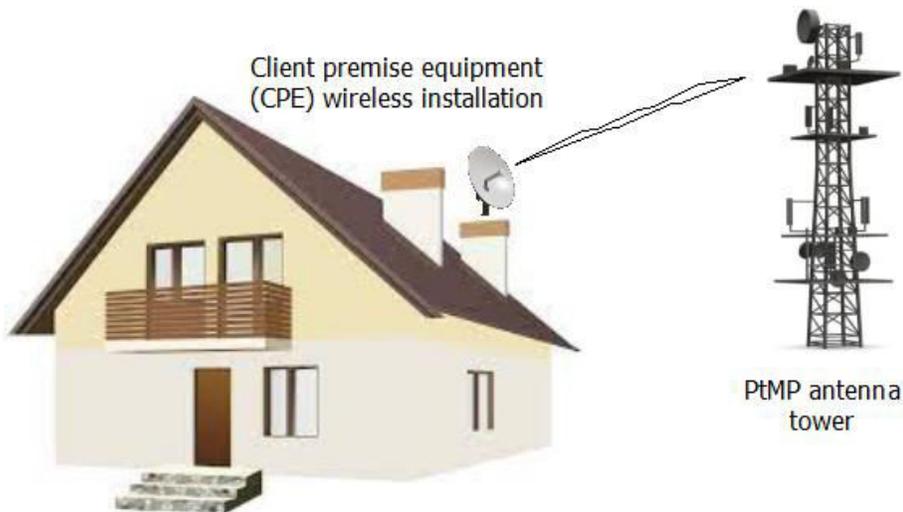
Reports for support.

- List of support ticket requests via the CRM portal, see each ticket status.



### 3.13. Installation of the Customer Premise Equipment (CPE)

The customer requires a physical connection to the network. This requires a client premise equipment (CPE) wireless installing with line of sight connection to the Point to Multi-point (PtMP) antenna tower. The CPE wireless receiver is connected to the PtMP transmitter using the CPE software.



### 3.14. Authentication

Authentication is a cloud4WISP Cloud configuration that will permit the cloud4WISP access controller to recognize the new customer CPE wireless when it connects to the network after completion of the subscriber premises installation. The cloud4WISP customer record is updated with the authentication information. cloud4WISP authenticates the subscriber using the CPE MAC address which is much simpler than other methods, making installation very easy.

**Authentication:**  
Add information for the authentication process

- (a) MAC address of the wireless CPE installed at the customer premises
- (b) Gateway name that the PtMP wireless is connected that will provide a connection for the CPE

**Customer provisioning:**

Work order:  Create work order for CPE installation

Assign work to: Unassigned

Order comments: 

Please make the following changes

**Internet access management:**

Customer enabled:  Internet access allowed

Recurring plans only, a login code can be created for single use

Internet access plan: Tier 2

Enter same MAC again if access is needed on multiple gateways

[Test access from gateway to customer CPE \(results on Monitoring page\)](#)

CPE MAC address	Description	Gateway	Allow
1	e8:40:f2:3b:c5:c3	Bradley Cooper res	Tower 3 (E...)

+ Add

**Customer record**

### 3.15. Activation

When the authentication of the customer CPE has been completed and tested then the customer can be activated. The customer record 'enable' box is checked to activate the customer. The customer should confirm that the Internet service is working according to the service offered and then sign off the work order to accept the installation. In the case of late payment the billing system will automatically deactivate the customer until the account is paid then it will automatically activate the customer.

**Activation:**  
Activate the customer by checking the enable box. The billing system will deactivate the customer if late payment

**Customer provisioning:**

Work order:  Create work order for CPE installation

Assign work to: Unassigned

Order comments: 

Please make the following changes

**Internet access management:**

Customer enabled:  Internet access allowed

Recurring plans only, a login code can be created for single use

Internet access plan: Tier 2

Enter same MAC again if access is needed on multiple gateways

[Test access from gateway to customer CPE \(results on Monitoring page\)](#)

CPE MAC address	Description	Gateway	Allow
1	e8:40:f2:3b:c5:c3	Bradley Cooper res	Tower 3 (E...)

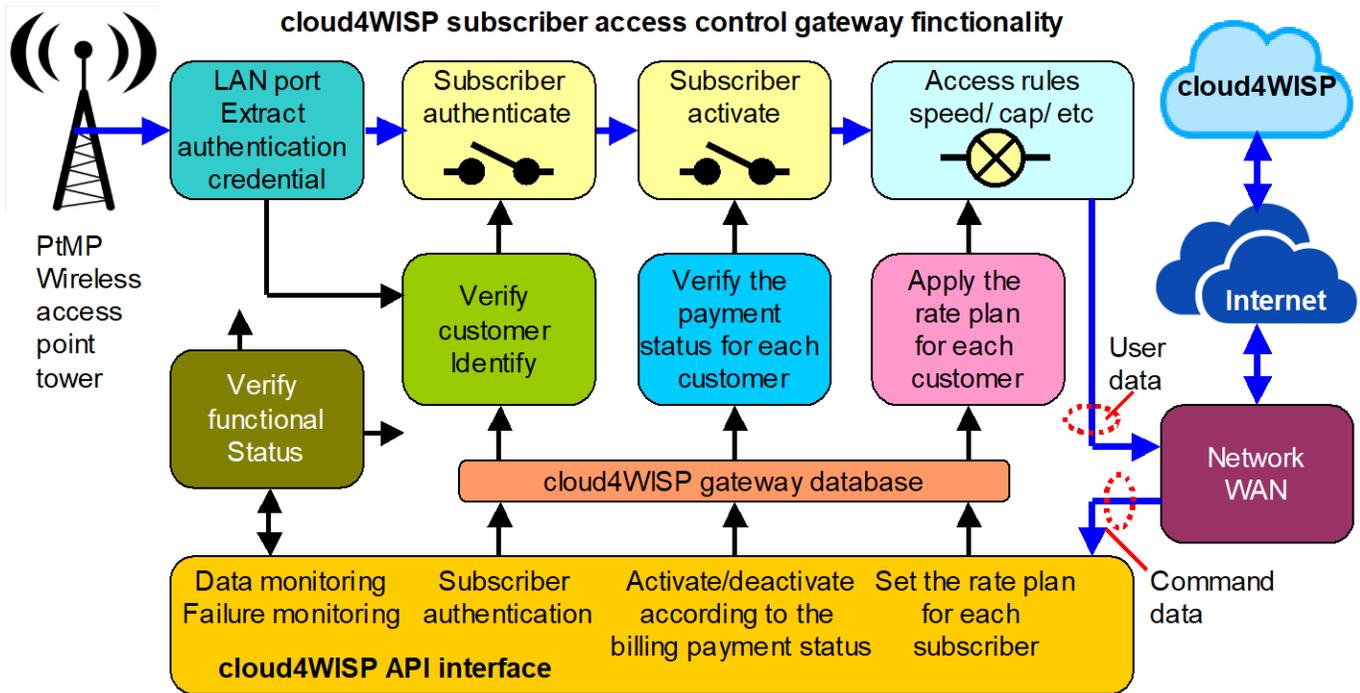
+ Add

**Customer record**

### 3.16. Access control

Each cloud4WISP access controller implements nine functions:

- Receive and process subscriber access instructions from the Cloud.
- Authenticate each subscriber CPE onto the network.
- Enable/disable subscriber access.
- Apply rate plans to each subscriber.
- Verify CPE link status on request.
- Send the network status and traffic stats data to the cloud4WISP Cloud.
- A captive portal provides the customer with access the the CRM UI.
- A captive portal provides the customer with network error messages.
- Mobile broadband authentication.



### 3.17. Support

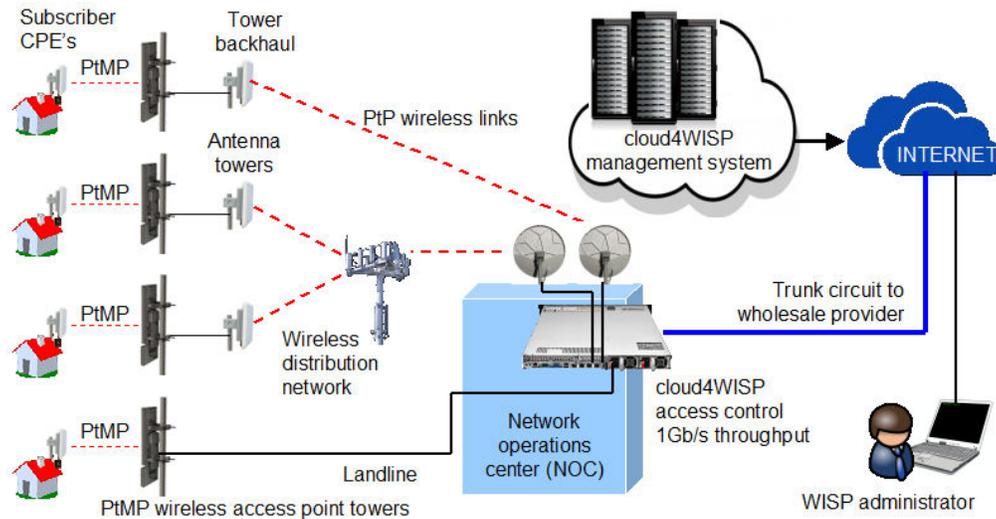
Free online technical support is provided for cloud4WISP customers. Go to the cloud4WISP website support tab. The Cloud system has been designed to be very intuitive to minimize the requirement for technical support. The cloud4WISP Cloud system is multi-language and can be switched between English and Spanish. Other languages will be available.

We request that WISP's read this manual carefully before contacting technical support.

## 4. cloud4WISP Deployment

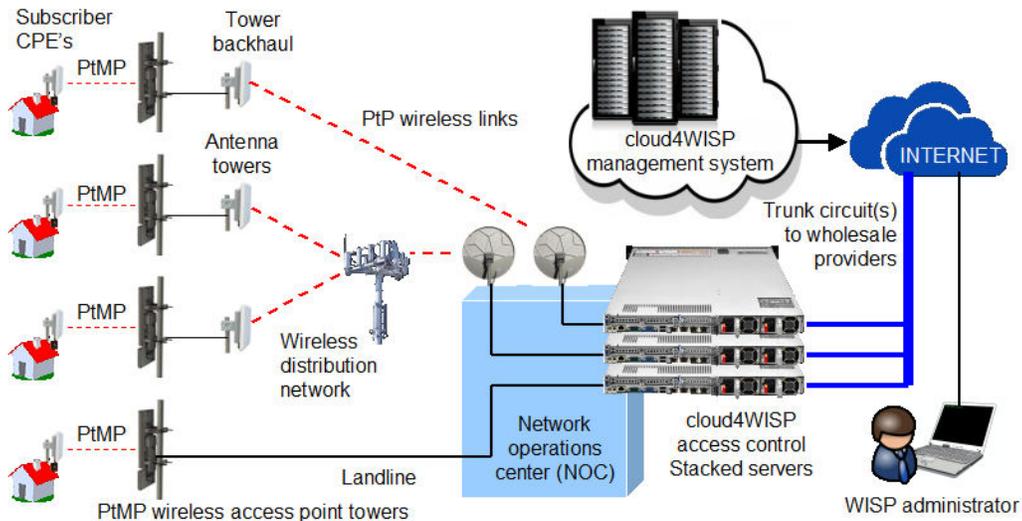
### 4.1. NOC installation: Network Operations Center with wireless and landline links.

Most WISP's build a network architecture with a NOC installed at a point where the access to the wholesale fiber circuit is available. From the NOC a star network is built to each PtMP tower using point-to-point wireless links. Each PtMP tower then has a wireless connection with the customers CPE wireless. The cloud4WISP gateway is installed at the NOC to implement access control for subscribers connecting to the PtMP towers. The choice of cloud4WISP product is determined by the bandwidth of the wholesale circuit. The cloud4WISP installation is shown in the next diagram.



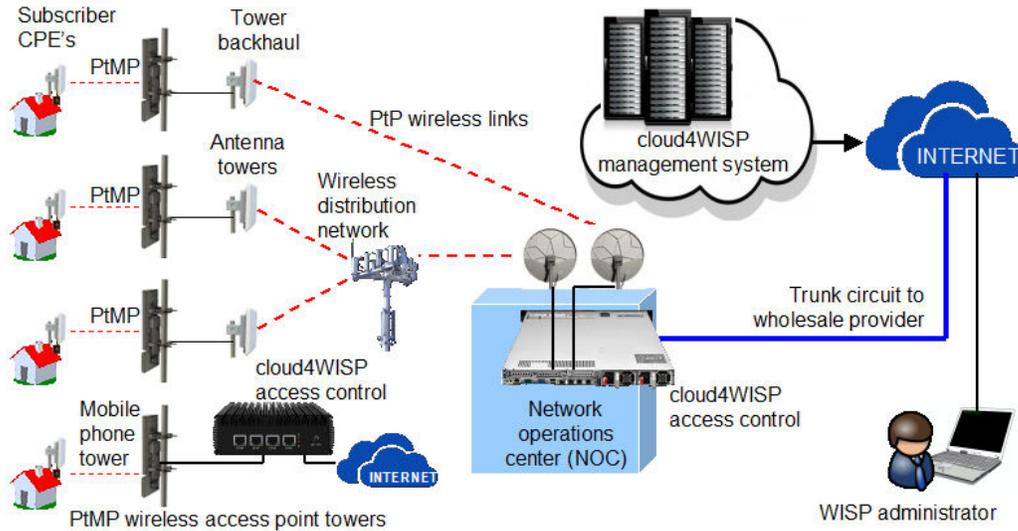
### 4.2. High throughput: Network Operations Center with stacked gateways.

cloud4WISP access control gateways are available with 250Mb/s and 1Gb/s throughputs. When higher bandwidths are required the gateways are stacked to increase the throughput of access control. This is illustrated in the next diagram. A customer maximum bandwidth is limited to the maximum bandwidth of the cloud4WISP controller that the customer is connected to. This feature is very convenient for the WISP as the infrastructure investment is incremental according to the acquisition of subscribers, minimizing expenditure.



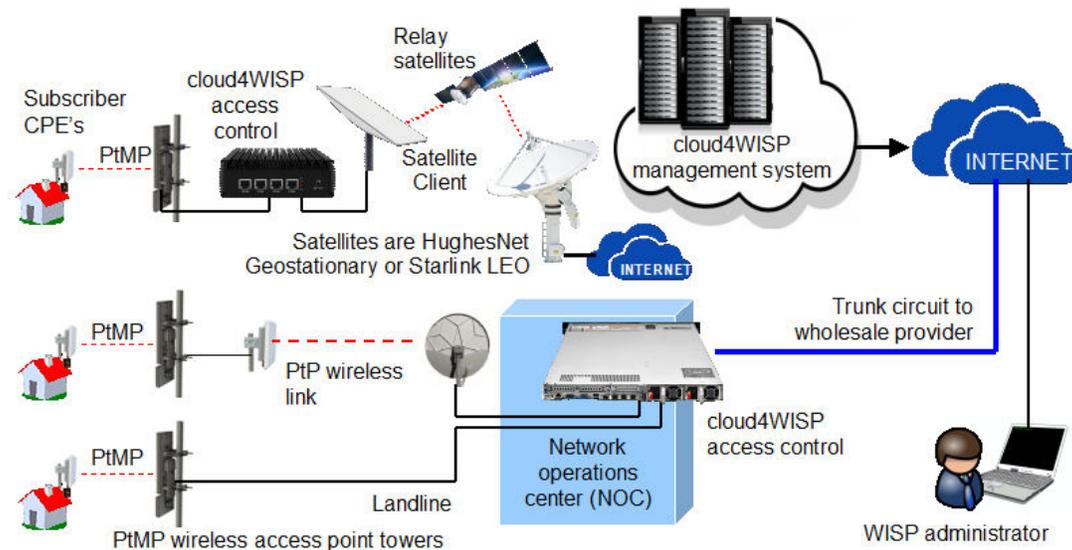
### 4.3. Connecting PtMP towers that have a network connection.

When a PtMP tower has a local Internet connection then an cloud4WISP access control gateway is installed at the tower, as shown in the next diagram. This will be the case when the PtMP tower is also a mobile phone tower, or when the PtMP antenna is installed on the roof of a tall building and a fiber wholesale connection is available at the building.



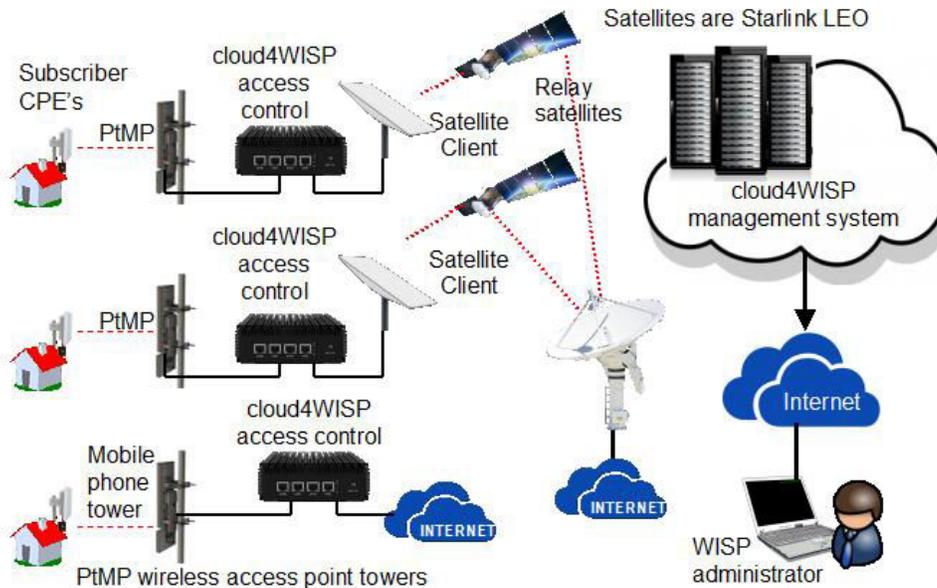
### 4.4. Satellite backhaul: at a PtMP tower.

Some WISP's already install a satellite backhaul at a PtMP tower using the HughesNet Geo-stationary satellite service. The service availability is limited, covering most parts of North America and four countries in South America. WISP's that are located in some geographies now have access to a high bandwidth satellite backhaul using the Starlink Business service. A backhaul speed of up to 500Mb/s is available with low latency. Eventually Starlink will have global coverage and a WISP will be able to install a tower with a Starlink backhaul anywhere. The Starlink satellite antenna is installed at a high point on the tower with 180 degree visibility of the sky. The cloud4WISP access control gateway is installed at the PtMP tower as shown in the diagram.



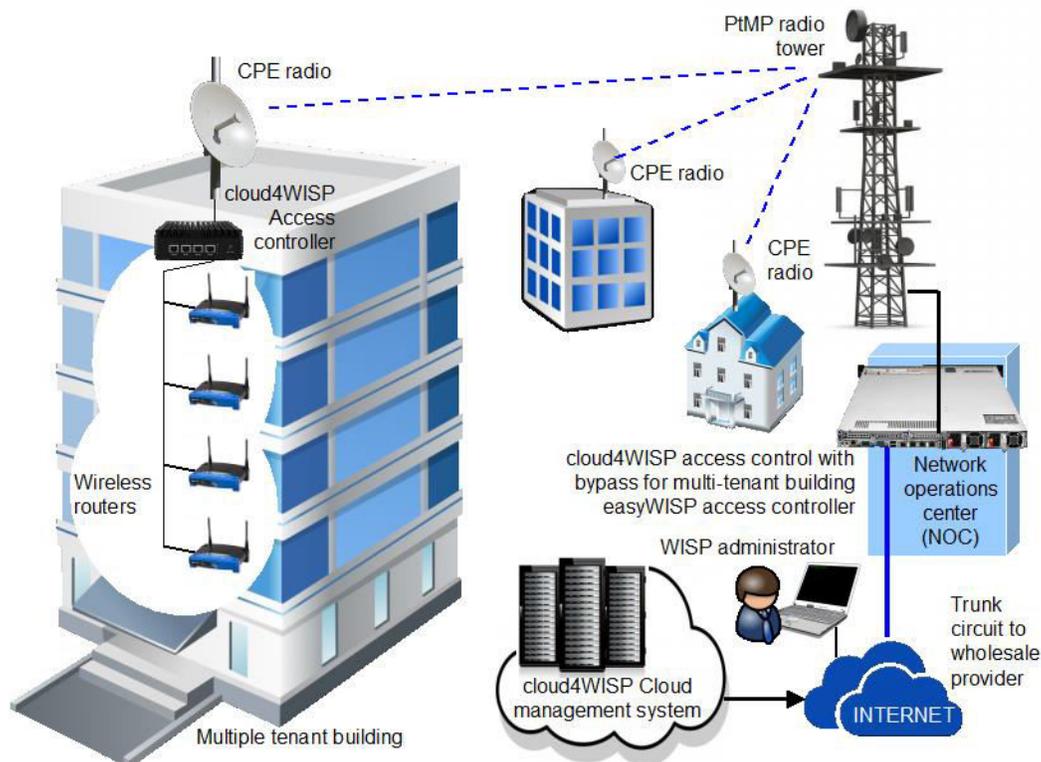
#### 4.5. Distributed control: access control at PtMP towers, eliminating the NOC.

Satellite services are now available in many parts of the world and so the WISP can install a satellite backhaul at each PtMP tower, as illustrated in the next diagram. The towers are managed through the cloud and the NOC plus wireless PtP infrastructure between each tower and the NOC is eliminated. Low earth orbit (LEO) satellite services cannot have many antennas grouped in one location as bandwidth will be limited due to all antennas communicating with the same satellite. When the satellite antennas are distributed at each tower the best performance is obtained.



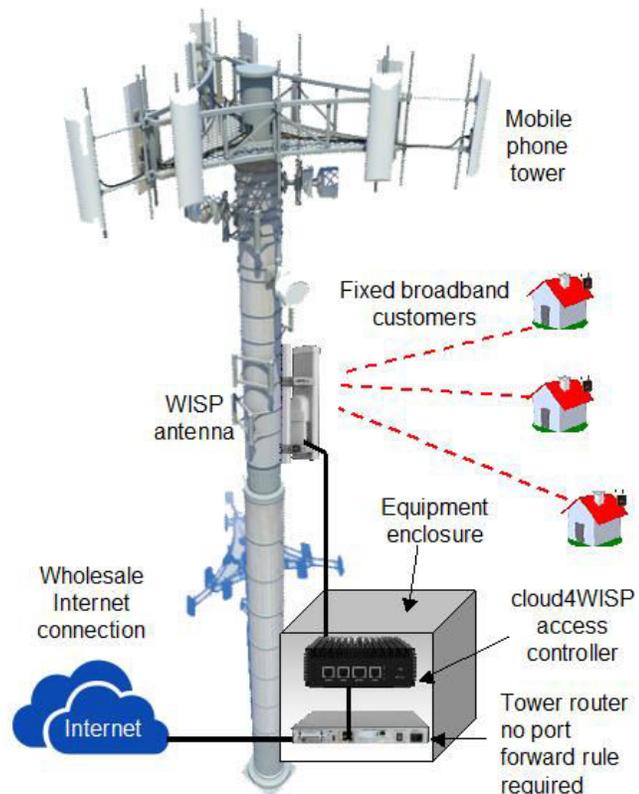
#### 4.6. Multi-tenant building: cloud4WISP configuration.

Providing Internet service in an urban area will frequently require installing service in a multi-tenant building. The building should be wired internally with CAT6 cable to each unit, and a wireless router installed in each unit, as shown in the next diagram. The multi-tenant building connects back to the WISP PtMP tower through a PtP wireless link. An cloud4WISP access control gateway is installed in the building to manage the wired subscribers. Each wireless router will be wired back to the cloud4WISP access controller and authenticated with the MAC address of the router. The PtP wireless link from the building to the PtMP tower must have WDS enabled to pass the MAC address of the cloud4WISP gateway back to the PtMP tower. The MAC address of the building cloud4WISP gateway is added to the allowed MAC table of the PtMP tower cloud4WISP gateway in order to bypass access control at that gateway.



#### 4.7. Tower installation: when the PtMP tower has wholesale broadband access.

When the WISP installs a PtMP antenna on a mobile phone tower then the tower operator will provide back-up power and a wholesale Internet connection. The cloud4WISP access control gateway will be installed in the tower equipment cabinet as shown in the next diagram.



#### **4.8. cloud4WISP advantages: network design benefits.**

The cloud4WISP access control gateway and Cloud technology offers a series of advantages for both new and established WISPs by dramatically reducing the investment and operating costs compared with any other technical solution. By reducing the technical complexity it is possible for a person with limited technical skills and financial resources to start a WISP business. WISP entrepreneurs can accelerate the time to service deployment and initiate revenue generation earlier in the startup cycle.

- The distributed operation of cloud4WISP gateways makes it possible to easily deploy access control at a tower site that has a data link installed at the tower.
- The time to deployment and subsequent revenue generation is shortened due to the plug-and-play nature of the cloud4WISP Cloud technology. The WISP requires one tower site connected to the Internet to start in business.
- The cloud4WISP Cloud solution is redundant. With distributed access control there is no one point in the network where failure will bring the whole network down.
- Any failure of the Cloud servers will not affect the operation of all cloud4WISP controllers in the network as they operate autonomously to the Cloud service.
- When PtMP tower backhaul service like LEO satellites become available then the WISP can consider eliminating NOC expenses.
- The initial cost of implementation is dramatically reduced, as the network infrastructure can be built out as needed and easily incremented in performance.
- The cloud4WISP Cloud technology is very easy to deploy and the WISP entrepreneur does not need specialized network skills; as would be the case if the entrepreneur was scripting routers and configuring RADIUS servers; the cloud4WISP controller and Cloud platform is plug and play.
- There is no limit to the number of cloud4WISP access controllers that can be assigned to a Cloud account, and no limit to the number of subscribers that can be managed by an cloud4WISP Cloud account.

## 5. Initial configuration of the cloud4WISP access controller software installed on a PC hardware

### 5.1. The configuration process

The cloud4WISP access control software has a simple graphic user interface that is accessed via the LAN port using a second PC. The purpose of the interface is to ensure that the cloud4WISP controller can connect to the Internet and is recognized by the cloud4WISP account. All subsequent configuration is done via the cloud4WISP account.

### 5.2. Initial setup

Connect the LAN port of a computer to the LAN port of the cloud4WISP product. The computer Ethernet port will get an IP address from the cloud4WISP DHCP server.

Open a browser and the page will be redirected to the cloud4WISP setup GUI, shown in the screen shot below. Ensure that the browser home page does not use encryption (https://) otherwise the browser page will not be redirected. Some browsers detect the login page and advise the user that a button must be clicked to login.

When the browser page opens to show the GUI select the preferred language (English or Spanish). The first box shows the device ID, which will be required to register the cloud4WISP product with the cloud4WISP management account.



The screenshot shows the 'easyWISP: Setup' interface. At the top left is the 'easyWISP' logo with the tagline 'Subscriber and Network Management'. On the top right, there are language selection icons (US and ES) and a status box showing: ID: 63a7cddcf7, cloud4WISP status: OK, and Internet access: YES. The main content area has two sections:

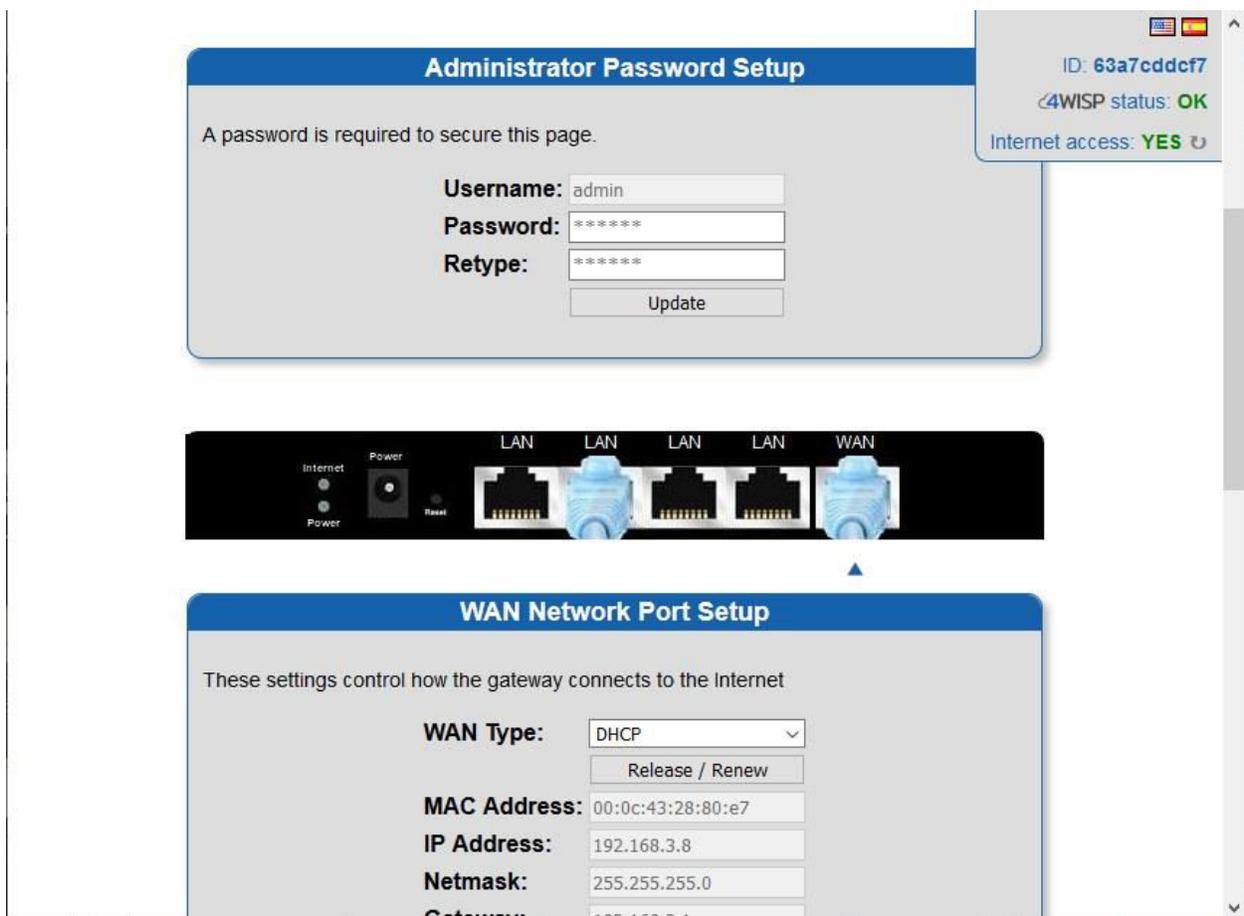
- easyWISP: Setup**: This section contains the text: 'This page is only used to connect to the Internet, all configuration and management is done via the cloud4WISP cloud service. To set up and manage this gateway go to <https://admin.cloud4wisp.com>. You need to provide the ID 63a7cddcf7.'
- Administrator Password Setup**: This section contains the text: 'A password is required to secure this page.' Below this are three input fields: 'Username:' with 'admin' entered, 'Password:' with asterisks, and 'Retype:' with asterisks. An 'Update' button is located below the retype field.

The box at the top right corner shows the device ID and the Internet connection status. If the Internet access shows a red 'NO' then verify the physical connection and also determine if a static IP address is required for the WAN port.

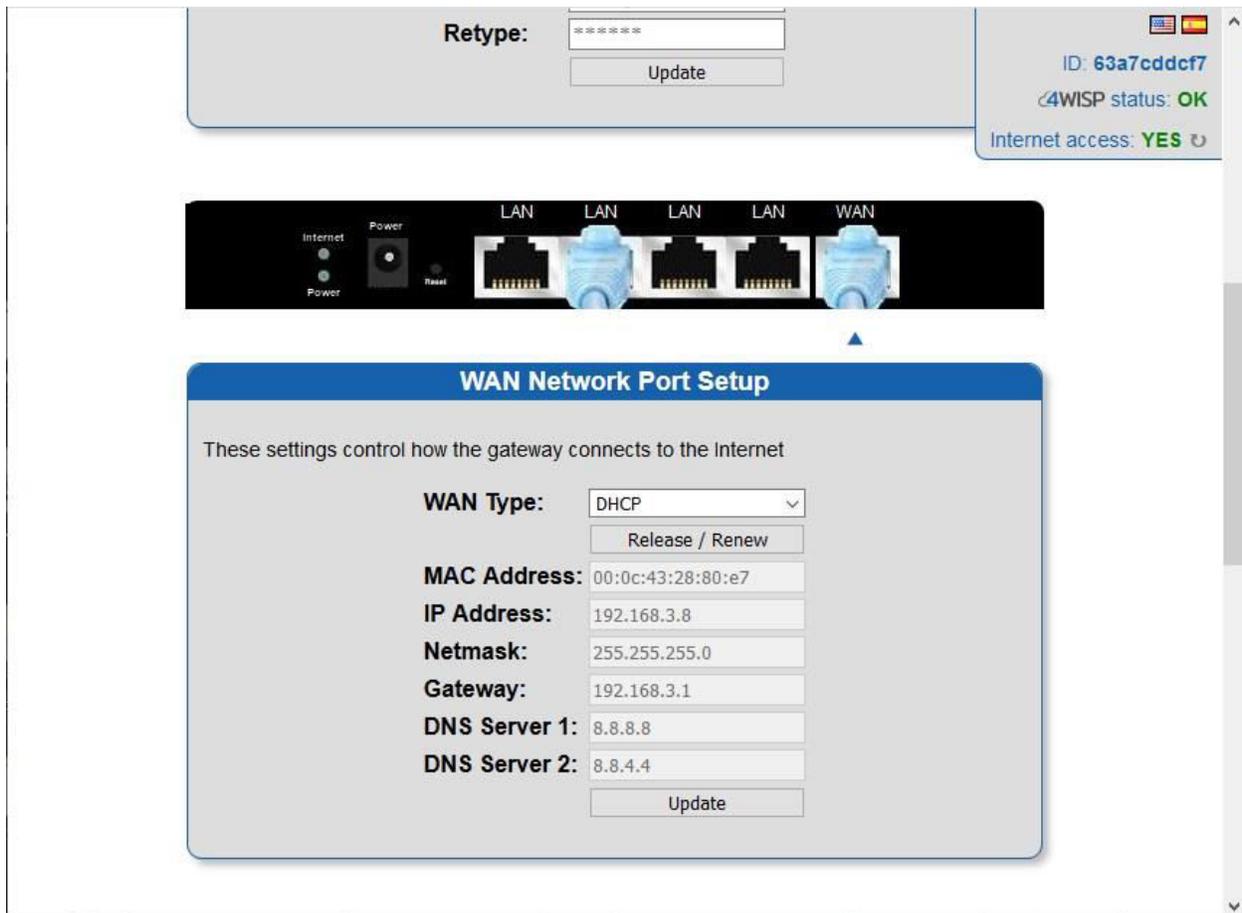
The first box shows the device ID, which will be required to register the cloud4WISP product with the cloud4WISP management account. The link to create and manage the clud4WISP account is also shown in the first box.

The second box requires a password to be entered to subsequently access the device. Choose a strong password, include upper and lower case letters, number and symbols. Repeat the password in the field below.

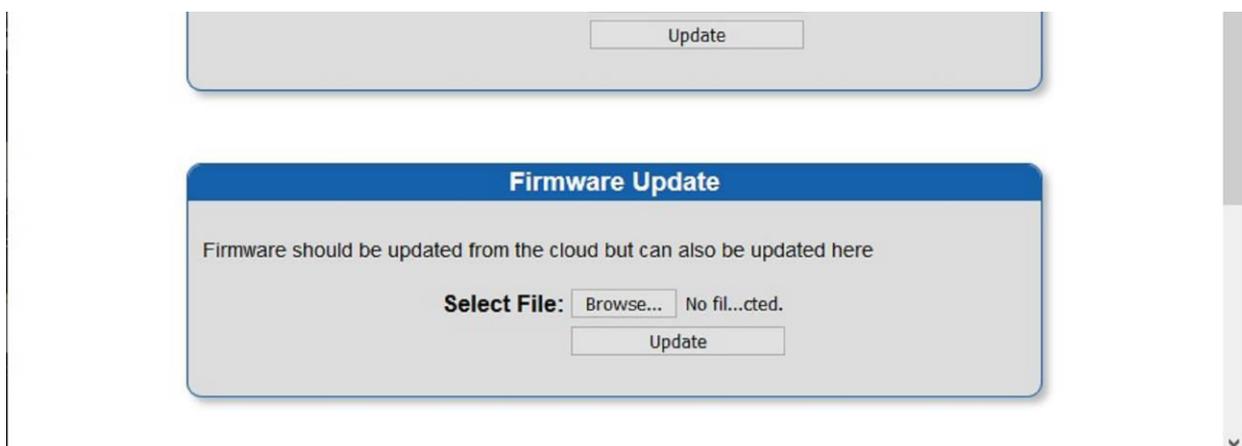
Scroll down the page to see the next box, this is a graphic representation of the cloud4WISP device connectors. Verify that the WAN cable is connected.



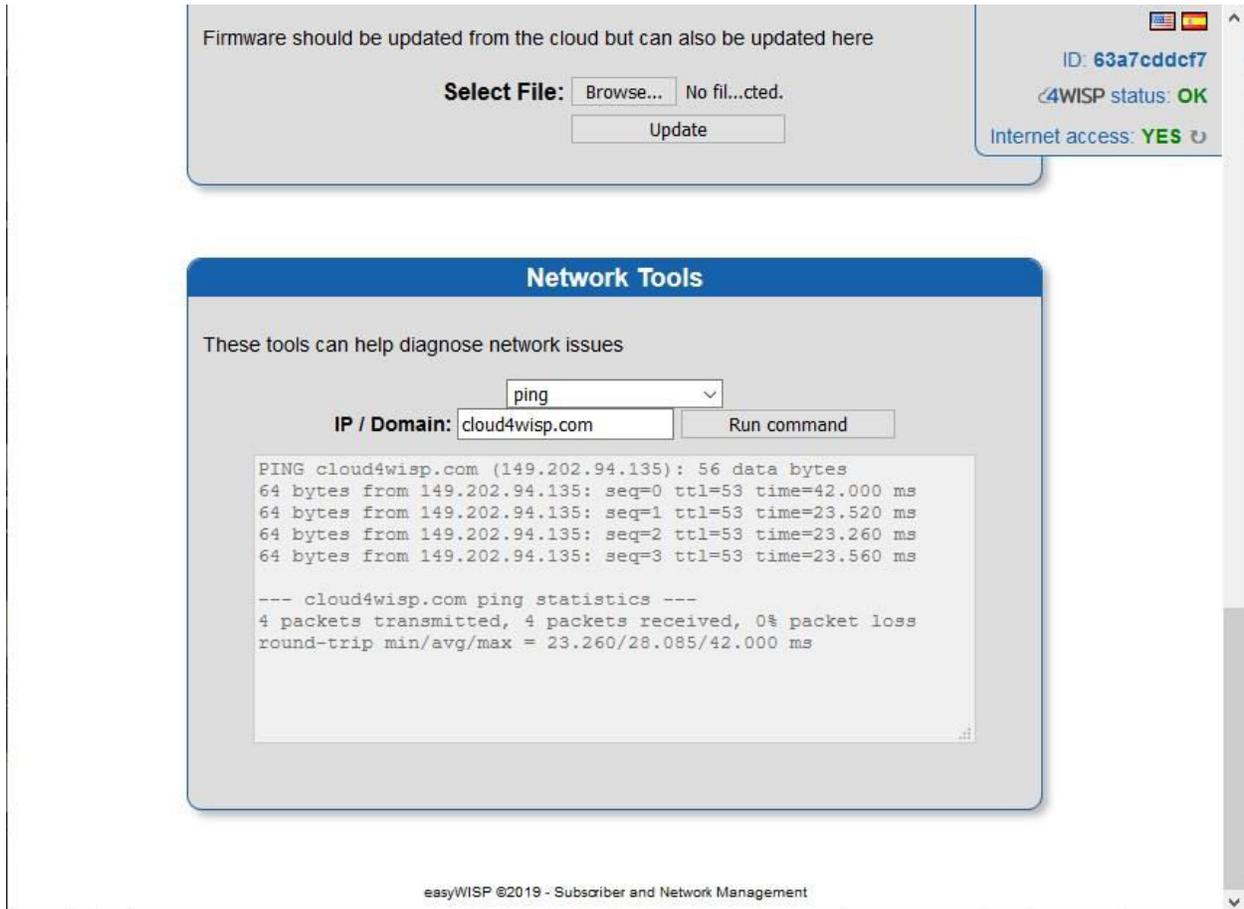
Scroll down further to view the next box, the WAN network port setup. This is shown in the next screenshot. The default WAN setup is a DHCP client and so the WAN port may have already connect to the Internet if connected to an ISP router that provides a DHCP service. If the Internet access is showing not connected then configure the WAN port appropriately for the ISP circuit provided.



When the WAN network port is correctly configured and the Internet access shows a green 'YES' then scroll the page down to see the next box, which is the firmware update box. This box is provided in case the cloud4WISP product cannot connect to the cloud4WISP account and a firmware update is required. Ignore this box during this setup procedure, and update the firmware when the cloud4WISP controller is connected to the cloud4WISP account.



Scroll down the page to see the next box, this is the Network Tools box and is provided to diagnose network problems. This box can be used in conjunction with the cloud4WISP technical support, which is accessed through the support ticket system.



The screen shown above illustrated the use of the 'ping' command to test the circuit latency to the cloud4WISP server.

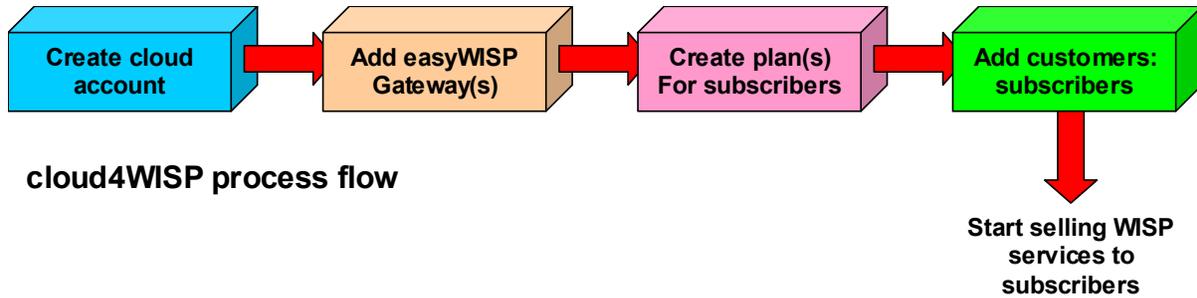
Commands can be selected from a drop-down menu. Cloud4WISP technical support may request the WISP technical staff to run commands from this screen in order to diagnose a problem with the network.

After initialization of the cloud4WISP controller it can be assigned to the WISP's cloud4WISP account. The device ID shown at the top of the page will be required to complete assigning the device to the cloud4WISP account.

## 6. cloud4WISP management features

### 6.1. cloud4WISP overview

The cloud4WISP management system is designed for ease use. Four easy steps are required in order to start selling Internet services. The four steps are shown in the diagram below.



As the WISP business expands and new tower locations are obtained, cloud4WISP gateways will be added to the system. Subscriber plans may be added and change with time. Subscriber plans may include special promotions for marketing the WISP services. Subscribers will be constantly added to the system on a daily basis as the WISP makes sales to new customers, or upgrades existing customers.

### 6.2. Create a cloud4WISP account

Open a browser window with the following URL:

**<https://admin.cloud4wisp.com>**

The screen shown below will open. Select the preferred language by clicking on the flag in the top right corner, then click on the link 'create new account'



Create the new cloud4WISP account by completing the form shown in the screen below, then click the 'create new account' button. Note that a valid cloud4WISP gateway ID must be provided to create the account. An email message will be sent confirming the cloud account with a temporary password for login.

**cloud4WISP**  
©2020

**New Cloud Account**

To create an account you will need a WISP gateway.  
The account is free and included as part of your purchase.  
You will need a new valid serial/ID to create an account.

**Fill out the form below to open a Cloud account:**

Username:

Gateway ID:

*The ID is displayed on the admin page*

Name:

Email:

Verify Email:

Company Name:

Telephone:

Address:

Address (cont):

City:

State:

ZIP / Postcode:

Country:

**Create new account**

When the cloud4WISP account has been created then login with the chosen username and password provided.

After the first login change the password, using a strong password. Keep the username and password in a safe location where it can be retrieved if necessary. Do not give the password and username to others. Employees can be added to the account later.

### 6.3. Dashboard

When the login has been completed successfully then the Dashboard will be displayed. See the next figure.

The first box shows the workflow steps to remind the administrator.

1. Set up a gateway
2. Add plans
3. Add customers

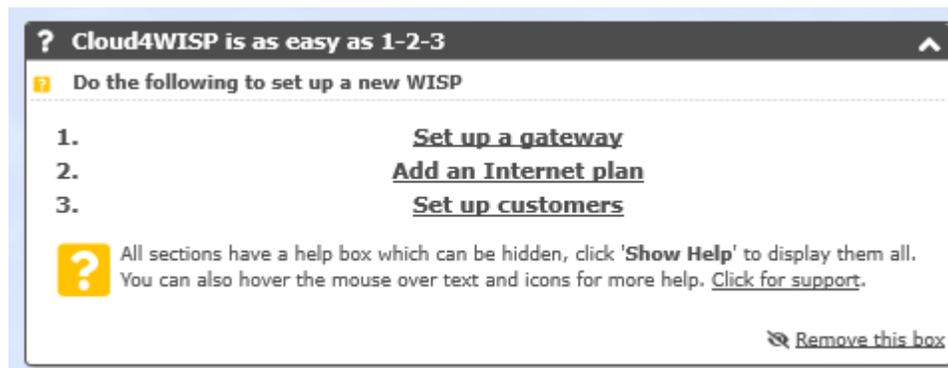
The first cloud4WISP gateway was added when the account was created. Subsequent cloud4WISP gateways can be added at any time. Customers/subscribers cannot be added without a billing plan to associate with the customer, therefore step 2 is the addition of a billing plan. It is likely that the WISP will require several billing plans, examples are:

- Basic Plan: 10Mb/s download speed, \$19/month
- Performance Plan: 25Mb/s download speed, \$39/month
- Business Plan: 50Mb/s download speed, \$65/month

When subscribers are added they are associated with one of the billing plans

The cloud4WISP Dashboard page, with four cloud4WISP gateways in use is shown on the following page.

The first box within the page is for instructional purposes and can be removed by the WISP.



The screenshot displays the Cloud4WISP admin dashboard. On the left is a navigation menu with options: Dashboard, Gateways, Plans, Customers, Codes, Billing, Helpdesk, Work Orders, Monitoring, Staff, Settings, Show Help, and Logout. The main content area includes:

- Cloud4WISP is as easy as 1-2-3**: A guide for setting up a new WISP with steps: 1. Set up a gateway, 2. Add an Internet plan, 3. Set up customers. It also includes a help section and a 'Remove this box' option.
- Gateway status**: A section with a dropdown menu set to 'Status reload disabled'. It contains a table of gateway statuses.
- Logins**: A section with a dropdown menu set to 'ALL GATEWAYS' and a time range of '28 days'. It features a line graph showing the total number of live logins across all gateways.
- Logins**: A section with a dropdown menu set to 'ALL GATEWAYS' and a count of '10 logins'. It displays a table of the most recent logins.

Gateway (ID)	Auth #	Conn #	Status
Tower 1 (779b7e8b50)	1	0	✓
Tower 2 (9a80871c88)	2	2	✓
Tower 3 (576ed3f888)	2	2	✓
Tower 4 (2285101251)	4	4	✓

Date time	Gateway	MAC address	Customer	Login
05/21 15:02	Tower 1	e0:2a:82:c3:8d:a4	Daniel Craig	MAC
05/19 14:07	Tower 1	e0:2a:82:c3:8d:a4	Daniel Craig	MAC
<b>05/19 13:58</b>	<b>Tower 3</b>	<b>00:e0:4c:68:59:77</b>	<b>Emma Stone</b>	<b>MAC</b>
05/15 20:09	Tower 1	e0:2a:82:c3:8d:a4	Daniel Craig	MAC
05/15 18:39	Tower 1	e0:2a:82:c3:8d:a4	Daniel Craig	MAC
<b>05/15 17:14</b>	<b>Tower 4</b>	<b>84:39:be:64:45:c9</b>	<b>Bradley Cooper</b>	<b>MAC</b>
05/15 16:27	Tower 2	f4:6d:04:f5:10:9a	Sandra Bullock	MAC
05/14 18:16	Tower 1	e0:2a:82:c3:8d:a4	Daniel Craig	MAC
05/14 15:21	Tower 1	e0:2a:82:c3:8d:a4	Daniel Craig	MAC
05/14 15:18	Tower 1	00:88:2c:0d:97:88	Mark Wahlberg	MAC

*Green: User logged in* [more](#)

The second box within the page shows the gateways that are associated with the account. The usual configuration is to install a gateway at each tower, however several towers may be backhauled to one gateway.

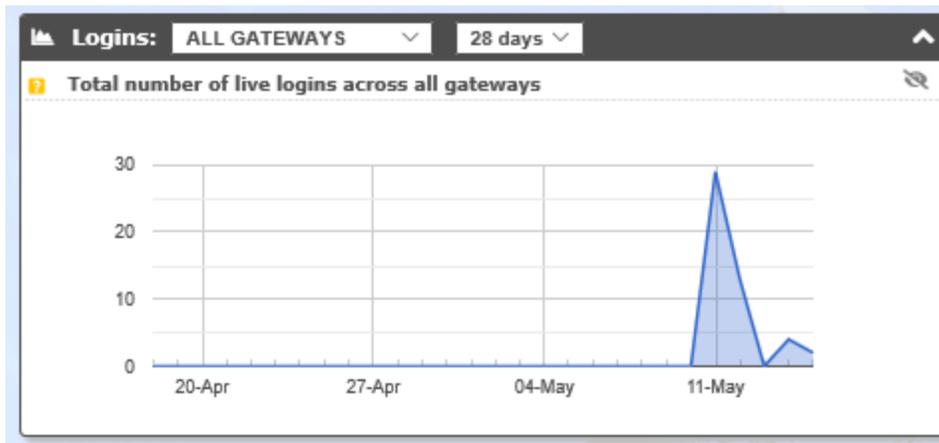
**Gateway status** Status reload disabled

Current status of WISP gateways

Gateway (ID)	Auth #	Conn #	Status
Tower 1 (779b7e8b50)	2	1	✓
Tower 2 (9a80871c88)	3	3	✓
Tower 3 (576ed3f888)	2	2	✓
Tower 4 (2285101251)	4	4	✓

✓✗ Check-in
🔄 Recent reboot
🛑 Disabled
🔒 Hide
🚨 Alert

The third box within the page is a graph that summarizes the number of logins across the WISP's network, the period of the graph can be selected at 7, 14 or 28 days



The fourth box within the page lists recent subscriber logins to the WISP's network. The number of subscribers displayed can be selected as 10, 100 or 1000

Logins: ALL GATEWAYS 10 logins

Most recent logins across all gateways

Date time	Gateway	MAC address	Customer	Login
05/15 17:14	Tower 4	84:39:be:64:45:c9	Bradley Cooper	MAC
05/15 16:27	Tower 2	f4:6d:04:f5:10:9a	Sandra Bullock	MAC
05/14 18:16	Tower 1	e0:2a:82:c3:8d:a4	Daniel Craig	MAC
05/14 15:21	Tower 1	e0:2a:82:c3:8d:a4	Daniel Craig	MAC
05/14 15:18	Tower 1	00:88:2c:0d:97:88	Mark Wahlberg	MAC
05/14 14:45	Tower 2	f4:6d:04:f5:10:9a	Sandra Bullock	MAC
05/12 20:55	Tower 1	88:dc:96:44:98:4a	Dwayne Johnson	MAC
05/12 18:06	Tower 4	08:9e:01:b3:72:61	Channing Tatum	MAC
05/12 17:37	Tower 4	84:39:be:64:45:c9	Bradley Cooper	MAC
05/12 17:37	Tower 4	c8:9c:dc:83:aa:af	Christian Bale	MAC

Green: User logged in [more](#)

## 6.4. Adding cloud4WISP gateways

To add an cloud4WISP gateway click on the gateway menu entry then enter the gateway ID in the first box and click the 'add gateway' button

Three other boxes are provided. Display gateway permits the gateway to be selected from a drop-down list and selected in order to configure the gateway. Find a gateway permits the ID or name of the gateway to be entered in order to locate the gateway configuration page. Finally delete a gateway permits a gateway to be selected from a drop-down menu and deleted from the gateway database. This might occur is a gateway is transferred from one WISP account to another; a gateway cannot be registered in two accounts simultaneously.

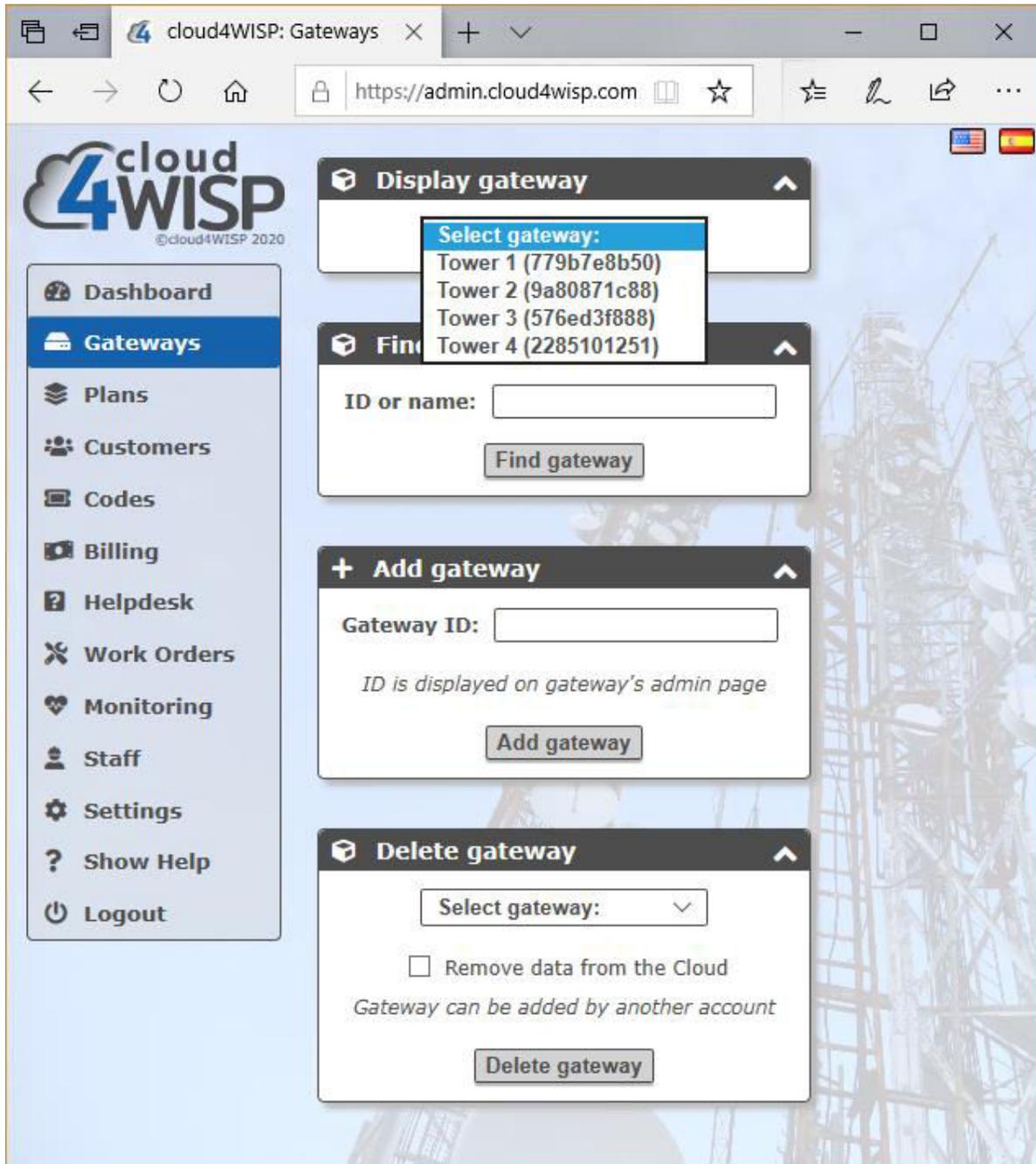


The screenshot displays the cloud4WISP admin interface in a browser window. The address bar shows <https://admin.cloud4wisp.com>. The interface features a sidebar menu on the left with the following items: Dashboard, Gateways (highlighted), Plans, Customers, Codes, Billing, Helpdesk, Work Orders, Monitoring, Staff, Settings, Show Help, and Logout. The main content area contains four panels:

- Display gateway:** A panel with a dropdown menu labeled "Select gateway:".
- Find gateway:** A panel with an input field labeled "ID or name:" and a "Find gateway" button.
- Add gateway:** A panel with an input field labeled "Gateway ID:", a note "*ID is displayed on gateway's admin page*", and an "Add gateway" button.
- Delete gateway:** A panel with a dropdown menu labeled "Select gateway:", a checkbox labeled "Remove data from the Cloud", a note "*Gateway can be added by another account*", and a "Delete gateway" button.

## 6.5. Configuring an cloud4WISP gateway

First select the gateway from the display drop-down menu as shown in the screen below. Click on the selected gateway to open the gateway configuration screen



When the gateway has been selected the configuration parameters will be displayed. This screen has a lot of information and is shown scrolled down over the following three pages.

The screenshot displays the Cloud4WISP admin interface for a gateway named 'Tower 1 (779b7e8b50)'. The interface is divided into several sections:

- Display gateway:** Shows gateway status including Public IP address (107.194.14.55), MAC address (70:b3:d5:e6:94:7e), Hardware (EasyWISP EZ-100G), Firmware (1.3.5mt), Enabled (Yes), and Uptime (2d 21h 49m 41s).
- Gateway settings:** A configuration panel for 'Tower 1' with fields for Name, Hostname (wisplgin.com), Login page, Admin Password, and Repeat. It includes sections for WAN port settings (DHCP, IP: 192.168.1.191, Netmask: 255.255.255.0), LAN port settings (IP: 192.168.96.1, Netmask: 255.255.240.0), Firewall settings, and Port forward settings.
- Customer access:** A table listing customers with access to the gateway.
 

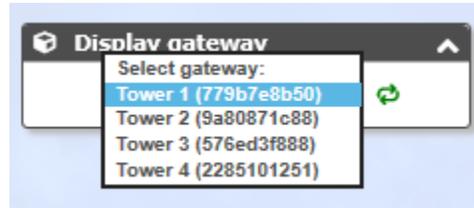
Name / Company	CPE MAC	Description	Enabled
Daniel Craig	e0:2a:82:c3:8d:a4	Daniel Craig residential	✓
Dwayne Johnson / DEF News Corp	88:dc:96:44:98:4a	Business - DEF News Corp	✓
Mark Wahlberg	00:88:2c:04:97:88	Mark Wahlberg residential	✓
- Monitoring Dashboards:**
  - Users:** Graph of connected and authenticated users over time.
  - Performance:** Graph of gateway hardware performance (CPU, RAM).
  - WAN usage:** Graph of Internet usage data (Down: 341.75 MB, Up: 21.73 MB, Total: 363.48 MB).
  - Authenticated users (logged in):** Table of active users.
 

MAC address	OS/browser	Time left	Data in / out	Code / User
88:dc:96:44:98:4a	Auto/MAC	26d 20h 45m	362M / 8M	Dwayne Johnson ✗
00:88:2c:04:97:88	Auto/MAC	29d 20h 34m	344M / 15M	Mark Wahlberg ✗
e0:2a:82:c3:8d:a4	Auto/MAC	29d 20h 36m	916K / 63K	Daniel Craig ✗
  - Connected users (using the gateway):** Table of devices connected to the gateway.
 

MAC address	IP address	Hostname	Block IP	Block MAC	Allow MAC
00:88:2c:0d:97:88	192.168.96.67	android-55bc99474e	No	No	No
e0:2a:82:c3:8d:a4	192.168.107.171	android-249652aa5	No	No	No
  - MAC addresses:** Lists allowed and blocked MAC addresses for bypassing login.
  - IP addresses and web sites:** Lists allowed and blocked IP addresses and web sites.

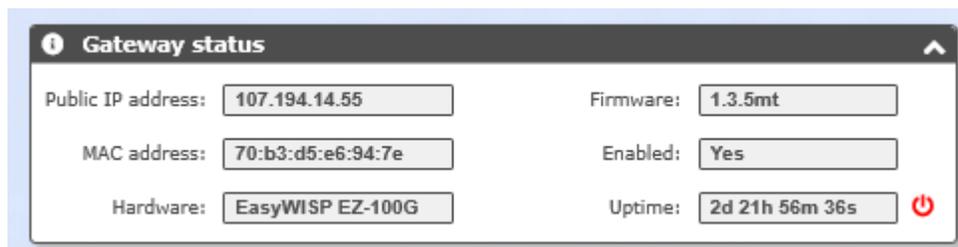
The cloud4WISP gateway configuration parameters are described in sequence:

**Box 1:** permits the selection of any gateway managed by cloud4WISP

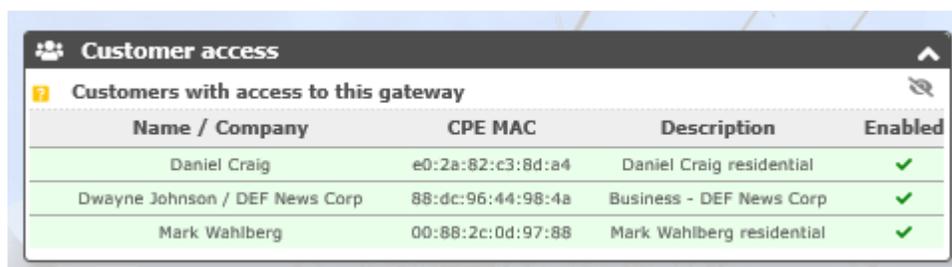


**Box 2:** shows the basic hardware parameters cloud4WISP gateway, the public IP, the MAC address, the hardware version, the firmware version and if enabled. The on-line status of the cloud4WISP gateway is shown, in the example the 'not checked in' message indicates that the gateway is off-line and action must be taken to put the gateway back on-line.

**IMPORTANT NOTE:** take care when modifying WAN IP addresses via the cloud. A mistake made may require a visit to the tower to restore the WAN IP address via the cloud4WISP setup page.



**Box 3:** lists the customer CPE devices that are services by the cloud4WISP controller.



**Box 4:** shows the cloud4WISP gateway settings, which can be modified using this page. The first section permits the device name to be changed, the login page to be changed for a custom login page, and the admin password to be changed. The next section is the WAN port settings, the default for the WAN port is DHCP client; however the WAN port can be configured for a static IP. The next section is the LAN port settings. The cloud4WISP EZ100G has four LAN ports, however they are configured as a switch. The IP parameters can be configured for the LAN ports. The next section is the firewall setting; the firewall will block access to private address ranges. This means that if the WISP has other equipment at the tower connected to a router in addition to cloud4WISP, it will block any subscriber attempt to access the network behind the cloud4WISP. The final section is the port forward settings. Port forward rules can be added to permit the WISP to access devices on the LAN size of cloud4WISP. For example the WISP might want to add remote configuration for the PtMP radio and CPE radios. Click the update button after the changes are made,

### Gateway settings

**Custom login page and network settings for gateway**

Name:

Hostname:

Login page:  [Add a custom page](#)

Admin Password:  Repeat:

**WAN port settings:** ⚠ Change will reboot gateway and log out users

⚠ Invalid WAN settings may require a site visit to restore cloud access!

Type:

IP address:

Netmask:

Gateway:

DNS:

**LAN port settings:** ⚠ Change will reboot gateway and log out users

IP address:

Netmask:

Gateway:

DNS:

DHCP start:

DHCP end:

Lease time:  (seconds)

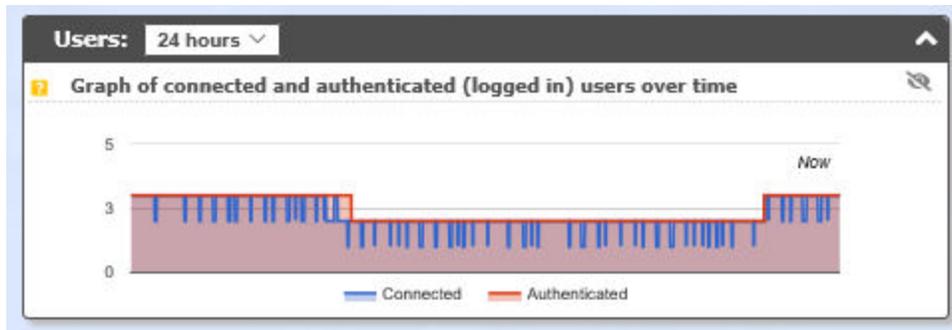
**Firewall settings:** ⚠ Change will restart firewall and log out users

Block private IP ranges:  192.168.0.0/16 + 10.0.0.0/8 + 172.16.0.0/12

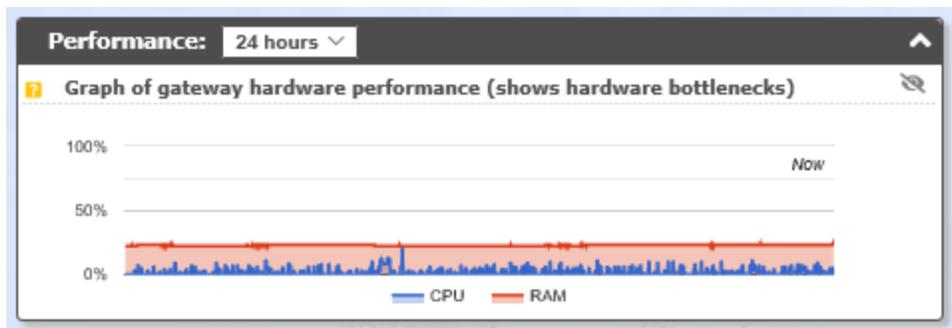
**Port forward settings:** WAN port access to local network

WAN port	LAN IP	LAN port	Forward name / comments
1 <input type="text"/>	→ <input type="text"/>	<input type="text"/>	<input type="text"/>

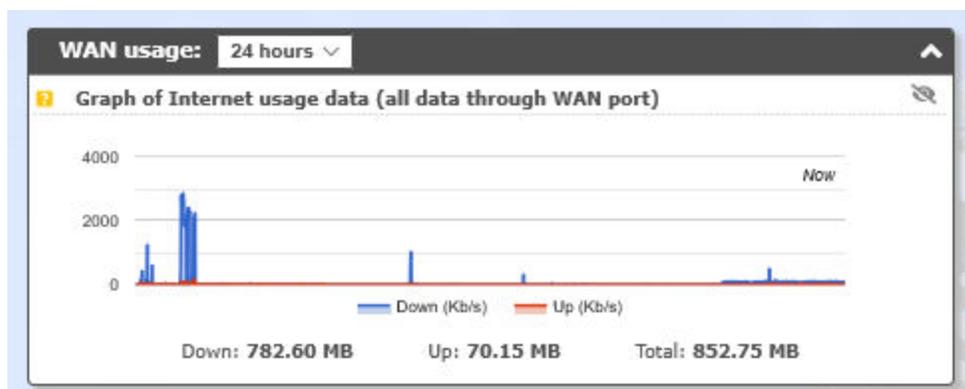
**Box 5:** displays a graph showing the number of users connected to the gateway. The timescale can be selected from 1 hour to 1 week.



**Box 6:** displays the performance of the cloud4WISP gateway controller. This graph will indicate to the WISP if the cloud4WISP controller requires upgrading to a unit with higher performance. The timescale can be selected from 1 hour to 1 week.



**Box 7:** displays WAN usage which is the utilization of the WAN bandwidth. If the WAN circuit bandwidth utilization is constantly at maximum then the WISP should upgrade the circuit for higher capacity. The timescale can be selected from 1 hour to 1 week.



**Box 8:** lists authenticated subscribers currently logged in to the WISP's Internet service. This list should include all subscribers, unless one subscriber has a defective wireless connection.

MAC address	OS/browser	Time left	Data in / out	Code / User
b8:70:f4:e2:36:bb	Auto/MAC	26d 20h 42m	1.3G / 62M	Robert Downey
c8:9c:dc:83:23:1f	Auto/MAC	26d 0h 34m	108M / 5M	Tom Cruise
f4:6d:04:f5:10:9a	Auto/MAC	26d 20h 44m	11M / 10M	Sandra Bullock

3 users authenticated    ✕ Logout user    🚫 Logout and block user    [more](#)

**Box 9:** lists connected subscribers who are currently accessing the Internet. This number may not include all the subscribers who are connected to the cloud4WISP gateway. The WISP can use the information in this graph to estimate the contention-ratio (see elsewhere in this document for an explanation of this parameter) of the tower service.

MAC address	IP address	Hostname	Block IP	Block MAC	Allow MAC
b8:70:f4:e2:36:bb	192.168.106.90	john-PC	No	No	No
c8:9c:dc:83:23:1f	192.168.107.73	jb-VB90RI	No	No	No
f4:6d:04:f5:10:9a	192.168.108.158	John-PC	No	No	No

3 users connected

**Box 10:** shows the allowed and blocked MAC lists. Entering MAC addresses into the allowed or blocked list and clicking the 'update' button will add MAC addresses.

**MAC addresses**

MAC addresses allowed to bypass login (eg WIFI access points)

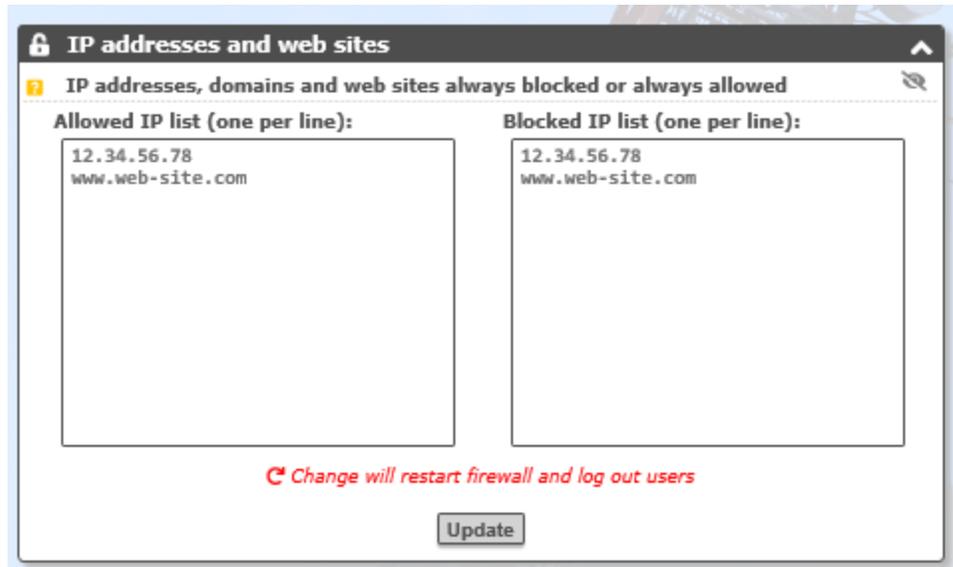
Allowed MAC list (one per line):

00:11:22:33:44:55  
aa:bb:cc:dd:ee:ff

Blocked MAC list (one per line):

00:11:22:33:44:55  
aa:bb:cc:dd:ee:ff

**Box 11:** shows the allowed IP and blocked IP lists. Entering IP addresses into the allowed or blocked list and clicking the 'update' button will add IP addresses.



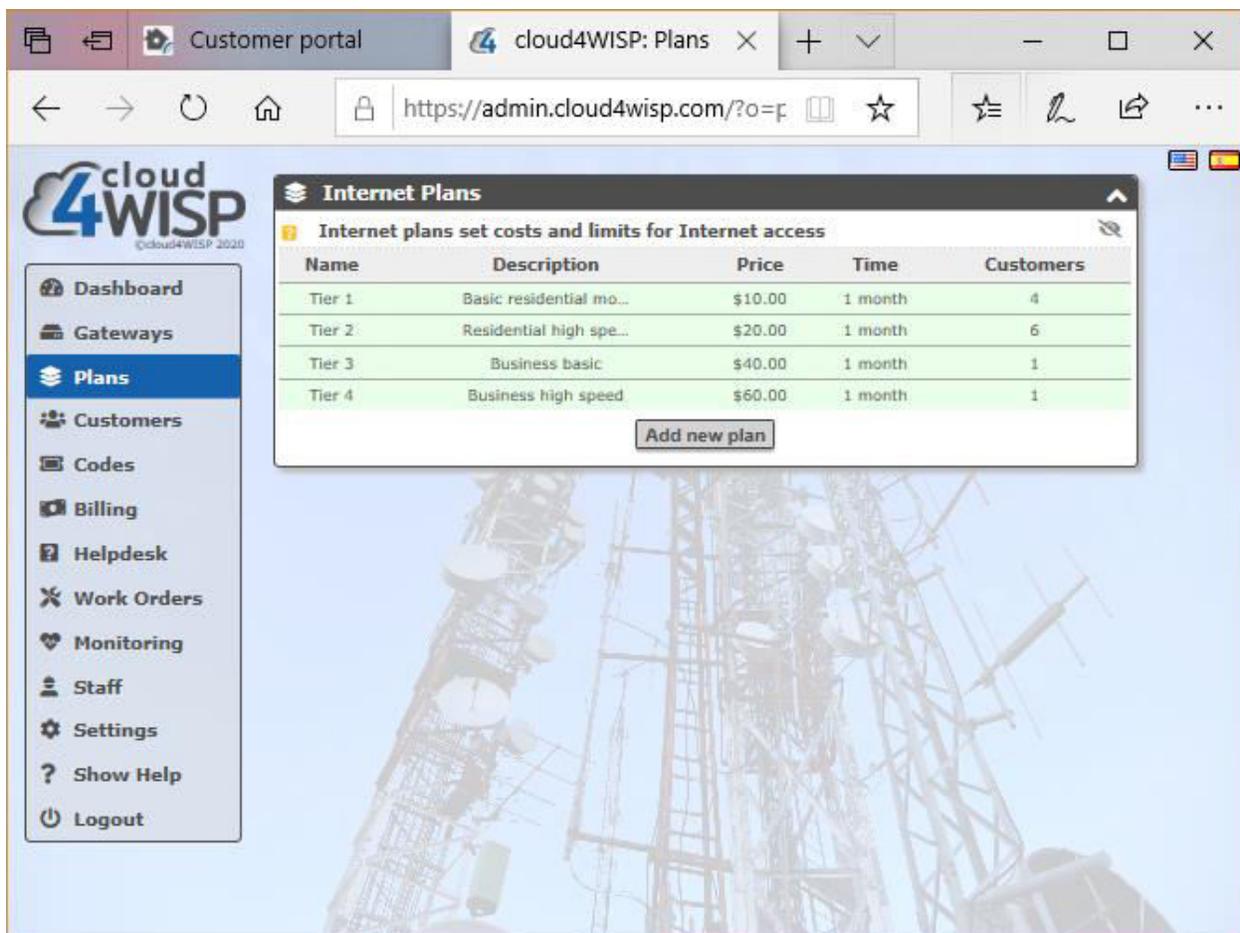
There is no limit to the number of cloud4WISP gateways that can be added to a cloud4WISP account.

## 6.6. Plans

A plan is a specific service provided for a group of subscribers. The plans developed by the WISP are sometimes referred to as tiers. Each plan determines the download and upload speeds, the download and upload byte counts, and the charge for that service in the local currency. Plan characteristics are developed by the WISP for the local market and will be determined by the operating costs, the local demand for the service and the economic levels of the potential subscribers. Plan examples are:

- Basic Plan (Tier 1): 10Mb/s download speed, \$19/month
- Performance Plan (Tier 2): 25Mb/s download speed, \$39/month
- Business Plan (Tier 3): 50Mb/s download speed, \$65/month

Any type of plan can be configured and there is no limit to the number of plans. Click on the plan entry in the main menu to list the plans already configured (no plans will be shown the first time that the cloud4WISP account is configured). See the screen below.

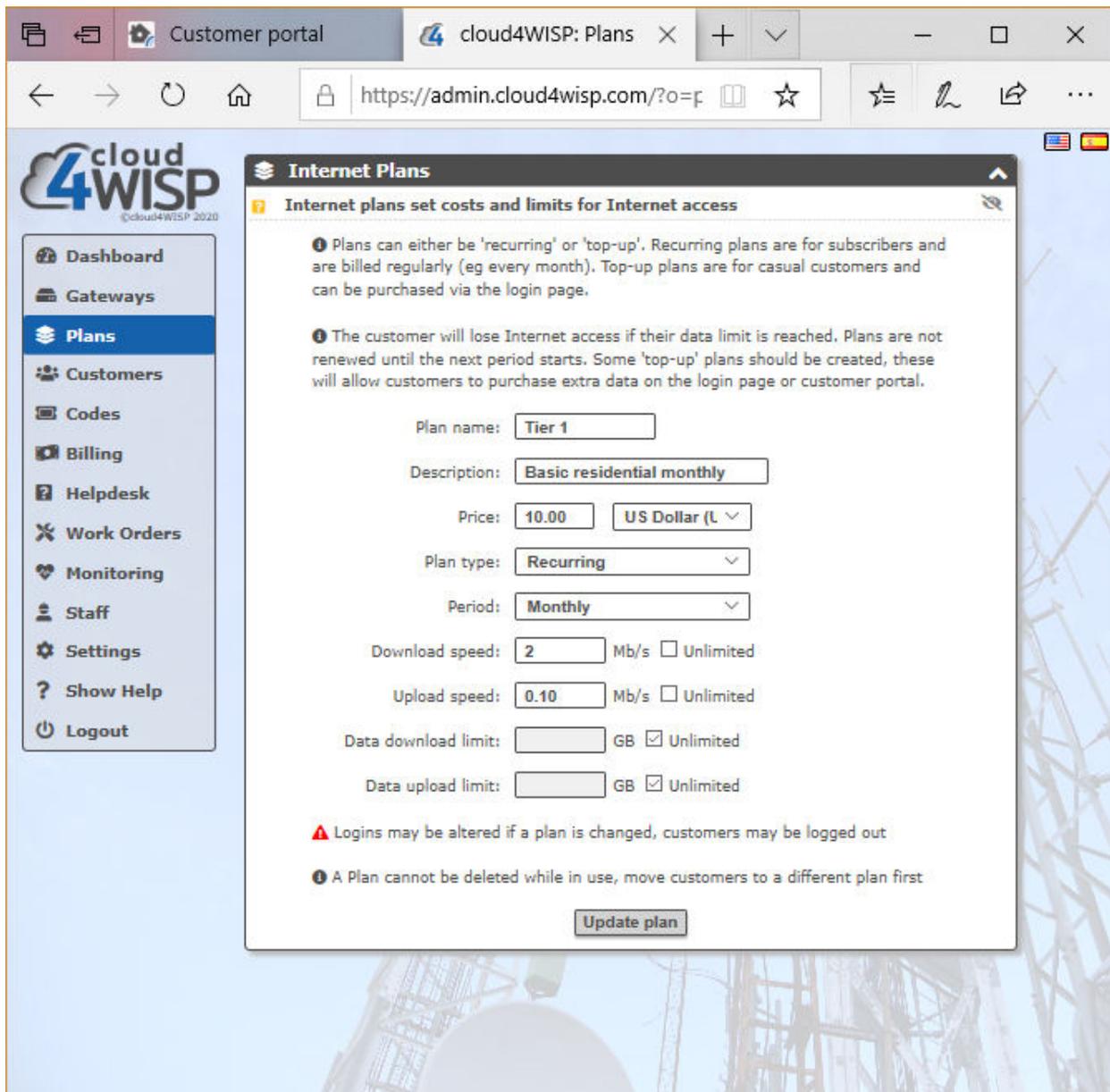


The screenshot shows the 'Internet Plans' configuration page in the cloud4WISP admin interface. The page title is 'Internet Plans' and it includes a subtitle: 'Internet plans set costs and limits for Internet access'. Below this is a table with the following data:

Name	Description	Price	Time	Customers
Tier 1	Basic residential mo...	\$10.00	1 month	4
Tier 2	Residential high spe...	\$20.00	1 month	6
Tier 3	Business basic	\$40.00	1 month	1
Tier 4	Business high speed	\$60.00	1 month	1

Below the table is an 'Add new plan' button. The left sidebar menu includes: Dashboard, Gateways, Plans (selected), Customers, Codes, Billing, Helpdesk, Work Orders, Monitoring, Staff, Settings, Show Help, and Logout. The browser address bar shows the URL: <https://admin.cloud4wisp.com/?o=f>.

Click on the button 'add new plan' to create a new billing plan. The new plan screen is shown below



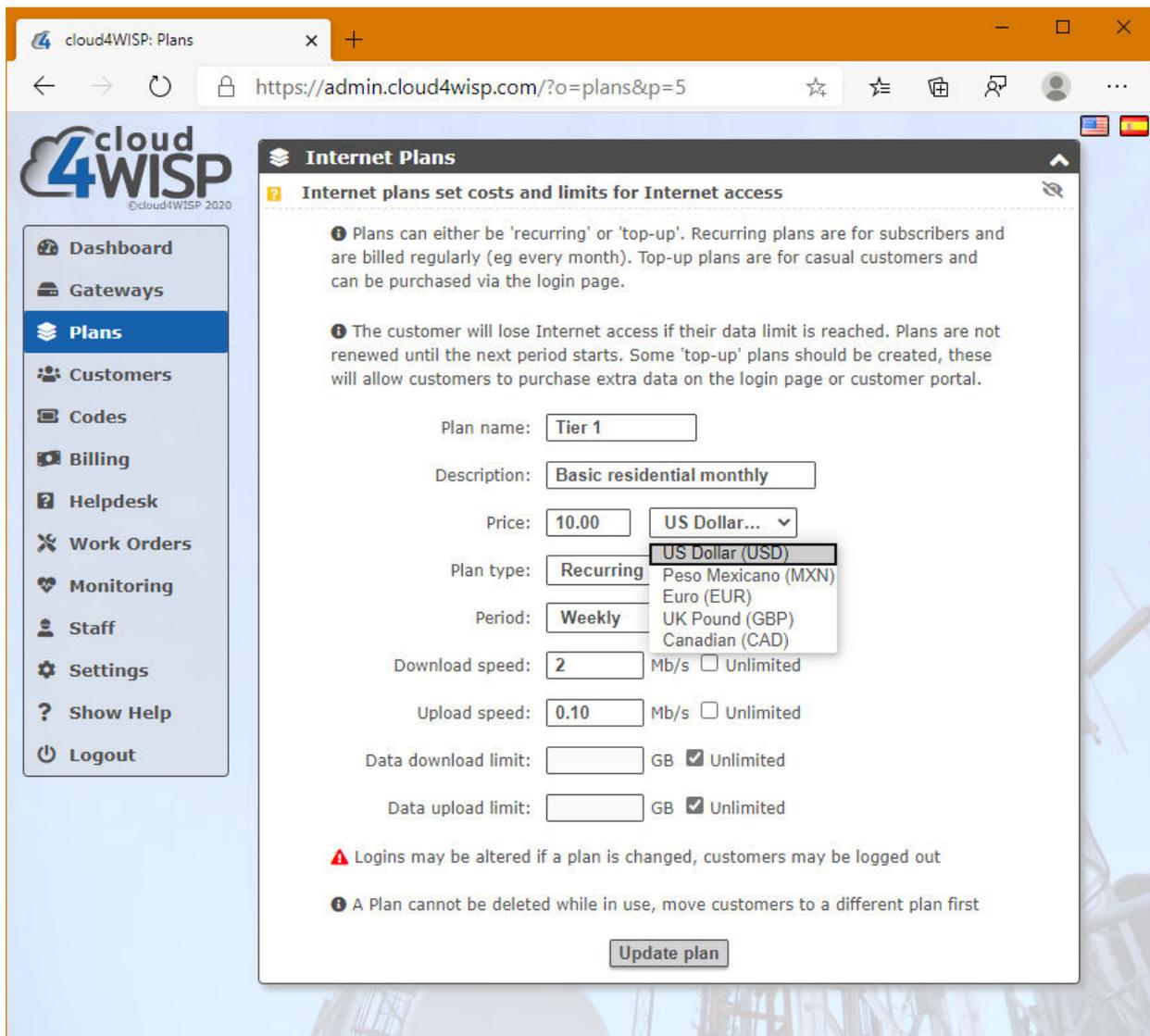
The parameters required to create a plan are as follows:

- Plan name (usually the name given to commercialize the service)
- Description of the plan (e.g. for small and medium businesses, for residential subscribers)
- Charge for the plan (e.g. a monthly charge if the billing cycle is monthly)
- Currency for the charge (five currencies are currently available, see the drop down list in the next figure)

- Plan type, usually recurring is selected
- Period is the duration of the billing cycle (e.g. one calendar month, 12 charges per year)
- Download speed (in Kb/s however speeds are provided to subscribers in Mb/s, e.g. 1000Kb/s), or check the box if no speed limit
- Upload speed (in Kb/s however speeds are provided to subscribers in Mb/s, e.g. 1000Kb/s), or check the box if no speed limit
- Data download limit (the maximum number of bytes that can be downloaded during each billing cycle)
- Data upload limit (the maximum number of bytes that can be uploaded during each billing cycle)

The figure below shows the currency alternatives in the drop-down menu.

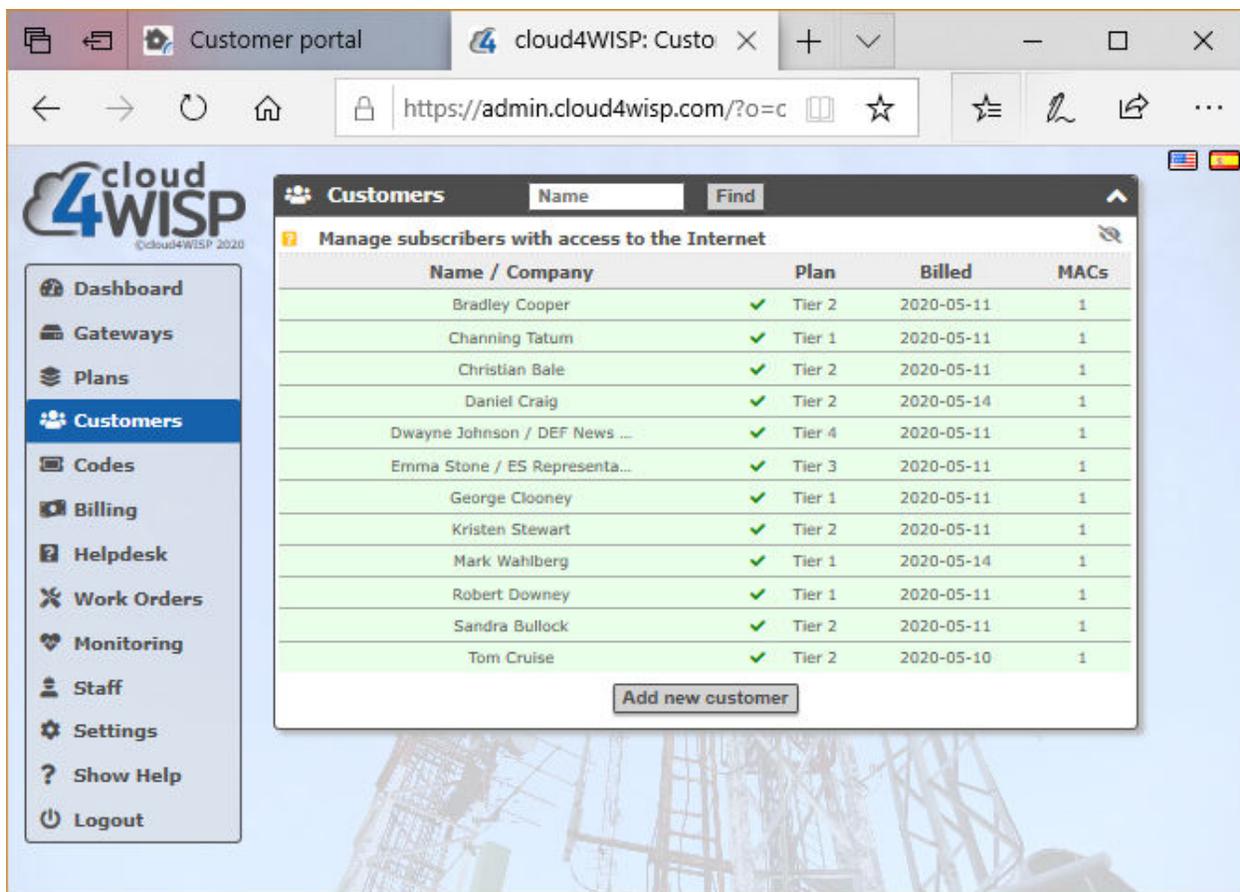
:



In some locations or countries the ISP may charge the WISP for the data connection per Mbyte or Gbyte downloaded. If this is the case the WISP should put a download and upload data cap on users to prevent costs spiraling out of control. The WISP can charge different prices for each data cap. The subscriber who reaches the data cap before the end of the billing cycle can purchase additional data, which is sold as an access code that is entered in a login page. The login page is shown at the end of the billing section.

## 6.7. Customers (subscribers)

Click on the customer entry on the main menu tab to see a list of subscribers associated with the cloud4WISP account. This is shown on the following screen with subscribers who have been added to the account.



The screenshot shows the 'Customers' management interface in the cloud4WISP admin portal. The browser address bar shows the URL: `https://admin.cloud4wisp.com/?o=c`. The interface includes a sidebar menu with options like Dashboard, Gateways, Plans, Customers (selected), Codes, Billing, Helpdesk, Work Orders, Monitoring, Staff, Settings, Show Help, and Logout. The main content area displays a table titled 'Manage subscribers with access to the Internet' with the following data:

Name / Company	Plan	Billed	MACs
Bradley Cooper	✓ Tier 2	2020-05-11	1
Channing Tatum	✓ Tier 1	2020-05-11	1
Christian Bale	✓ Tier 2	2020-05-11	1
Daniel Craig	✓ Tier 2	2020-05-14	1
Dwayne Johnson / DEF News ...	✓ Tier 4	2020-05-11	1
Erma Stone / ES Representa...	✓ Tier 3	2020-05-11	1
George Clooney	✓ Tier 1	2020-05-11	1
Kristen Stewart	✓ Tier 2	2020-05-11	1
Mark Wahlberg	✓ Tier 1	2020-05-14	1
Robert Downey	✓ Tier 1	2020-05-11	1
Sandra Bullock	✓ Tier 2	2020-05-11	1
Tom Cruise	✓ Tier 2	2020-05-10	1

At the bottom of the table, there is an 'Add new customer' button.

Click on the 'add new customer' button to add a subscriber. The next screen will be displayed.

Customer details include name, email, company name (if a business customer), telephone, and complete address. It is important to obtain the customers email address as the cloud4WISP system will send a welcome message to the customer.

Customer portal
cloud4WISP: Custo

← → ↻ 🏠
https://admin.cloud4wisp.com/?o=c
🌐 ⭐

- Dashboard
- Gateways
- Plans
- Customers
- Codes
- Billing
- Helpdesk
- Work Orders
- Monitoring
- Staff
- Settings
- Show Help
- Logout

Customers
Name  Find

Manage subscribers with access to the Internet

**Customer details:**

Name:

Email:

Verify Email:

Company Name:

Telephone:

Address:

Address (cont):

City:

State:

ZIP / Postcode:

Country:

**Customer portal credentials:**

Customer portal:

Username:

Leave password box empty to auto-generate in welcome email

Password:

**Customer welcome email:**

If an email address is provided a welcome email can be sent to the customer. The email includes a username and auto-generated password to manage their account via the customer portal page. If the customer has no email address the details can be printed for the customer.

Welcome subject:

Welcome text: 

Welcome Bradley Cooper,  
  
 Thank-you for joining our network.  
  
 An account has been created for you on our customer portal at <https://flwisp.wisplogin.com>, your login details are as follows:  
  
 Username: BradleyCooper  
  
 XXXXXX will be replaced with new password

Save welcome text:  Save for next customer  Use default

**Customer provisioning:**

Work order:  Create work order for CPE installation

Assign work to:

Order comments: 

Please make the following changes

**Internet access management:**

Customer enabled:  Internet access allowed

Recurring plans only, a login code can be created for single use

Internet access plan:

Enter same MAC again if access is needed on multiple, but not all gateways

	CPE MAC address	Description	Gateway	Allow
1	84:39:be:64:45:c9	Bradley Cooper re:	Tower 4	<input checked="" type="checkbox"/>

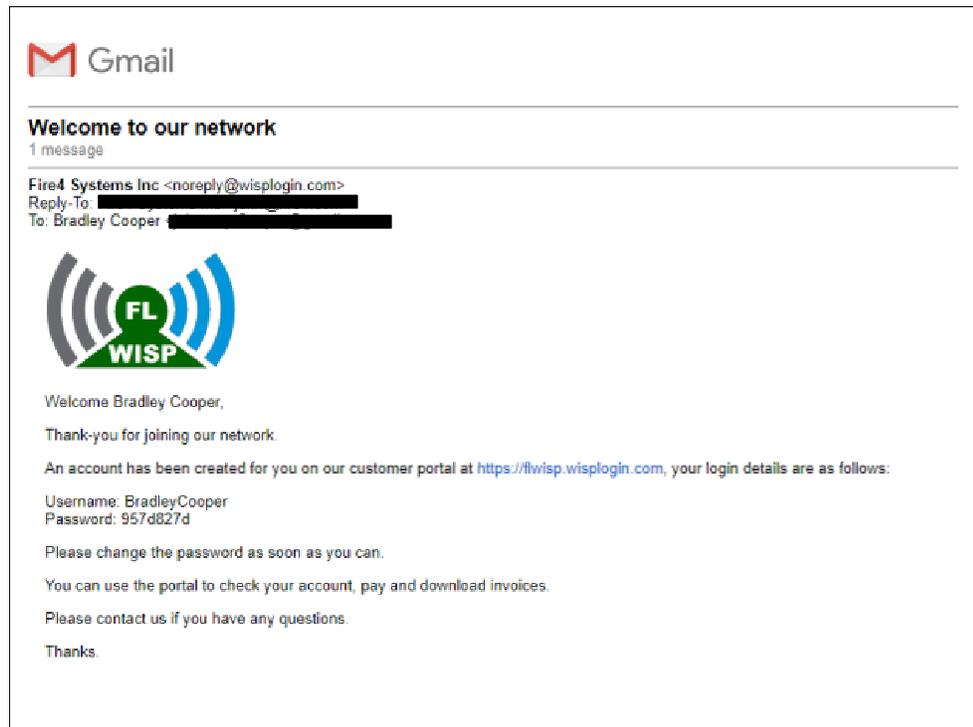
[+ Add](#)



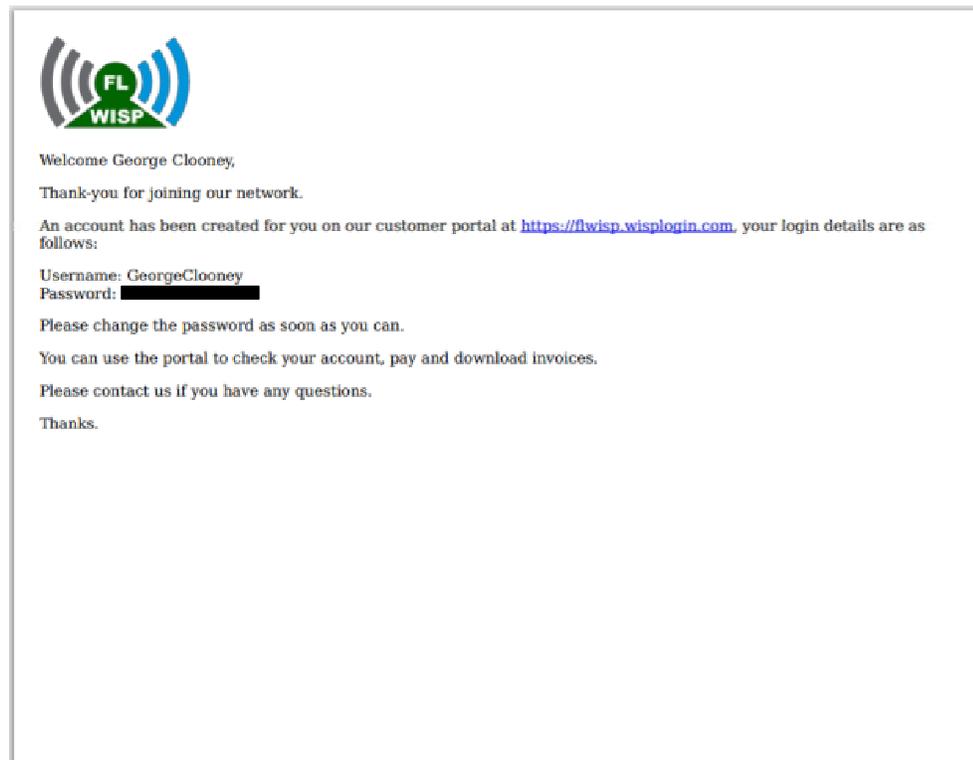
The customer support person will add the new subscriber information to the cloud4WISP account. Alternatively the WAIP may prefer the sales person to add the new subscriber information. The following fields should be completed when adding a subscriber to the WISP's account

- Subscriber name
- Subscriber email. When the subscriber is added cloud4WISP will send a greeting email to this address.
- Company name if a business account, otherwise leave blank
- Subscribers telephone for contact. This will be required when the field service technician receives the installation work order and schedules an installation date and time with the subscriber.
- Address. This is the address where the CPE radio will be installed.
- Customer portal username. This is created by the WISP and is a service for the subscriber to login to see account information, send support requests and make on-line payments.
- The portal password field is left blank; cloud4WISP will send a password for the portal with the greeting message. The WISP has no access to the subscribers portal password.
- Welcome subject and welcome text; the WISP can personalize the welcome message that will be sent to the subscriber.
- Check the box to save the welcome text that the WISP has prepared and will be used for subsequent subscribers.
- Customer provisioning, check the box to create a work order
- Assign work to; the drop-down menu lists the staff who can be selected to send the work order to, this will be a field service technician or the technical manager.
- Other comments is a box to provide additional information to add to the work order, for example, the subscriber might advise that there is a vicious dog locked in the house yard to want the technician who will do the CPE installation.
- The Internet access management checkbox enables Internet access for the subscriber. The WISP might want to wait until the subscriber has given the first month payment before activating the subscriber.
- The Internet access plan can be selected from the drop down menu, this is the data speed and price plan or tier that was chosen by the subscriber.
- The CPE MAC address is entered when available; this MAC address will be authenticated by the cloud4WISP access controller. The field service engineer can add the CPE MAC address during installation if desired.
- The description field is optional but should provide additional information that a field service technician might need in the event that the link fails and requires service.
- The cloud4WISP gateway that will service the subscriber is selected from the drop down list
- The allow box is checked to allow the cloud4WISP gateway to accept access from the CPE radio.
- Finally the update button is clicked to enter this subscriber into the subscriber database. Note that the subscriber information can be modified at any time that the subscriber information changes.

An example of a welcome email message is shown below;



An example of a PDF welcome letter is shown below;



Each subscriber has access to the CRM (customer relationship management) portal. This is a WISP branded website where the subscriber can access information about the account, and make payments on-line. The customer can also send support request messages to the WISP. The customer portal is configured by the WISP when the cloud4WISP account is created:

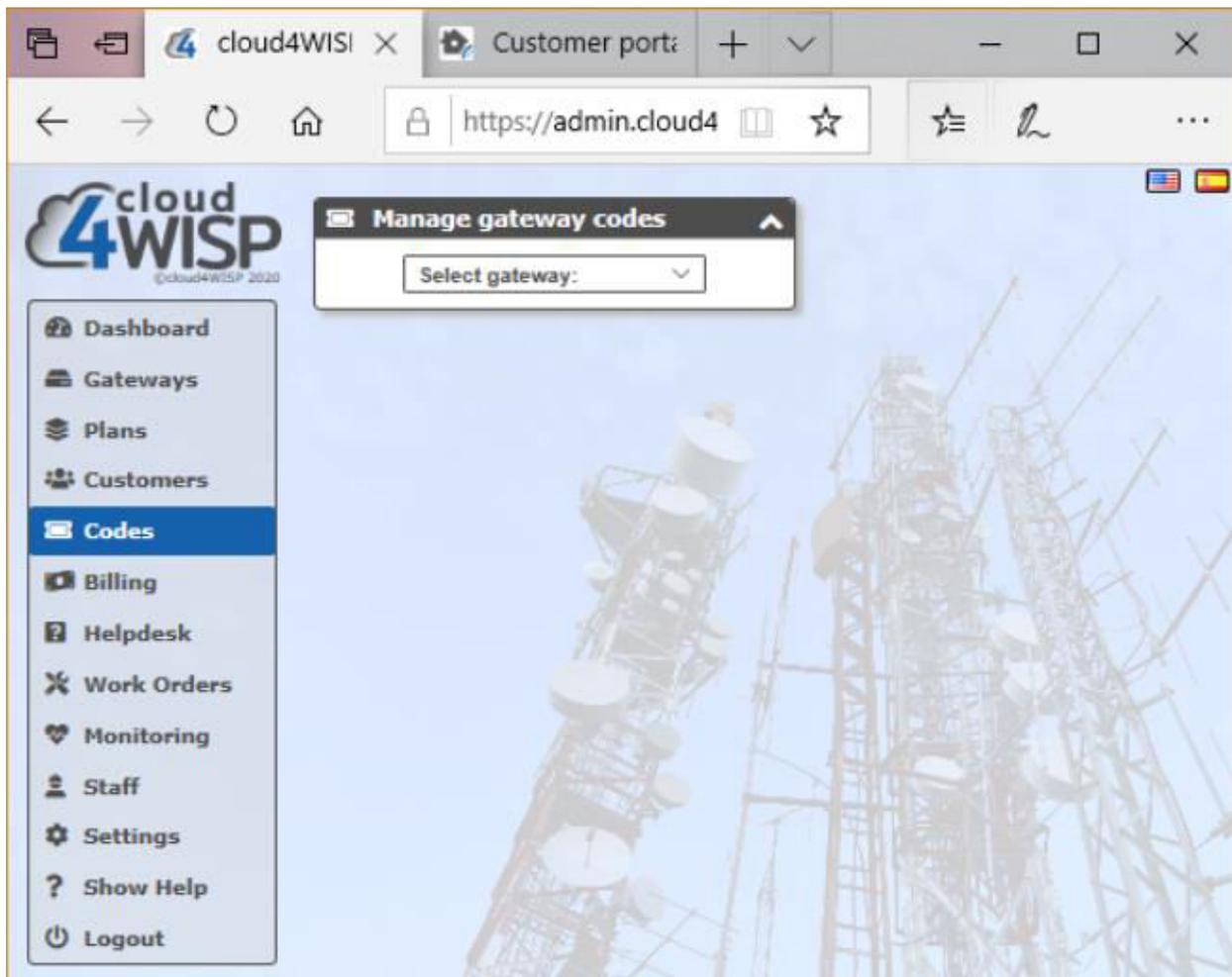
**<http://<wispname>.wisplgin.com>**

Each subscriber is given a username that is created by the WISP for access to the CRM portal. A password is sent to the subscriber in the welcome message. The WISP does not know the subscribers password.

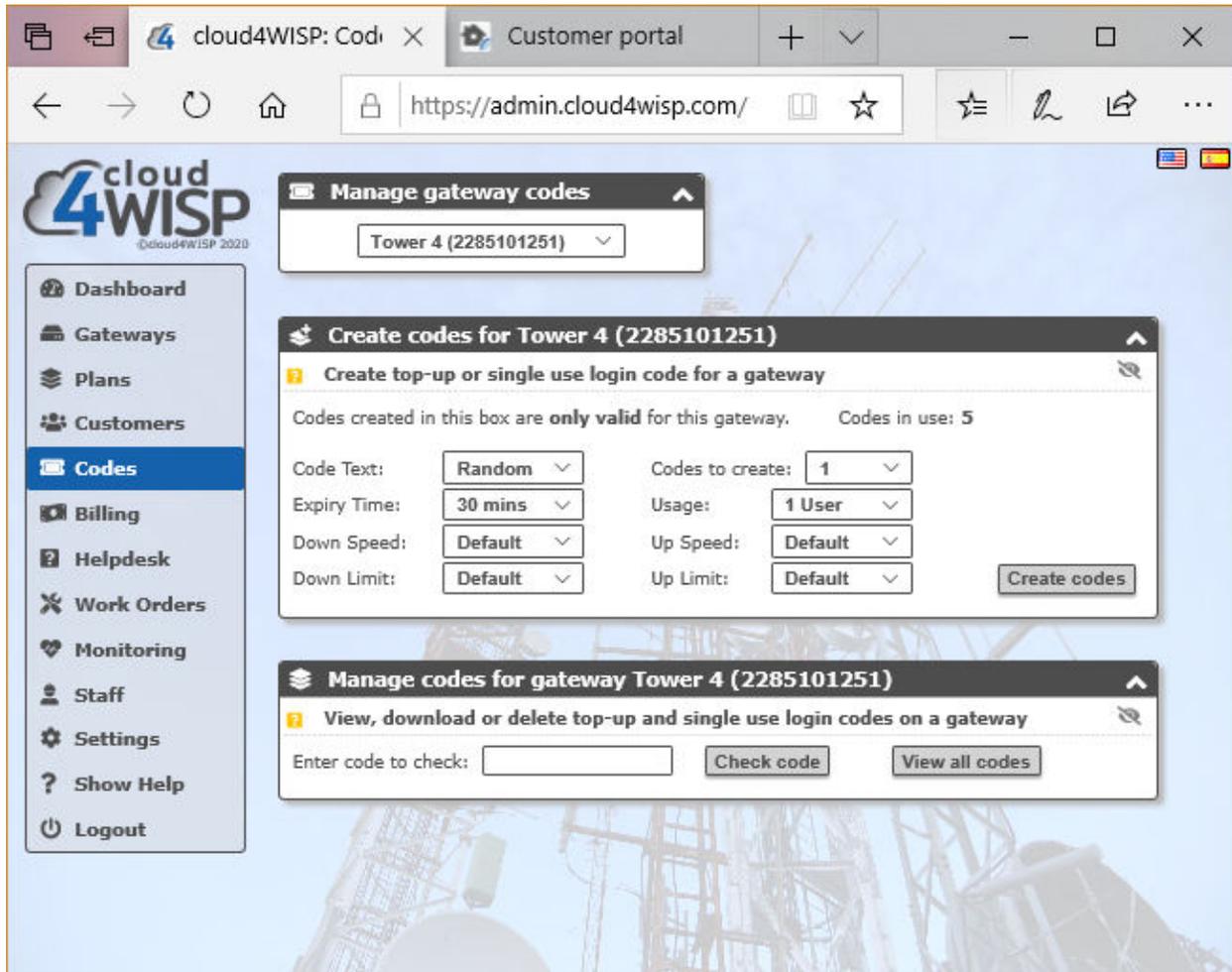
## 6.8. Codes

The codes menu permits access codes to be generated for a subscriber to use to login to the network. Codes are generated for a specific gateway, which is installed at a PtMP tower. Code generation is also accessible by subscribers and hotspot users via the login page.

When 'codes' is selected in the menu a box permits the gateway to be selected where the codes will be used, as shown in the screen below.



When the gateway is selected two boxes open, the first is used to generate one or more codes, the second box is used to check codes that were generated previously.



When generating an access code there are several parameters that must be selected.

- Code text: random or typed. Selecting random will generate a series of alpha-numeric characters that the customer with type into the login screen to connect to the network. Alternatively a string of up to 10 alpha-numeric characters can be entered to generate one specific access code.
- Number of cods to create: If 'random' has been selected then a number of random codes from 1 to 10,000 can be selected and subsequently generated.
- Expiry time: A drop-down menu permits the duration of the code to be selected from 30 minutes to 180 days and also any value can be entered if desired. The code starts counting down from the data and time of first use, and the count-down cannot be suspended.
- Usage: The number of users who can use the access code simultaneously. A drop-down menu permits the selection of from 1 to 6 users, or unlimited users.
- Down speed: This is the maximum download speed that is permitted for the code(s) generated. The download speed can be selected from the drop-down menu, or a download speed is entered.
- Up speed: This is the maximum upload speed that is permitted for the code(s) generated. The upload speed can be selected from the drop-down menu, or an upload speed is entered.

- Down limit: This is the maximum download byte count that is permitted for the code(s) generated. The download byte count can be selected from the drop-down menu, or a download byte count is entered.
- Up limit: This is the maximum upload byte count that is permitted for the code(s) generated. The upload byte count can be selected from the drop-down menu, or an upload byte count is entered.
- Create codes button: clicking this button will generate the list of codes requested, as shown in the screen.

The screenshot shows the 'Create codes for Tower 4 (2285101251)' form in the Cloud4WISP admin interface. The form includes fields for Code Text (Random), Expiry Time (30 mins), Down Speed (Default), Down Limit (Default), Codes to create (1), Usage (1 User), Up Speed (Default), and Up Limit (Default). A 'Create codes' button is present. Below the form is a table of 'New Codes' with columns for Code, Time, Users, Speed limit (Down, Up), and Data limit (Down, Up). The table contains 12 rows of generated codes.

Code	Time	Users	Speed limit		Data limit	
			Down	Up	Down	Up
089XQD	1 day	1	1024Kbps	256Kbps	2048MB	1024MB
1YT9QK	1 day	1	1024Kbps	256Kbps	2048MB	1024MB
2NLAFW	1 day	1	1024Kbps	256Kbps	2048MB	1024MB
405A8E	1 day	1	1024Kbps	256Kbps	2048MB	1024MB
C3F1TF	1 day	1	1024Kbps	256Kbps	2048MB	1024MB
CNJA34	1 day	1	1024Kbps	256Kbps	2048MB	1024MB
FXAW3W	1 day	1	1024Kbps	256Kbps	2048MB	1024MB
NTKFYF	1 day	1	1024Kbps	256Kbps	2048MB	1024MB
T8T5W1	1 day	1	1024Kbps	256Kbps	2048MB	1024MB
W8X738	1 day	1	1024Kbps	256Kbps	2048MB	1024MB

Access codes that were generated previously can be viewed in the manage codes box. A search can be made for a specific code by typing it in to the enter code box and clicking the check code button, the code will be listed if found. The view all codes button can be clicked which will list all codes generated for the gateway. The characteristics of the code are displayed plus the time remaining for the code and the upload byte count and download byte count used. This is shown in the screen below.

The screenshot shows the 'Manage gateway codes' section for 'Tower 4 (2285101251)'. It includes a 'Create codes for Tower 4 (2285101251)' form and a 'Manage codes for gateway Tower 4 (2285101251)' table.

**Create codes for Tower 4 (2285101251)**

Create top-up or single use login code for a gateway

Codes created in this box are **only valid** for this gateway. Codes in use: 15

Code Text:  Codes to create:

Expiry Time:  Usage:

Down Speed:  Up Speed:

Down Limit:  Up Limit:

---

**Manage codes for gateway Tower 4 (2285101251)**

View, download or delete top-up and single use login codes on a gateway

Enter code to check:

[Download CSV file](#)

<input type="checkbox"/>	Code	Time	Users	Time left	Dwn Kb/s	Up Kb/s	Dwn MB	Up MB	Dwn used	Up used
<input type="checkbox"/>	089XQD	1 day	1	1 day	1024	256	2048	1024		
<input type="checkbox"/>	0CP5EY	1 day	1	1 day	2048	512	2048	256		
<input type="checkbox"/>	1YT9QK	1 day	1	1 day	1024	256	2048	1024		
<input type="checkbox"/>	2009C7	1 day	1	1 day	2048	512	2048	256		
<input type="checkbox"/>	2NLAFW	1 day	1	1 day	1024	256	2048	1024		
<input type="checkbox"/>	3DPM6N	1 day	1	1 day	2048	512	2048	256		
<input type="checkbox"/>	405A8E	1 day	1	1 day	1024	256	2048	1024		
<input type="checkbox"/>	B36DXH	1 day	1	1 day	2048	512	2048	256		
<input type="checkbox"/>	C3F1TF	1 day	1	1 day	1024	256	2048	1024		
<input type="checkbox"/>	CNJA34	1 day	1	1 day	1024	256	2048	1024		

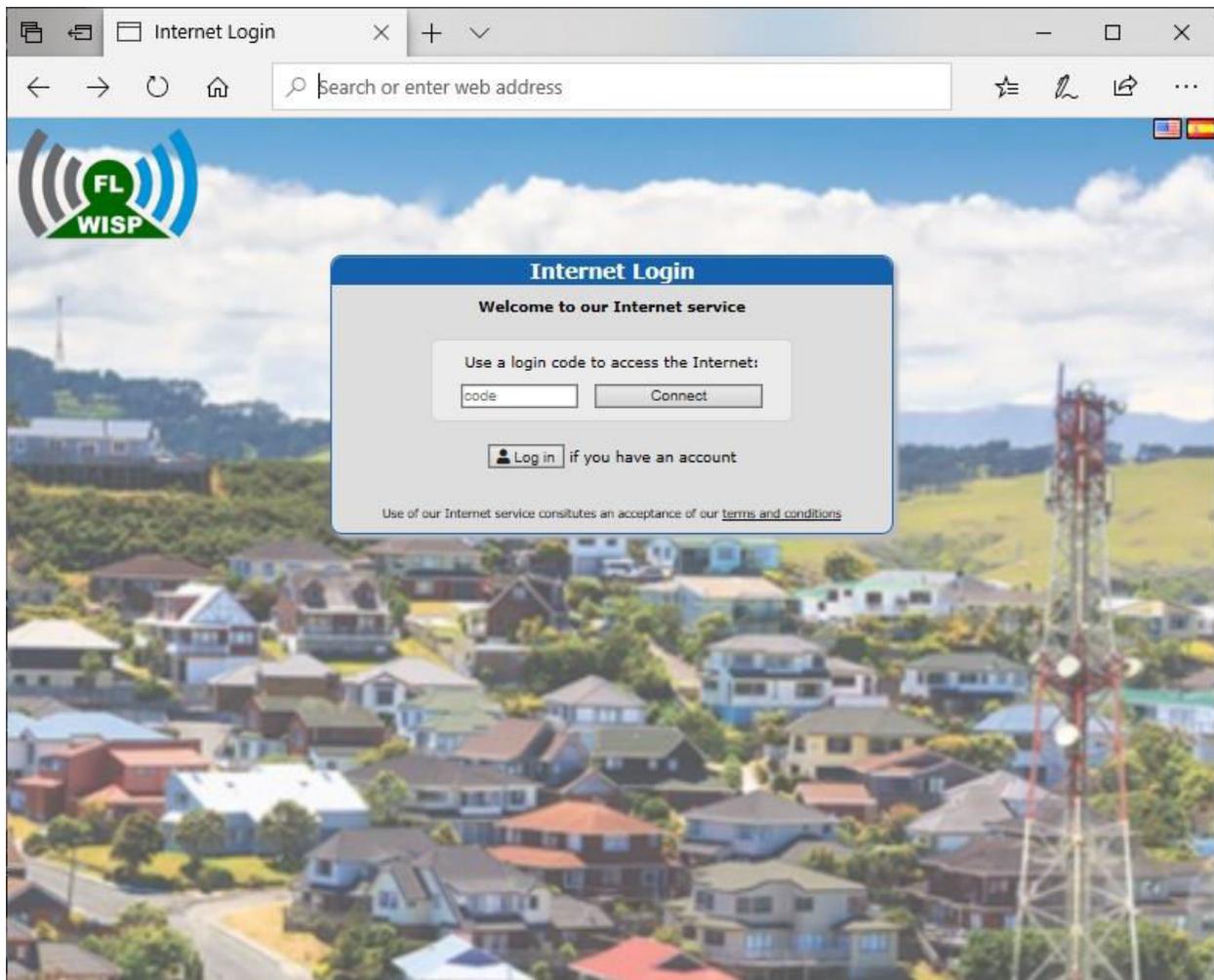
D Default U Unlimited

Codes are entered into a login screen for two reasons.

The first case occurs when a subscriber has used the upload or download byte count allocated to the account, or else the billing period has expired and the subscriber has not paid for the subsequent billing period.

The second case occurs for hotspot login. In this case the PtMP antenna is not encrypted and the user is connecting a mobile device directly to the PtMP antenna. When the MAC address is not recognized the login screen is displayed.

The login screen is shown in the figure below.



## 6.9. Billing

The billing menu is used to track the billing status of subscribers, to issue invoices for subscribers, and to register a payment for a subscriber. If the subscribers account becomes past due then the subscribers loses access to the Internet and will see a login page.

The billing system has been designed for both pre-pay and post-pay billing; the WISP will make the decision to choose the pre-pay or post pay business model.

Clicking the billing tab in the menu will open the billing screen. Subscribers are listed in the billing box and are shown in green when subscribers are paid to date.

**Billing** Name Find

Bill customers for Internet usage

Name / Company	Enabled	Billed	Due
Bradley Cooper	✓	2020-05-11	2020-06-11
Channing Tatum	✓	2020-05-11	2020-06-11
Christian Bale	✓	2020-05-11	2020-06-11
Daniel Craig	✓	2020-05-14	2020-06-14
Dwayne Johnson / DEF News ...	✓	2020-05-11	2020-06-11
Emma Stone / ES Representa...	✓	2020-05-11	2020-06-11
George Clooney	✓	2020-05-11	2020-06-11
Kristen Stewart	✓	2020-05-11	2020-06-11
Mark Wahlberg	✓	2020-05-14	2020-06-14
Robert Downey	✓	2020-05-11	2020-06-11
Sandra Bullock	✓	2020-05-11	2020-06-11
Tom Cruise	✓	2020-05-10	2020-06-10

Customers can also be billed independently for Internet access and issued with a login code

Bill for a login code

---

**Invoices** Name 5/1/2020 → 5/31/2020 Find

Record of customer invoices / previous bills for service

Number	Date	Name / Company	Value	Paid
No invoices found				

When subscriber payments are past due then the subscriber entry is shown in red. This is seen in the screen below.

The screenshot shows the Cloud4WISP Billing interface. On the left is a navigation menu with options: Dashboard, Gateways, Plans, Customers, Codes, Billing (selected), Helpdesk, Work Orders, Monitoring, Staff, Settings, Show Help, and Logout. The main content area is titled 'Billing' and contains a table of customer billing information.

Name / Company	Enabled	Billed	Due
Bradley Cooper	✓	2020-05-22	2020-05-25
Channing Tatum	✗	2020-05-11	2020-05-18
Christian Bale	✓	2020-05-22	2020-05-25
Daniel Craig	✗	2020-05-14	2020-05-21
Dwayne Johnson / DEF News ...	✗	2020-05-11	2020-05-18
Emma Stone / ES Representa...	✓	2020-05-22	2020-05-25
George Clooney	✗	2020-05-11	2020-05-18
Kristen Stewart	✗	2020-05-11	2020-05-18
Mark Wahlberg	✓	2020-05-22	2020-05-28
Robert Downey	✗	2020-05-11	2020-05-18
Sandra Bullock	✓	2020-05-22	2020-05-25
Tom Cruise	✗	2020-05-10	2020-05-17

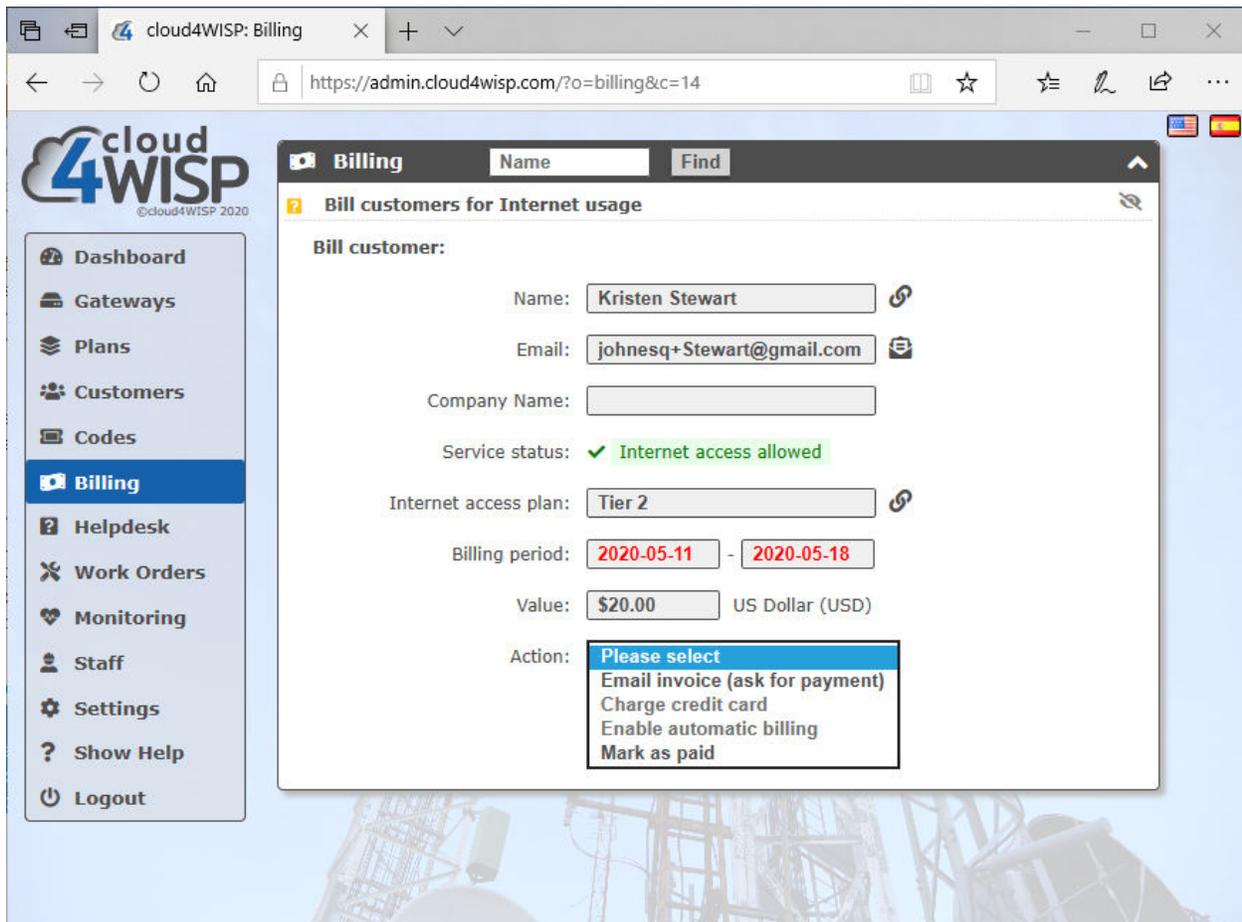
Below the table, there is a note: "Customers can also be billed independently for Internet access and issued with a login code" and a button labeled "Bill for a login code".

The 'Invoices' section below shows a record of customer invoices for the period 5/1/2020 to 5/31/2020.

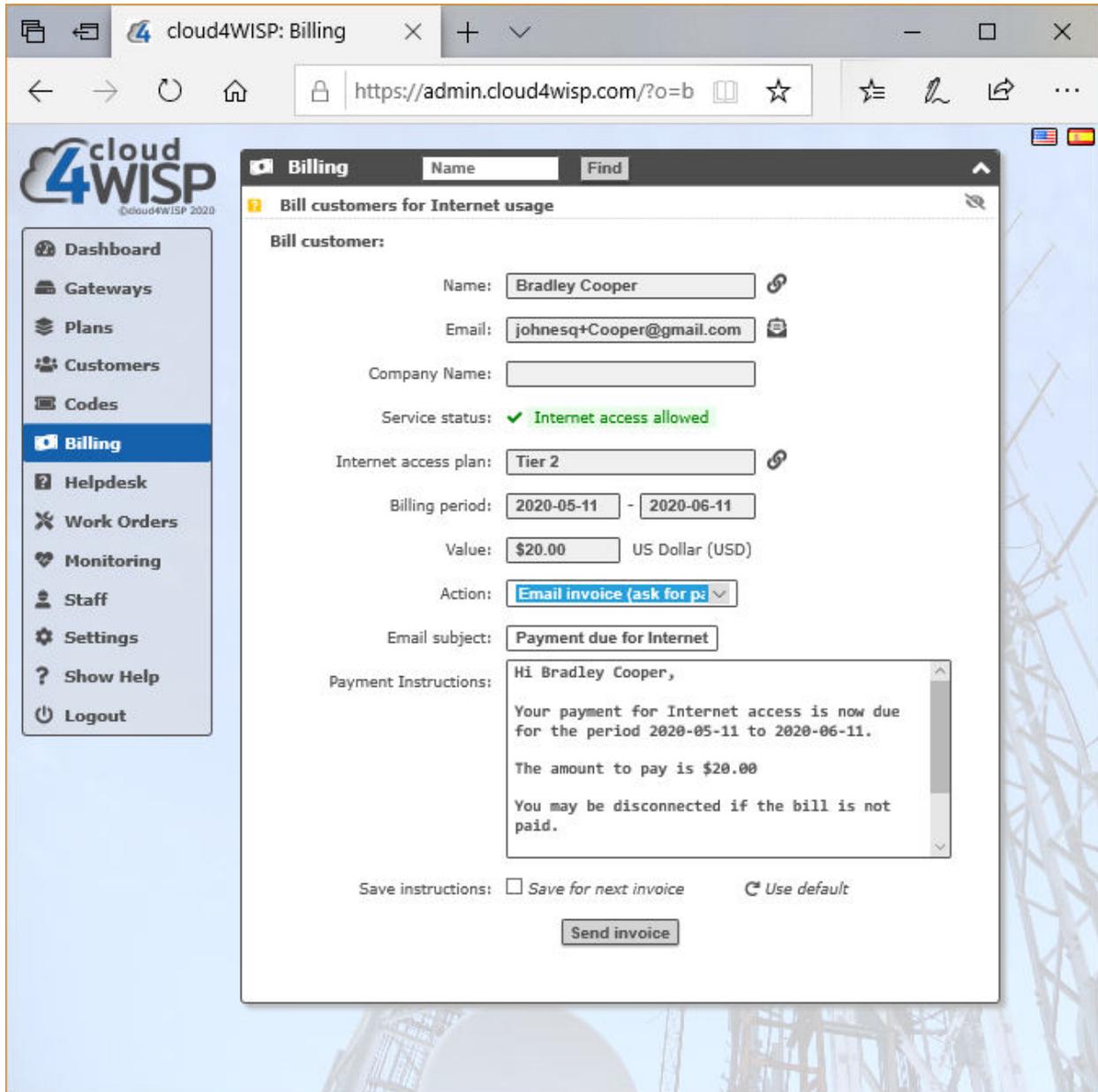
Number	Date	Name / Company	Value	Paid
5	2020-05-22	Sandra Bullock	\$20.00	✓
4	2020-05-22	Mark Wahlberg	\$10.00	✓
3	2020-05-22	Emma Stone / ES Representa...	\$40.00	✓
2	2020-05-22	Christian Bale	\$20.00	✓
1	2020-05-22	Bradley Cooper	\$20.00	✓
			<b>\$110.00</b>	

An invoice can be generated for a subscriber by clicking on the subscriber's name, which will open the screen shown below.

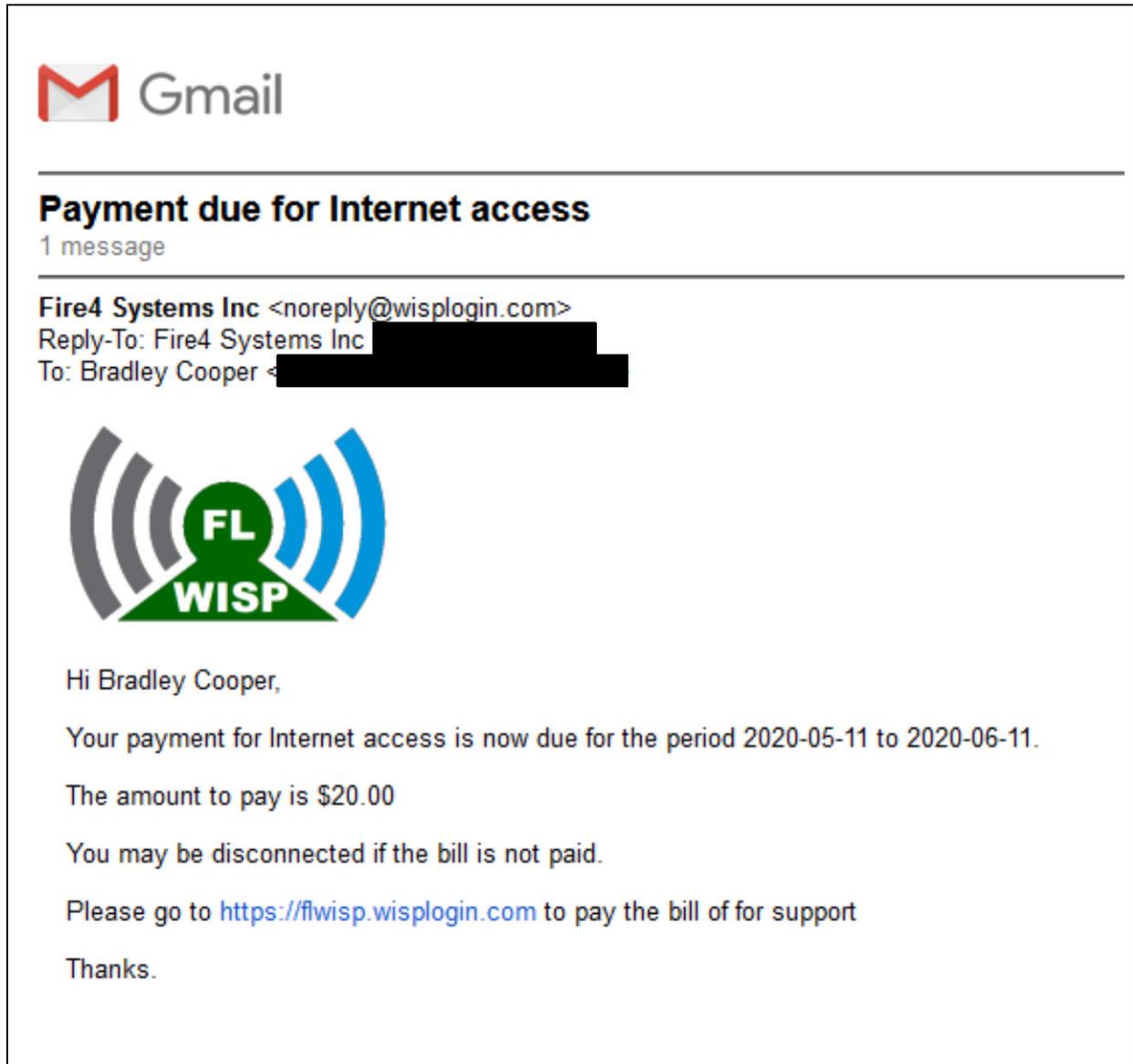
Clicking the button will open a drop down menu. There are four options. One is to send an email message to the subscriber to request payment



When sending a request for payment the text of the message can be edited. The WISP can save the edited text by checking the box in order to send the message to subsequent subscribers. This is shown in the screen below.



An example of an email message requesting payment is shown in the figure below.



When the print invoice option is selected the invoice is displayed in the window. The print button sends the invoice to the printer. The download button downloads the invoice as a PDF file.

The screenshot shows a web browser window with the URL `https://admin.cloud4wisp.com/?o=invoice&i=10`. The page title is "Invoice 4: Mark Wahlberg". On the left is a navigation menu with options: Dashboard, Gateways, Plans, Customers, Codes, Billing (selected), Helpdesk, Work Orders, Monitoring, Staff, Settings, Show Help, and Logout. The main content area displays the invoice details:

**Fire4 Systems Inc**  
6073 nw 167 st unit c12  
hialeah  
FL  
33015  
US

**7863585407**  
**john@fire4.com**

**INVOICE**

Date:

Number:

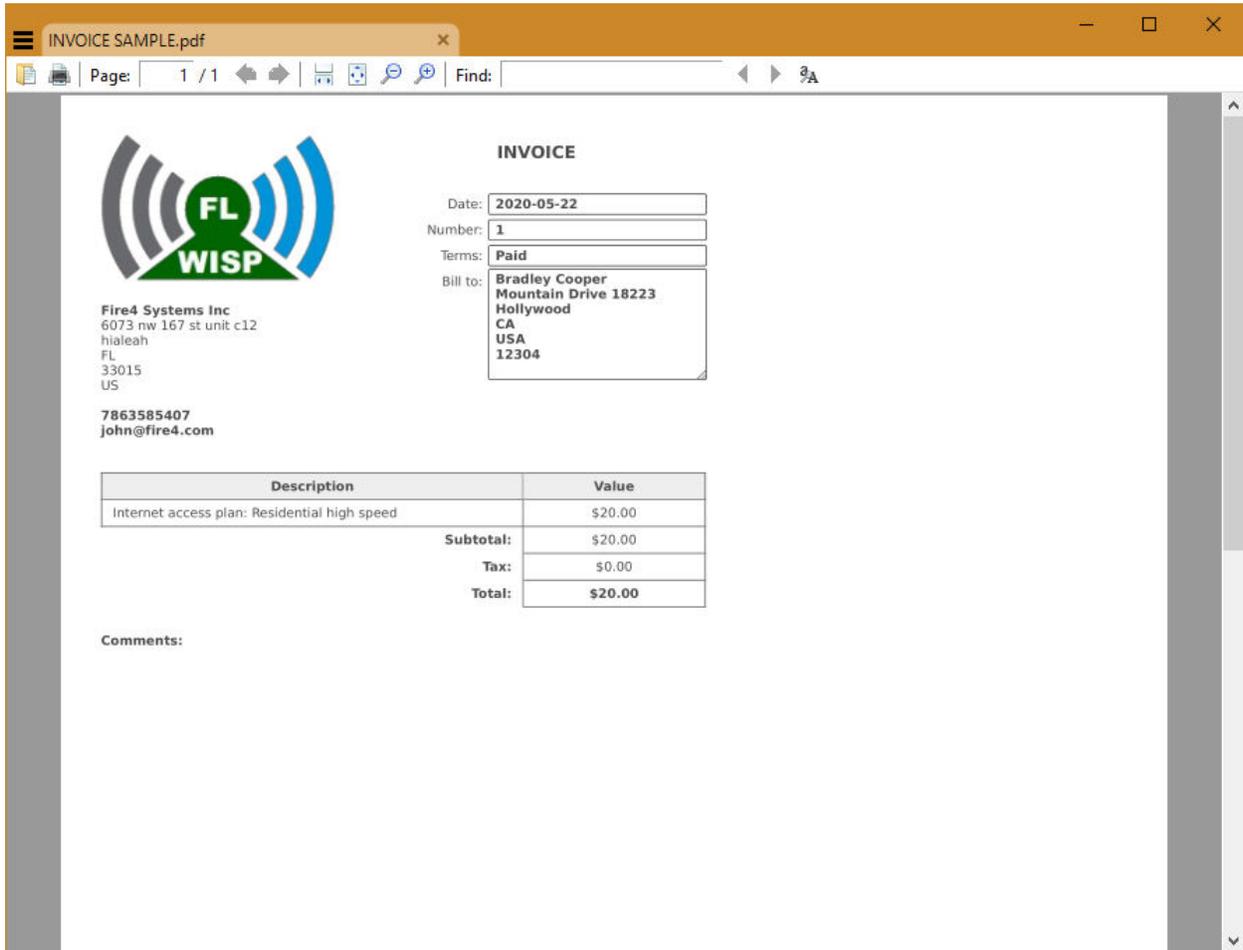
Terms:

Bill to:

Description	Value
Internet access plan: Basic residential monthly	\$10.00
<b>Subtotal:</b>	\$10.00
<b>Tax:</b>	\$0.00
<b>Total:</b>	<b>\$10.00</b>

Comments:

The invoice can be downloaded as a PDF document and printed or sent to the subscriber. An example of a PDF invoice is shown below.



The screenshot shows a PDF viewer window titled "INVOICE SAMPLE.pdf". The invoice content includes the Fire4 WISP logo, company contact information, invoice details (Date: 2020-05-22, Number: 1, Terms: Paid), a bill-to address for Bradley Cooper, and a table with one line item: "Internet access plan: Residential high speed" valued at \$20.00. The subtotal, tax, and total are all \$20.00. There is a "Comments:" section at the bottom.

**INVOICE**

**Fire4 Systems Inc**  
6073 nw 167 st unit c12  
hialeah  
FL  
33015  
US

7863585407  
john@fire4.com

Date: 2020-05-22  
Number: 1  
Terms: Paid  
Bill to: Bradley Cooper  
Mountain Drive 18223  
Hollywood  
CA  
USA  
12304

Description	Value
Internet access plan: Residential high speed	\$20.00
<b>Subtotal:</b>	\$20.00
<b>Tax:</b>	\$0.00
<b>Total:</b>	\$20.00

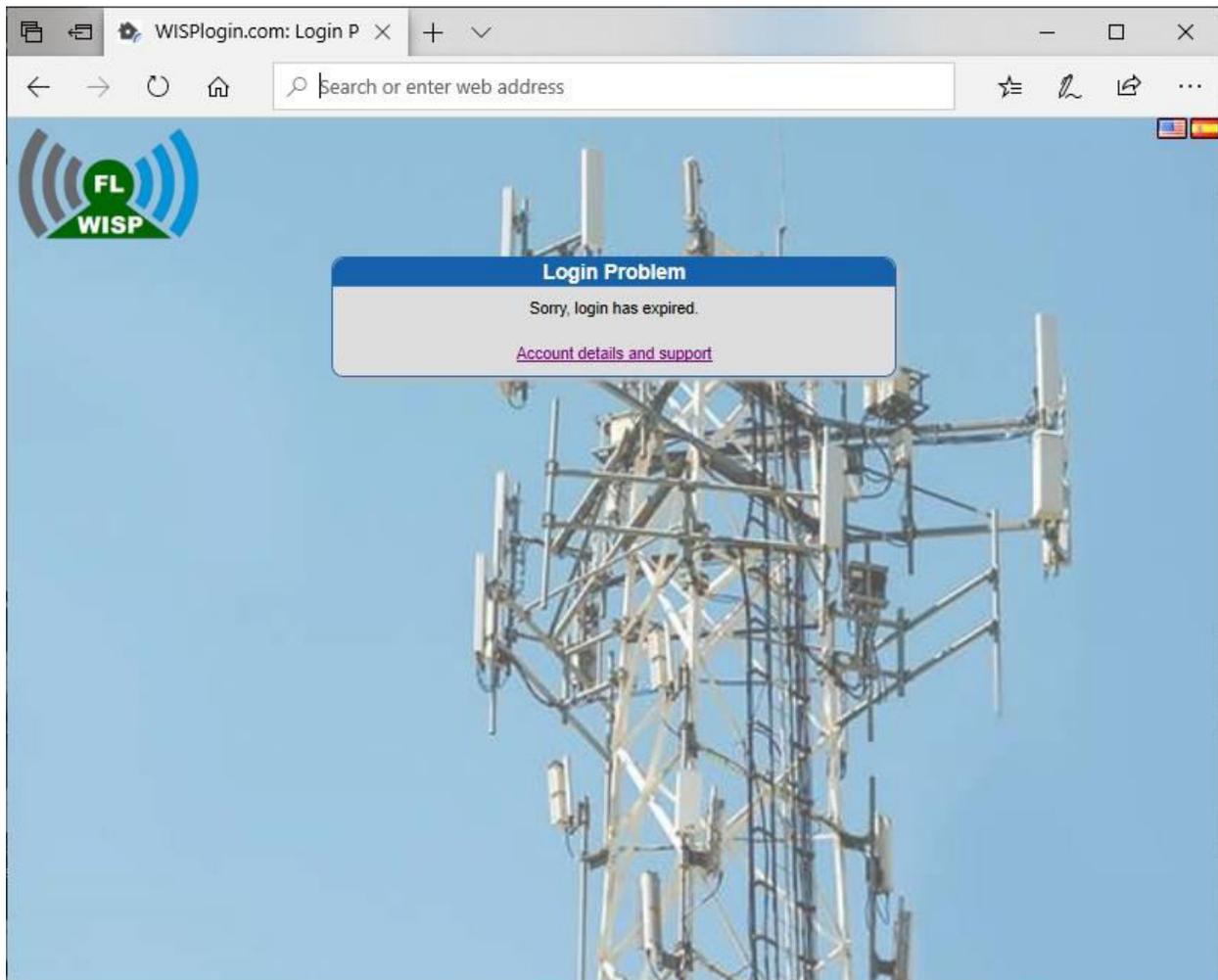
Comments:

There are two cases where the subscriber can be deactivated.

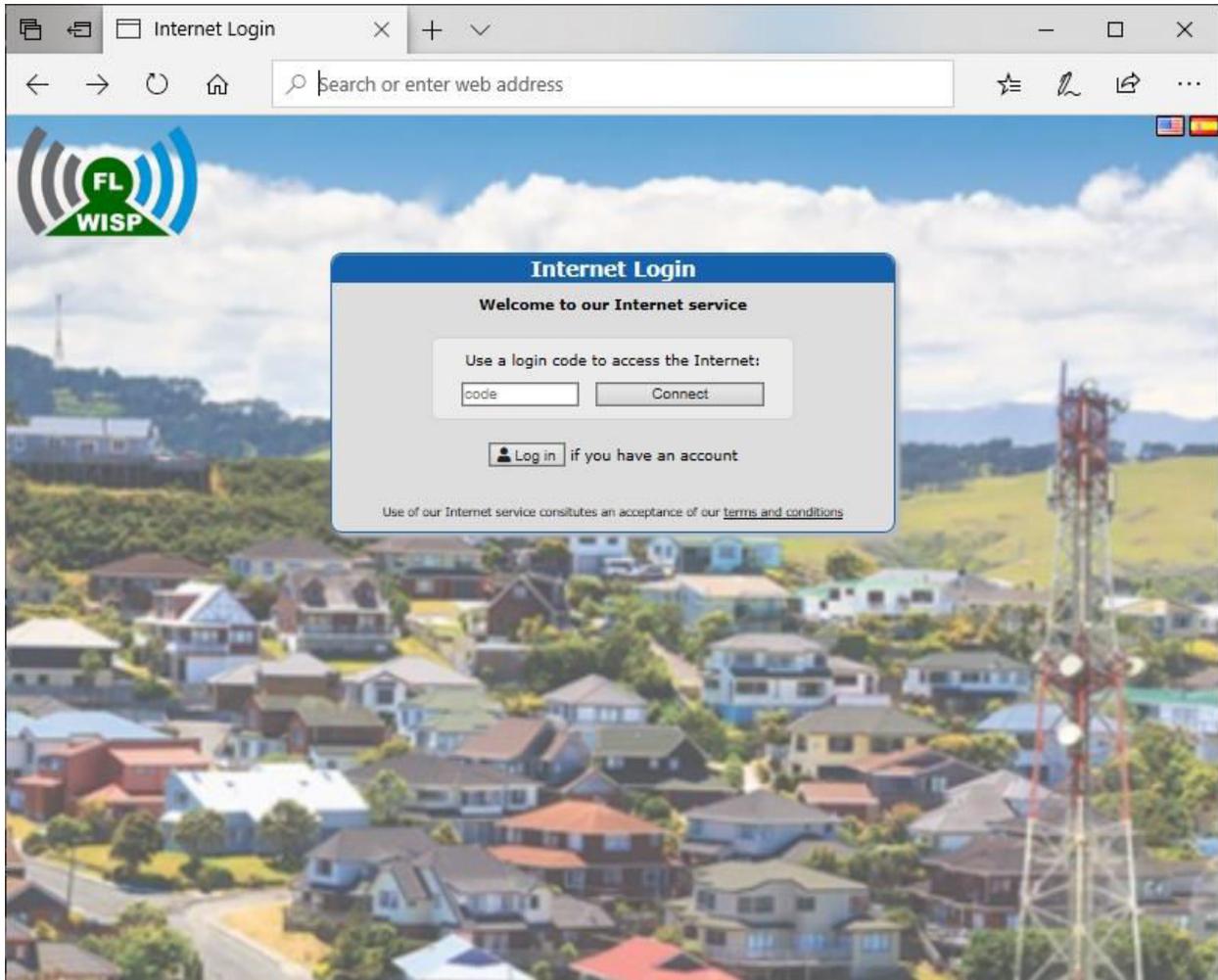
In the case that the subscribers billing period has expired and the account has not been paid then the subscribers access is deactivated.

The subscriber will also be deactivated if a download / upload byte count limit was set for the account and the limit has been reached within the current billing period.

The subscriber will then see the following screen.

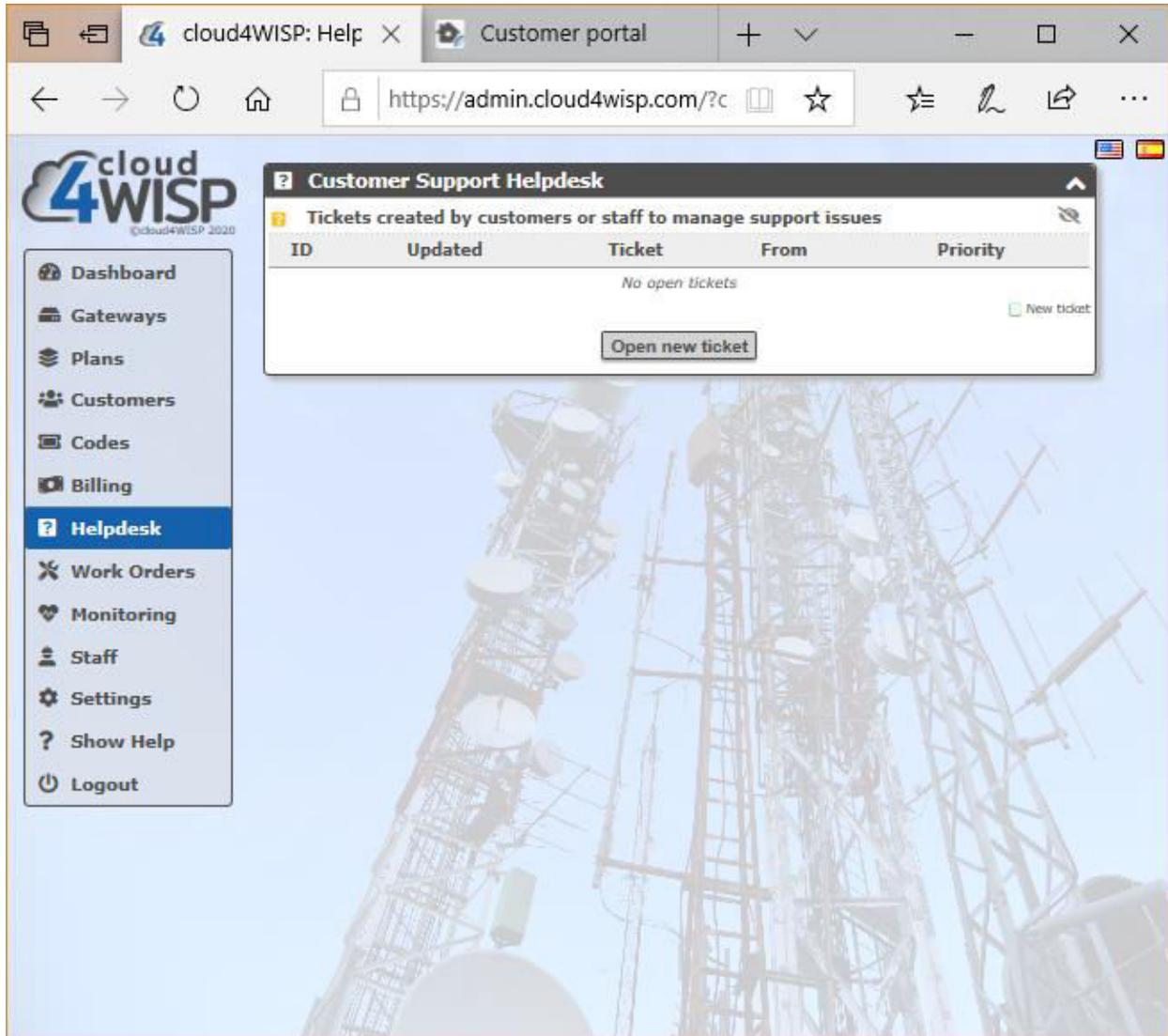


In this case the subscriber has the option of clicking on 'account details' and then purchasing an access code to enter which will enable Internet access. The login screen to enter the access code is shown below,

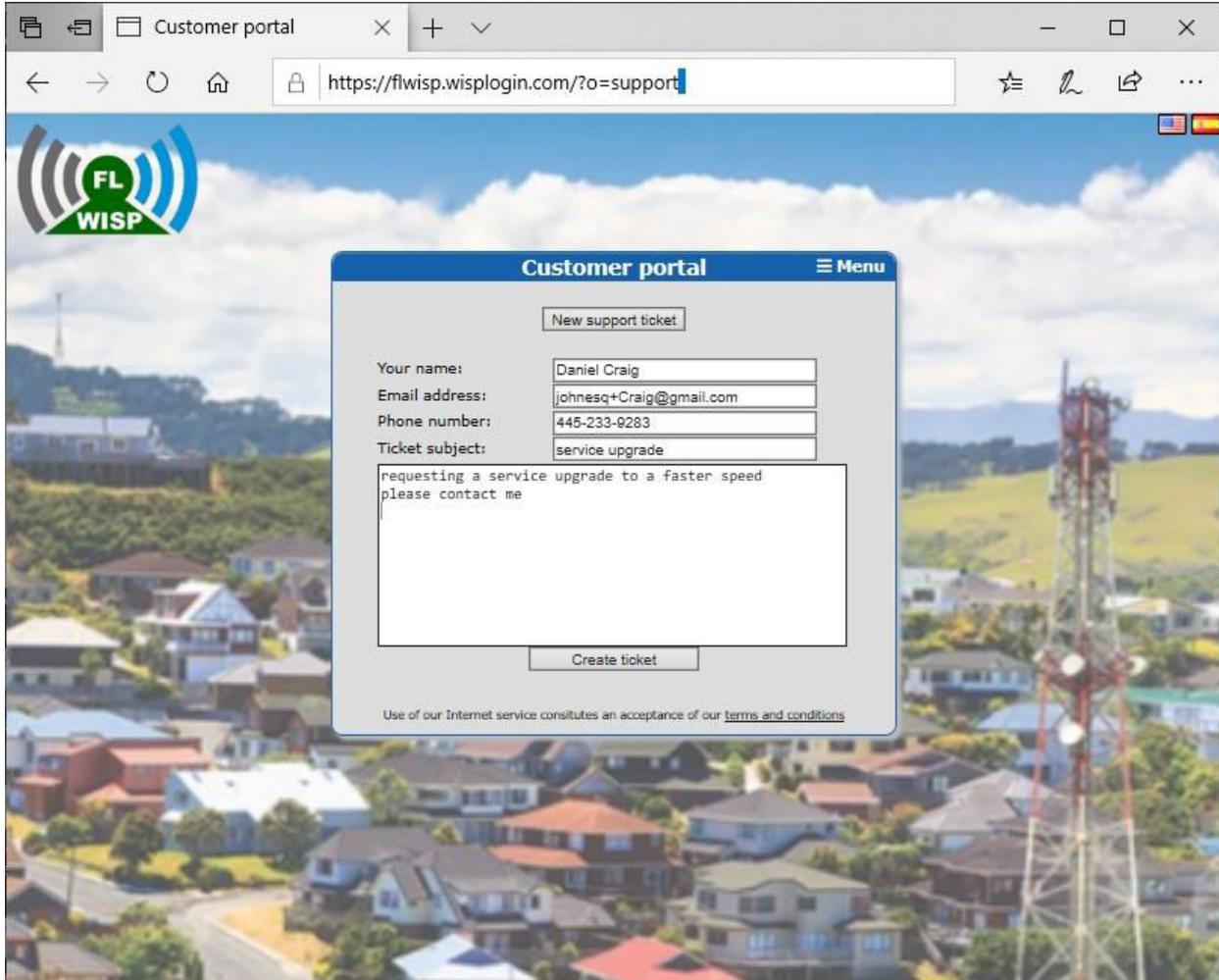


## 6.10. Help Desk

The helpdesk page displays the help request tickets sent by subscribers through the subscriber portal. The customer support person can respond to the ticket to provide the information requested by the subscriber. The customer support person can also initiate a ticket.



The subscriber can login to the subscriber portal using the username and password sent in the welcome message.



## 6.11. Work Orders

Work orders are generated during the subscriber provisioning process. A work order is an instruction to a field service technician to prepare an installation at the subscriber’s site.

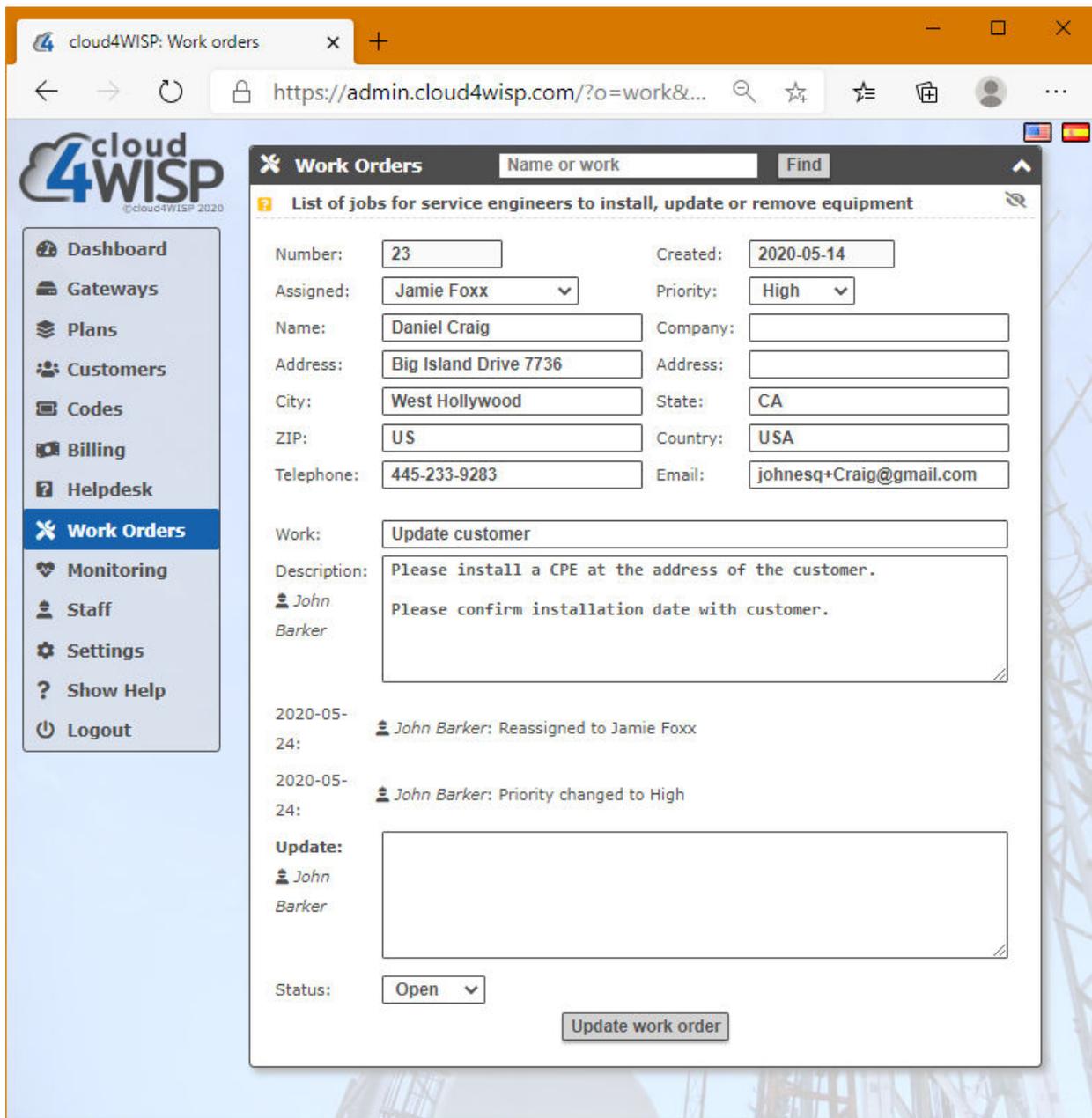
The screenshot displays the 'Work Orders' section of the Cloud4WISP admin interface. The main content area features a table titled 'List of jobs for service engineers to install, update or remove equipment'. The table has five columns: '#', 'Updated', 'Work', 'Created', and 'Assigned'. The data rows show various work orders, many of which are highlighted in red, indicating they are 'Critical'. A legend at the bottom right of the table identifies the status indicators: Closed (grey square), Unassigned (green square), High priority (orange square), and Critical (red square). A 'Create work order' button is located below the table.

#	Updated	Work	Created	Assigned
22	2020-05-24	Update customer	John Barker	Brad Pitt
15	2020-05-24	Update customer	John Barker	Jamie Foxx
23	2020-05-24	Update customer	John Barker	Jamie Foxx
18	2020-05-24	Update customer	John Barker	Jamie Foxx
14	2020-05-24	Update customer	John Barker	Brad Pitt
11	2020-05-24	Update customer	John Barker	Brad Pitt
19	2020-05-24	Update customer	John Barker	Jamie Foxx
17	2020-05-24	Update customer	John Barker	Brad Pitt
13	2020-05-24	Update customer	John Barker	Jamie Foxx
12	2020-05-24	Update customer	John Barker	Brad Pitt
10	2020-05-24	New customer	John Barker	Jamie Foxx
21	2020-05-24	Update customer	John Barker	Brad Pitt
20	2020-05-24	Update customer	John Barker	Brad Pitt
16	2020-05-24	Update customer	John Barker	Jamie Foxx

Click on a work order to see the instructions. The field service technician has the information required to proceed with the CPE installation. The customer support representative or field service technician can call or email the new subscriber to schedule the installation and then add the date and time of the installation to the update notes field.

The work order can be printed by the field service technician and taken to the installation site.

The field service technician must also take a printed agreement prepared by the WISP which is signed by the subscriber after the installation work is completed, to state that the subscriber accepts the installation and that the installation is functional providing Internet access.



## 6.12. Monitoring

Each cloud4WISP gateway is monitored by cloud4WISP. Cloud4WISP shows the status of each gateway and indicates if the gateway is off-line in the monitoring menu. Status information for any gateway that is offline is listed in the first box.

All gateways associated with the cloud4WISP account are listed on the monitoring page in the second box, shown in the figure below. The WISP can choose to send an email alert when the cloud4WISP gateway goes off line and returns online. The WISP can also select the downtime from the drop-down menu indicating how long cloud4WISP should wait after the gateway is detected offline before a messages is sent.

The screenshot shows the cloud4WISP Monitoring interface. On the left is a navigation menu with options: Dashboard, Gateways, Plans, Customers, Codes, Billing, Helpdesk, Work Orders, Monitoring (selected), Staff, Settings, Show Help, and Logout. The main content area is divided into two panels:

**Monitoring status**

Gateway (ID)	Downtime	Status
Tower 3	1 hour	✖

Below the table are three status indicators: ✖ Check-in, ✉ Alert sent, and ⚠ Warning.

**Monitoring settings**

The monitor sends an alert when a gateway fails to check-in and another when it resumes.  
 The hide option removes a gateway from the dashboard, useful for prolonged outages.  
 The downtime defines how long to wait before alerting. Increase to reduce false alerts.

Alert email address: [Redacted]  
 Email language: Spanish

	Alert	Hide	Downtime
Tower 1 (779b7e8b50)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5 mins
Tower 2 (9a80871c88)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5 mins
Tower 3 (576ed3f888)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5 mins
Tower 4 (2285101251)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5 mins

Change Settings

The cloud4WISP gateway status is also shown on the display gateway page. The gateway status uptime display is shown as a red box with the message 'not checked in'.

The screenshot displays the 'Display gateway' page for 'Tower 3 (576ed3f888)'. The 'Gateway status' section shows the following details:

- Public IP address: 98.203.45.175
- MAC address: 70:b2:d5:e6:94:80
- Hardware: EasyWISP EZ-100G
- Firmware: 1.3.5mt
- Enabled: Yes
- Uptime: **Not checked in** (indicated by a red box and a power icon)

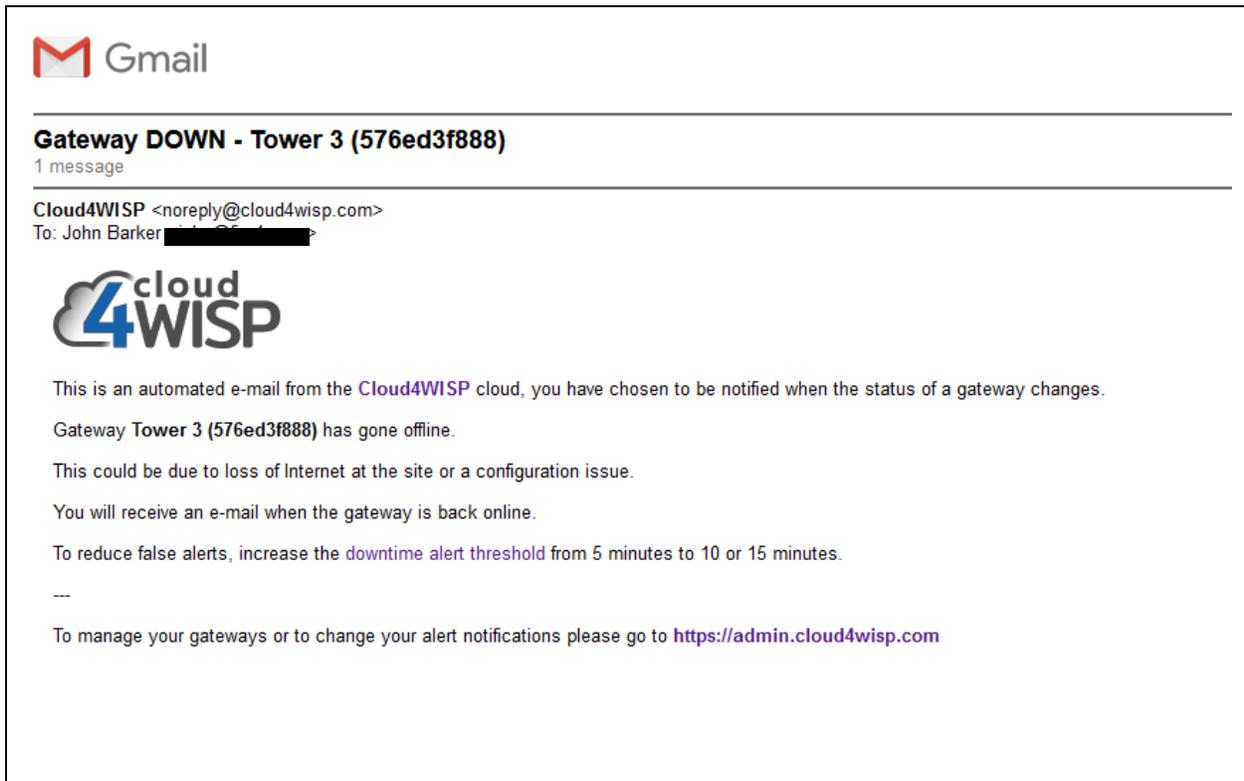
Other visible sections include:

- Customer access:** A table listing customers with access to this gateway.
 

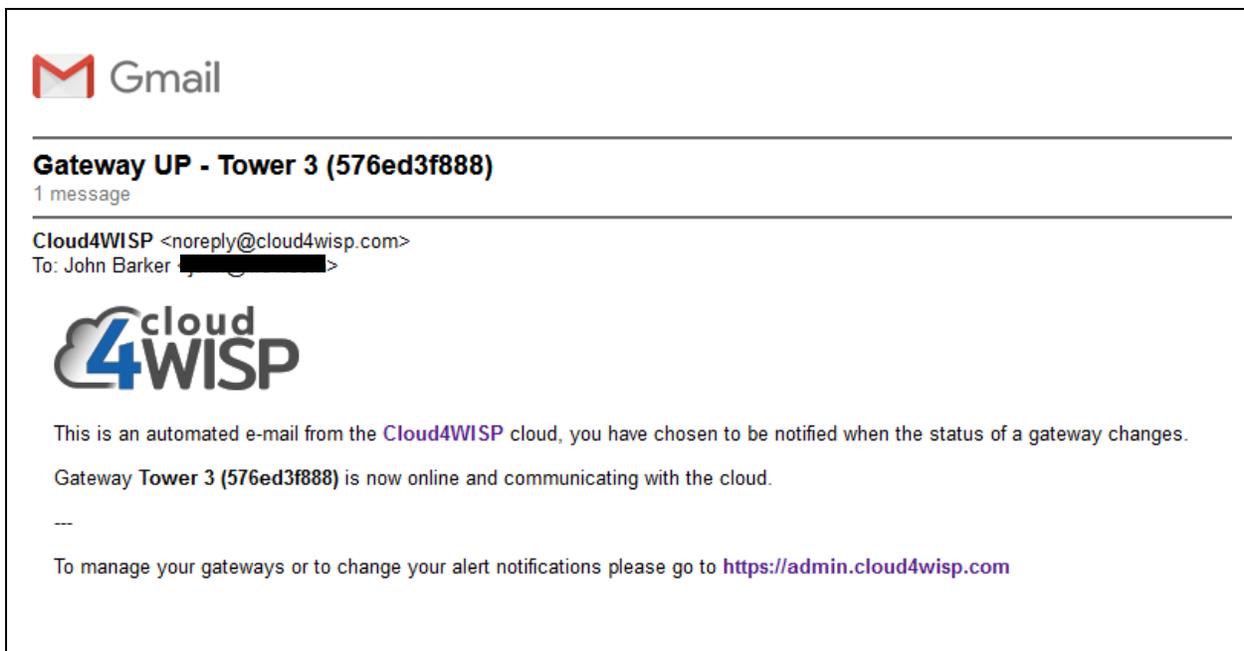
Name / Company	CPE MAC	Description	Enabled
Daniel Craig	e0:2a:82:c3:8d:a4	Daniel Craig residential	✓
Emma Stone / ES Representation Inc	00:e0:4c:68:59:77	Emma Stone commercial	✓
George Clooney	38:60:77:75:10:02	George Clooney residential	✓
- Performance:** A graph showing gateway hardware performance (CPU and RAM) over the last 24 hours.
- WAN usage:** A graph showing Internet usage data (Down and Up Kbit/s) over the last 24 hours. Summary: Down: 179.68 MB, Up: 24.17 MB, Total: 203.86 MB.
- Connected users (using the gateway):** A table listing all devices connected to the gateway.
 

MAC address	IP address	Hostname	Block IP	Block MAC	Allow MAC
38:60:77:75:10:02	192.168.99.99	john-PC	No	No	No
00:e0:4c:68:59:77	192.168.98.4	DESKTOP-VPID4VC	No	No	No

The figure below shows the message sent when a gateway goes offline.

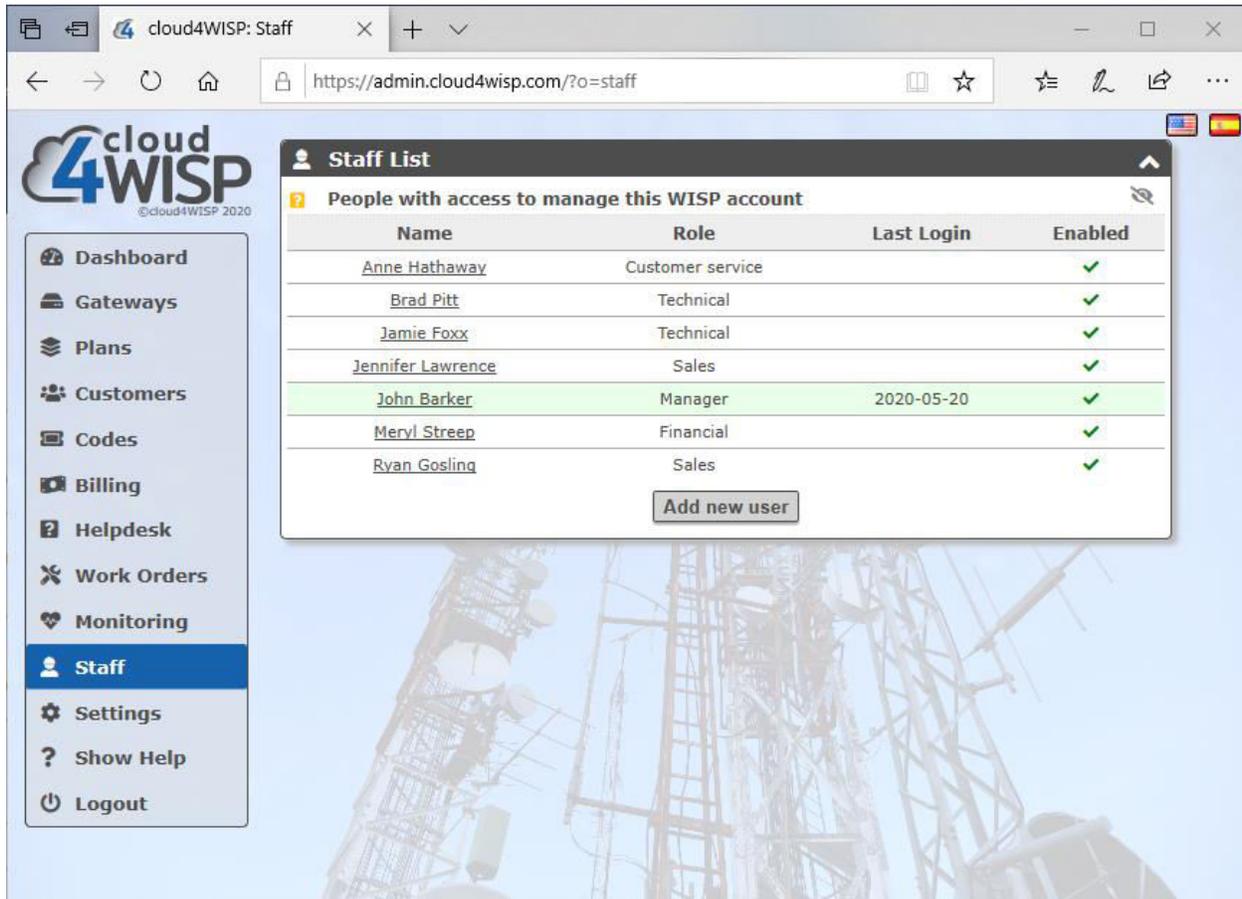


The figure below shows the message sent when the gateway returns online.



### 6.13. Staff

Click on the staff menu entry to list the staff having access to the WISP account. The list of staff is shown in the screen below.



The screenshot shows the 'Staff List' page in the cloud4WISP admin interface. The page title is 'Staff List' and the subtitle is 'People with access to manage this WISP account'. The table below lists the staff members:

Name	Role	Last Login	Enabled
<a href="#">Anne Hathaway</a>	Customer service		✓
<a href="#">Brad Pitt</a>	Technical		✓
<a href="#">Jamie Foxx</a>	Technical		✓
<a href="#">Jennifer Lawrence</a>	Sales		✓
<a href="#">John Barker</a>	Manager	2020-05-20	✓
<a href="#">Meryl Streep</a>	Financial		✓
<a href="#">Ryan Gosling</a>	Sales		✓

An 'Add new user' button is located at the bottom of the table.

Click on the 'add new user' button to add a staff member to the list of staff who have access to the cloud4WISP account.

The screen on the following page shows the staff entry display.

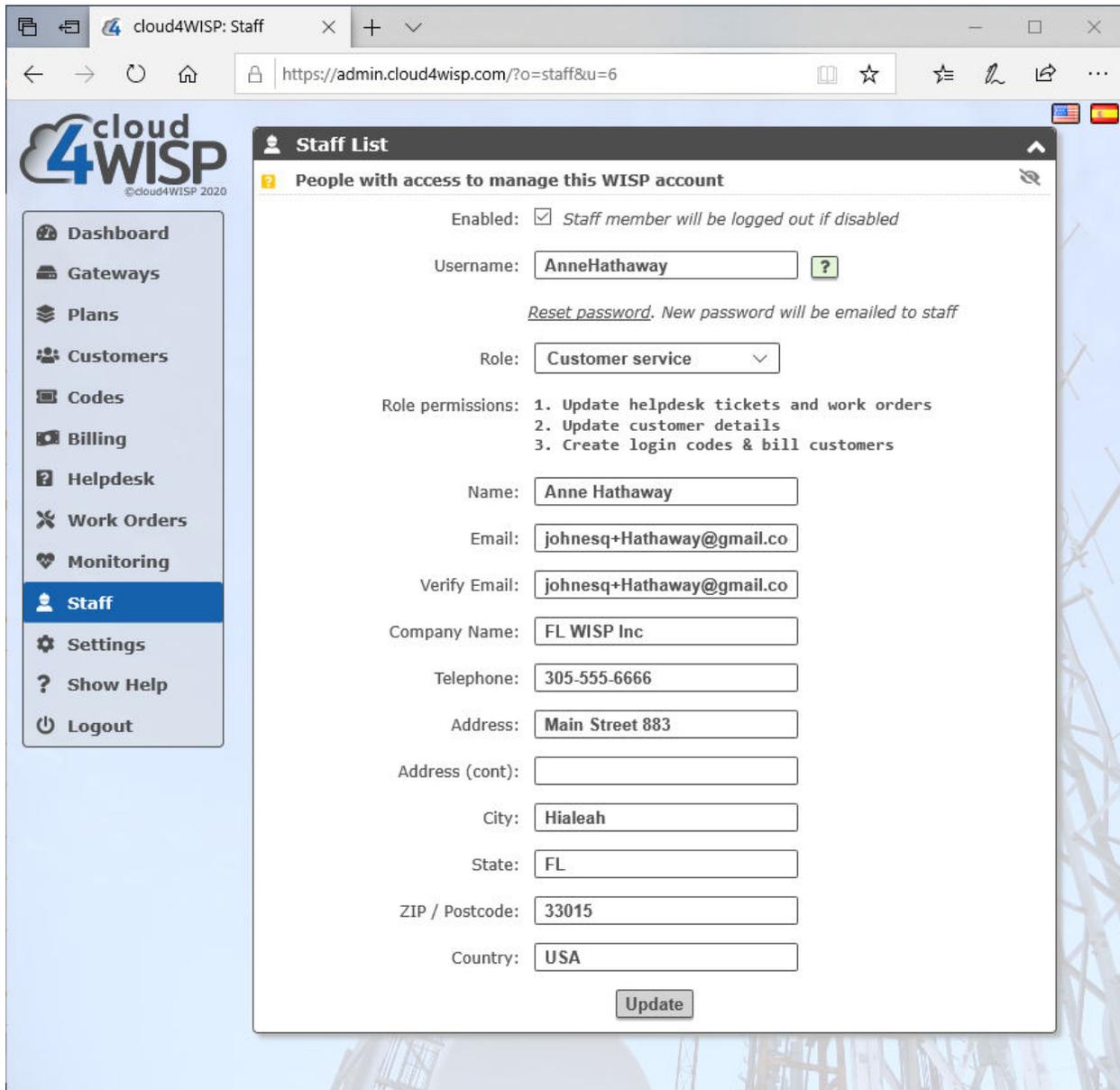
The first parameter is a check box that permits the WISP owner to enable or disable staff.

Each staff member is given a username by the WISP, which is entered into the space below.

The role entry has a drop down entry with two options, manager and viewer.

Next the personal information of the staff member is entered: including name, email company name (if sub-contractor), telephone and address.

Finally the update button is clicked to add the staff member.



Cloud4WISP defines five roles, where each has different access privileges to the cloud4WISP system. These are shown in the figure below;



The roles are:

- Manager
- Technical
- Customer service
- Financial
- Sales

The manager can enter and modify data in any part of the system. The manager is likely to be the WISP owner. Each of the other roles has limited access to the system as follows;

Technical. Role permissions:

1. Update helpdesk tickets and work orders
2. Add, update and remove gateways
3. Update monitoring settings

Customer service. Role permissions:

1. Update helpdesk tickets and work orders
2. Update customer details
3. Create login codes & bill customers

Financial. Role permissions:

1. Update helpdesk tickets and work orders
2. View customer details
3. Bill customers

Sales. Role permissions:

1. Update helpdesk tickets and work orders
2. Add customers
3. Create login codes & bill customers

When the new staff member entry process is completed a password will be send via email to the staff member.

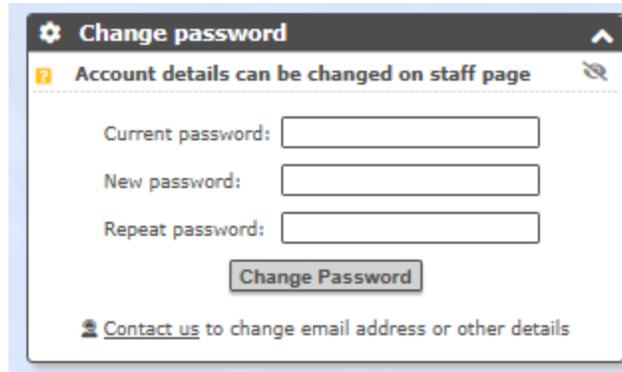
## 6.14. Settings

The settings page permits the WISP administrator to configure functional settings for the account. The settings screen is shown below.

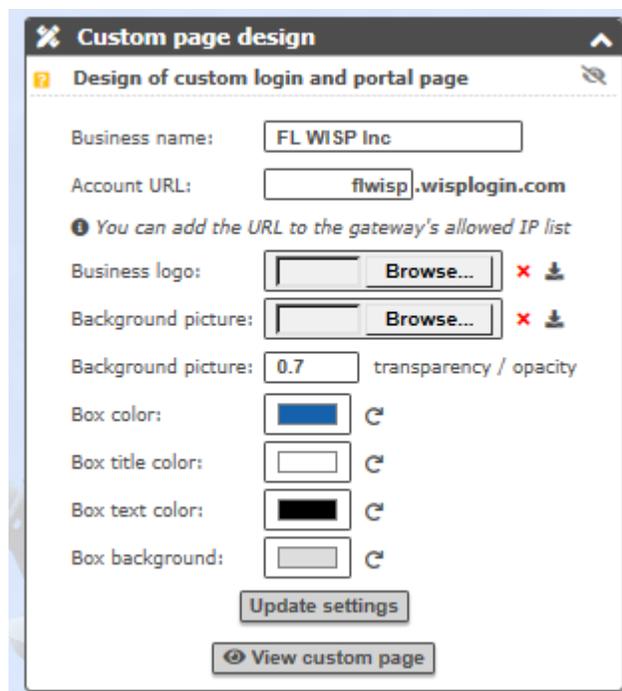
The screenshot displays the Cloud4WISP administrative interface. On the left is a sidebar menu with the following items: Dashboard, Gateways, Plans, Customers, Codes, Billing, Helpdesk, Work Orders, Monitoring, Staff, Settings (highlighted), Show Help, and Logout. The main content area is titled 'cloud4WISP: Settings' and contains three primary configuration panels:

- Change password:** A panel titled 'Account details can be changed on staff page' containing three input fields for 'Current password', 'New password', and 'Repeat password', followed by a 'Change Password' button and a link to 'Contact us to change email address or other details'.
- Billing settings:** A panel titled 'Setup of payment gateway to bill customers' featuring the PayPal logo and instructions for using PayPal Business for billing. It includes a numbered list of steps: 1. Log in to PayPal, click Profile under My Account; 2. Click My selling tools; 3. Click API Access; 4. Click Request API credentials; 5. Check Request API signature and click Agree. Below the list are input fields for 'API Username', 'API Password', and 'API Signature', and an 'Update settings' button. A note states: 'Please make a test purchase after changes'.
- Custom page design:** A panel titled 'Design of custom login and portal page' with fields for 'Business name' (FL WISP Inc), 'Account URL' (flwisp.wisplogin.com), 'Business logo' (with a 'Browse...' button), and 'Background picture' (with a 'Browse...' button). It also includes a 'transparency / opacity' slider set to 0.7, and color pickers for 'Box color', 'Box title colors', 'Box text colors', and 'Box background'. An 'Update settings' button and a 'View custom page' link are at the bottom.

The first box permits the administrator to change the password. Always create a strong password using upper and lower case characters, numerals and non-alphanumeric symbols.



The custom page design box is used to create the subscriber portal page. The box is shown in the figure below.

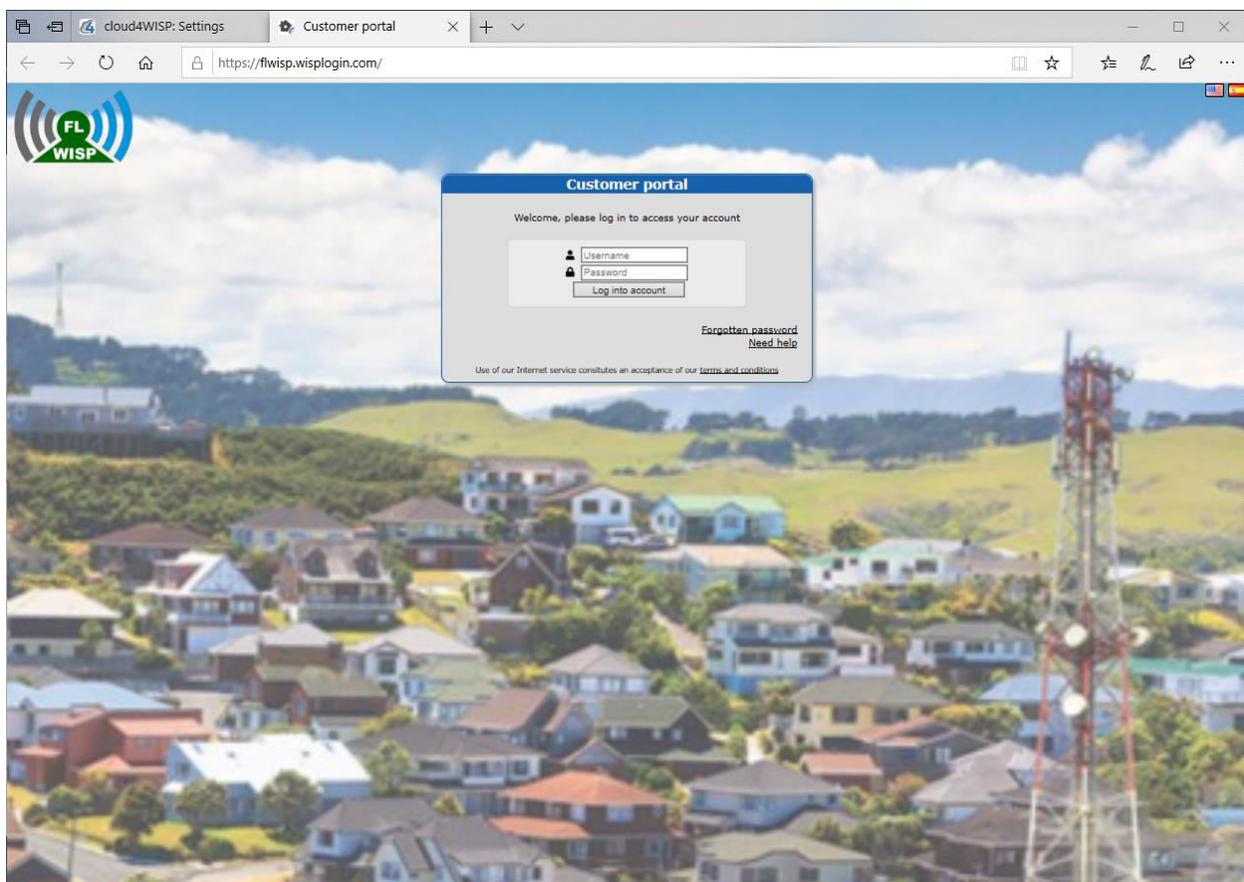


- The business name will be displayed on the login page and can be modified in the business name box.
- The portal URL is derived from the name provided by the WISP when the account is created. The subscriber will use the following URL to access the portal

***wispname.wisplogin.com***

- The business logo is uploaded to display on the login page. The logo is a JPG and is scaled to 100px x 100px maximum. The logo file size should be less than 50KB.
- A background picture or design is uploaded to display on the login page. The background picture is a JPG and is scaled to 300px x 300px maximum. The background file size should be less than 200KB.
- The background picture transparency from 0.1 (very transparent) to 1 (no transparency)
- The login box color can be changed. Click on the color bar, then select a new color.
- The login box title color can be changed. Click on the color bar, then select a new color.
- The login box text color can be changed. Click on the color bar, then select a new color.
- The login box background color can be changed. Click on the color bar, then select a new color.

A login screen example for the user portal is shown below. The subscriber's username was entered by the WISP when the subscriber's account was created. Subsequent to account creation the subscriber is sent an email with the username plus an auto-generated password. The subscriber will use the username and password to login the first time, and then the subscriber can change the password.



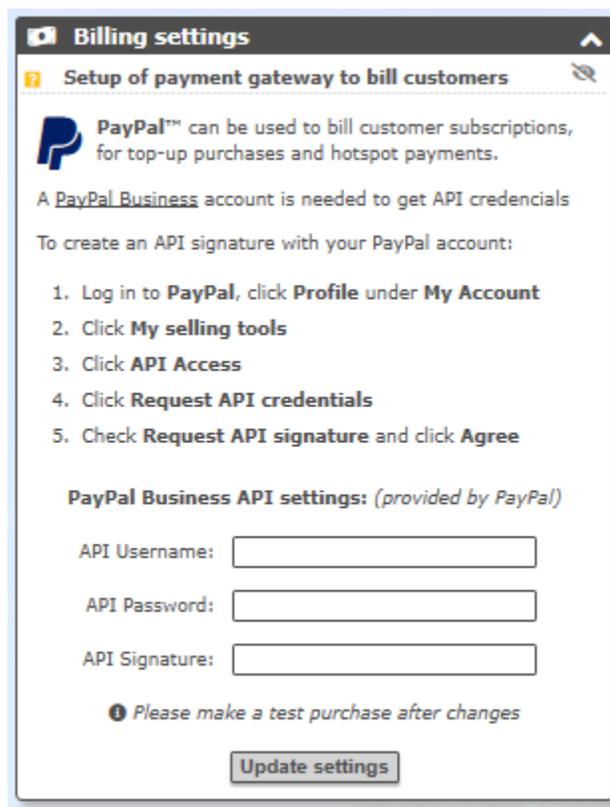
Should the WISP wish to permit subscribers to pay for the Internet service on-line using a credit card cloud4WISP provides a payment gateway for PayPal™. Paypal was chosen because this is the only payment gateway that can be used in the 50+ countries where cloud4WISP products are sold. The PayPal account must be a business account to charge credit cards, a standard PayPal account can only be used for sending and receiving payments with other PayPal users.

When a PayPal business account is created, three parameters are provided:

- Username
- Password
- Signature (encryption key)

The three parameters are entered in the box shown below. The update settings button is then clicked.

The WISP must make a test purchase before offering the service to subscribers to ensure that the PayPal account has been set up correctly and PayPal has authorized the account to receive credit card payments.

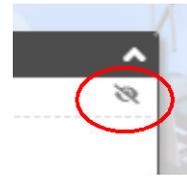


The screenshot shows a web interface titled "Billing settings" with a sub-header "Setup of payment gateway to bill customers". It features a PayPal logo and text explaining that a PayPal Business account is needed for API credentials. A five-step list guides the user through the process: logging in, navigating to "My selling tools", "API Access", and "Request API credentials", and finally checking "Request API signature" and clicking "Agree". Below this, there are three input fields for "API Username:", "API Password:", and "API Signature:". A note at the bottom states "Please make a test purchase after changes" and an "Update settings" button is located at the bottom center.

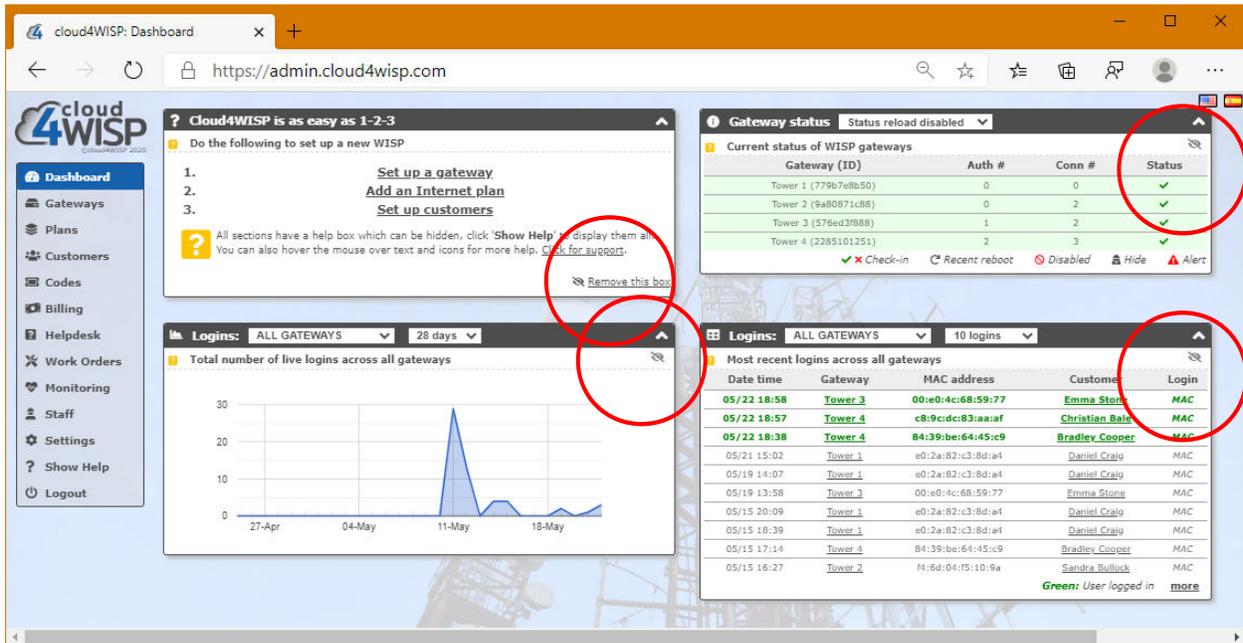
Cloud4WISP will add country specific payment gateways in future if there is a volume demand for additional payment gateways.

## 6.15. Show Help

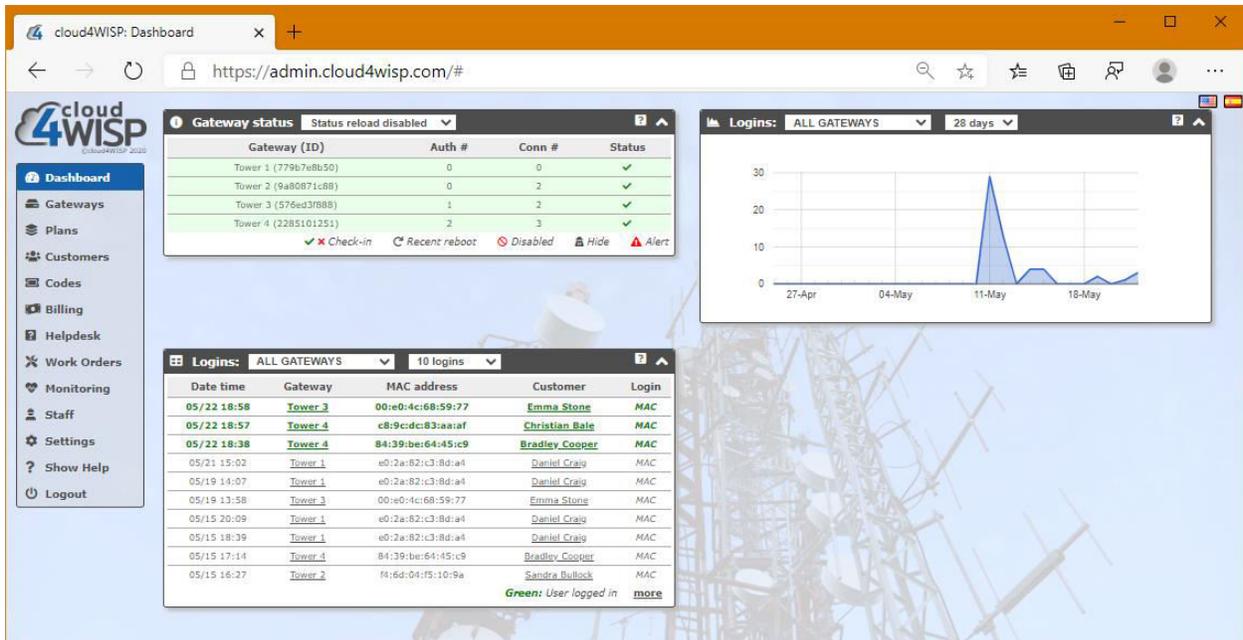
Many display boxes has a character that indicated the box can be removed or reduced to avoid screen clutter. This character is shown in the figure below.



The character can be seen on most menu screen boxes, as shown in the screen below.



Clicking the symbol reduces screen clutter.



Click on the 'show help' menu entry opens boxes that were closed or simplified.

The screenshot shows the Cloud4WISP admin dashboard. The sidebar menu on the left includes: Dashboard, Gateways, Plans, Customers, Codes, Billing, Helpdesk, Work Orders, Monitoring, Staff, **Show Help** (circled in red), and Logout. The main content area contains several widgets:

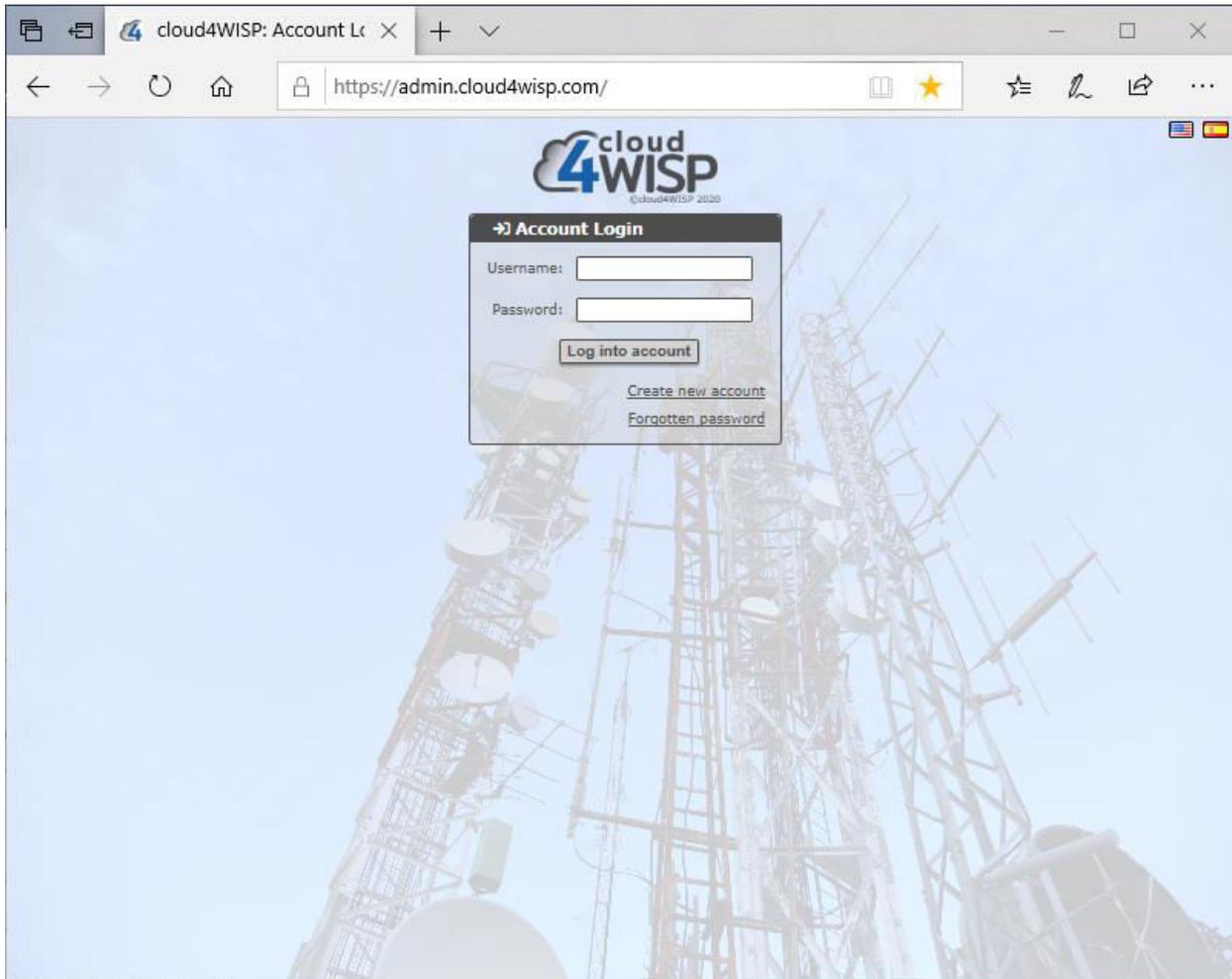
- Cloud4WISP is as easy as 1-2-3**: A guide with steps: 1. Set up a gateway, 2. Add an Internet plan, 3. Set up customers. It includes a help icon and a 'Remove this box' link.
- Gateway status**: A table showing the current status of WISP gateways.
 

Gateway (ID)	Auth #	Conn #	Status
Tower 1 (779b7e8b50)	0	0	✓
Tower 2 (9a80871c88)	0	2	✓
Tower 3 (576ed3f888)	1	2	✓
Tower 4 (2285101251)	2	3	✓
- Logins: ALL GATEWAYS 28 days**: A line graph showing the total number of live logins across all gateways from 27-Apr to 18-May. The graph shows a significant peak around 11-May.
- Logins: ALL GATEWAYS 10 logins**: A table showing the most recent logins across all gateways.
 

Date time	Gateway	MAC address	Customer	Login
05/22 18:58	Tower 3	00:e0:4c:68:59:77	Emma Stone	MAC
05/22 18:57	Tower 4	c8:9c:dc:83:aa:af	Christian Bale	MAC
05/22 18:38	Tower 4	84:39:be:64:45:c9	Bradley Cooper	MAC
05/21 15:02	Tower 1	e0:2a:82:c3:8d:a4	Daniel Craig	MAC
05/19 14:07	Tower 1	e0:2a:82:c3:8d:a4	Daniel Craig	MAC
05/19 13:58	Tower 3	00:e0:4c:68:59:77	Emma Stone	MAC
05/15 20:09	Tower 1	e0:2a:82:c3:8d:a4	Daniel Craig	MAC
05/15 18:39	Tower 1	e0:2a:82:c3:8d:a4	Daniel Craig	MAC
05/15 17:14	Tower 4	84:39:be:64:45:c9	Bradley Cooper	MAC
05/15 16:27	Tower 2	f4:6d:04:f5:10:9a	Sandra Bullock	MAC

## 6.16. Logout

Logout terminates the current session and returns the browser to the login screen.



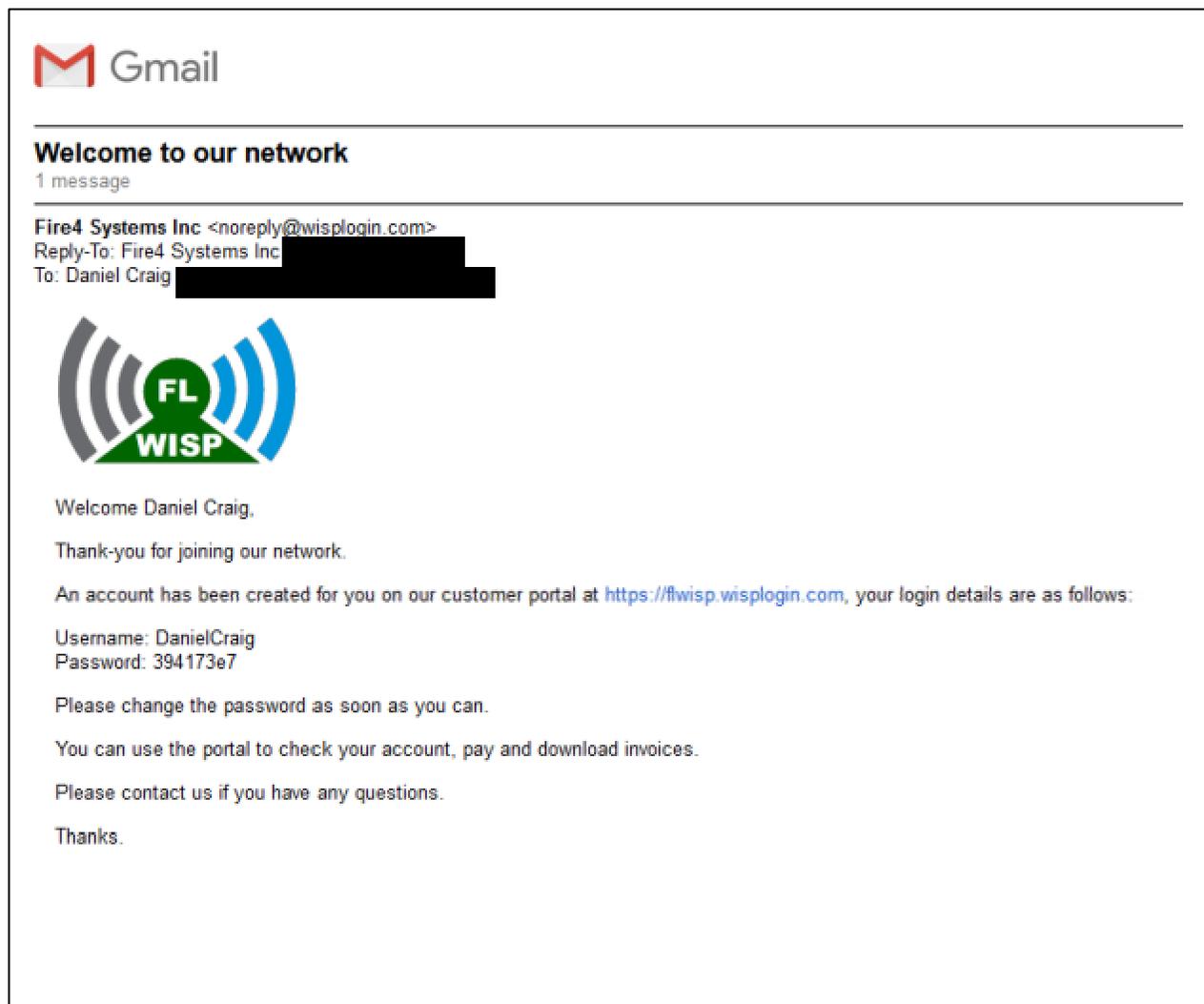
## 7. Customer Relationship Management (CRM) portal

The Customer Relationship Management (CRM) portal is a service provided by cloud4WISP that permits the WISP subscribers to access information about the subscribers account, to make an on-line purchase of Internet access, and to open a support request ticket that will be sent to the customer support person. The CRM portal page is fully customizable. The customization process is described in the settings section.

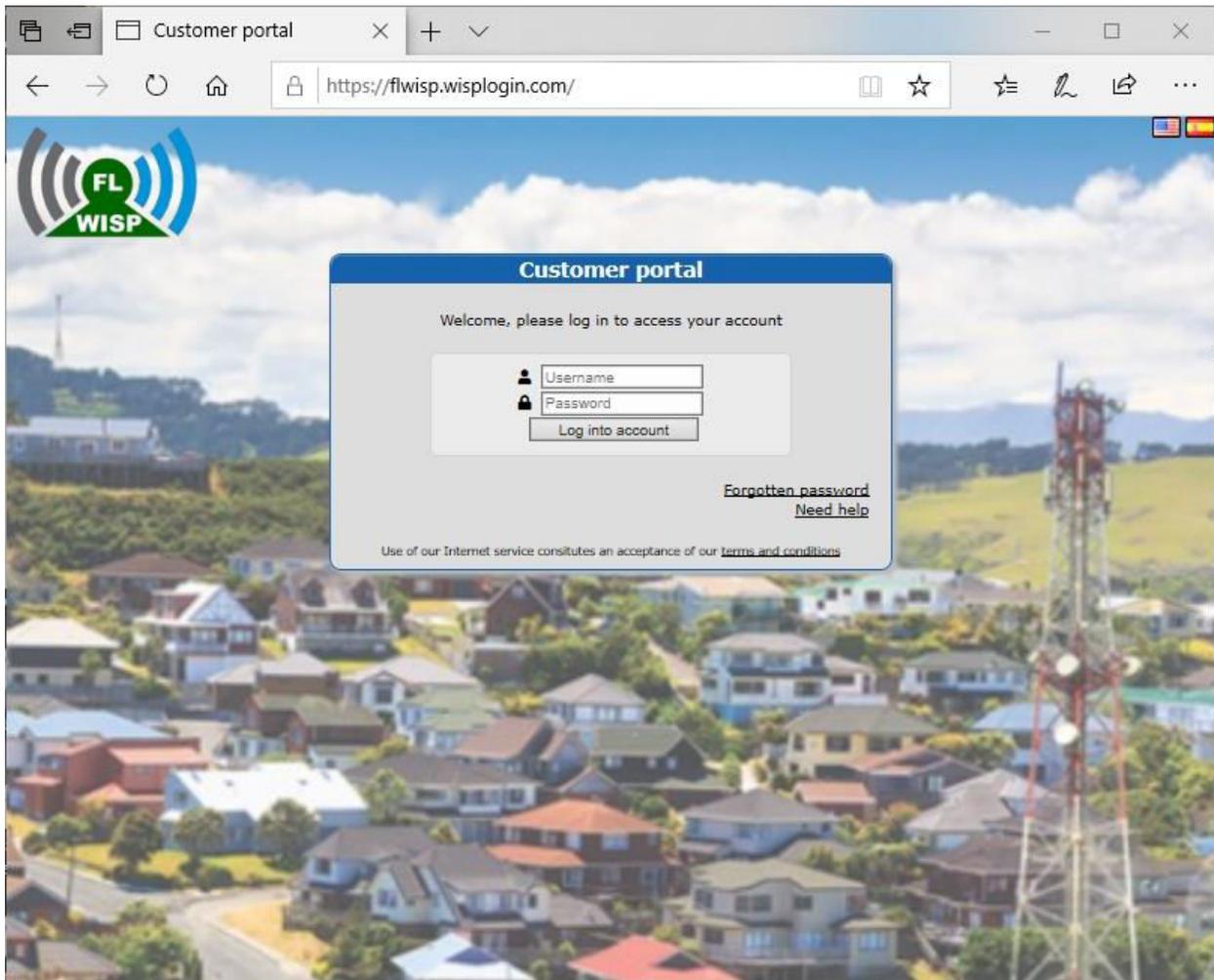
When a new subscriber account is created a greeting message is sent to the new subscriber. The greeting message contains the username that was created for the subscriber by the WISP, and also contains a password that is auto-generated by cloud4WISP. The WISP does not have access to the subscribers password. The subscriber is also advised of the portal URL, which always begins with the portal name chosen by the WISP when the cloud4WISP account is created.

**<https://wispname.wisplogin.com>**

An example of a subscriber greeting message is shown below.



The subscribers opens a browser and enters the URL for the portal. The subscriber will then see the portal login screen. An example of the portal login screen is shown below.

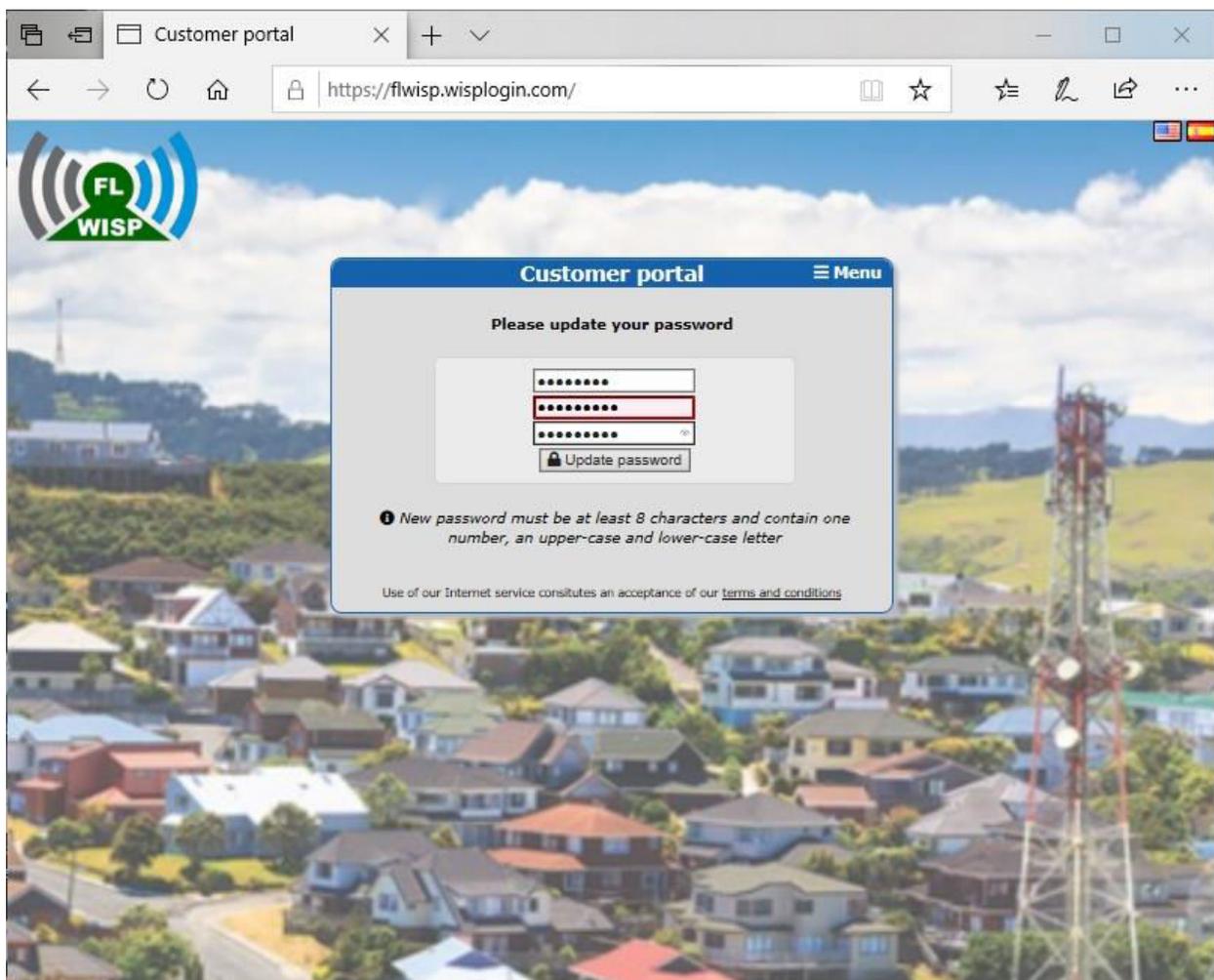


The first time that the subscriber logs into the portal the screen will request the subscriber to change the password. The password provided may have the following characteristics

- 8 characters minimum
- must contain at least one number
- must contain at least one uppercase letter
- must contain at least one lowercase letter

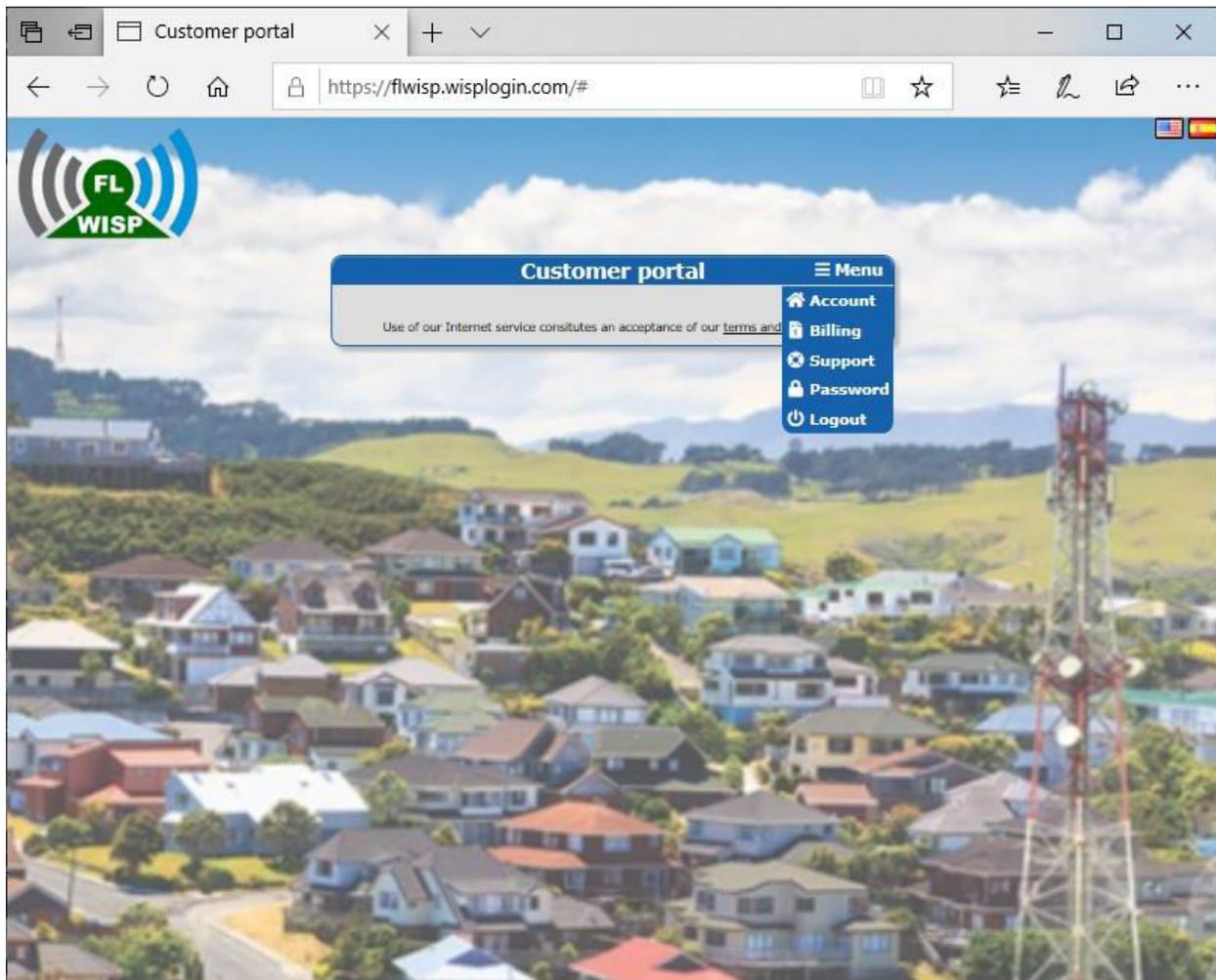
If the password does not comply with the minimum requirements the subscriber will be asked to enter a new password.

The password entry screen is shown below.

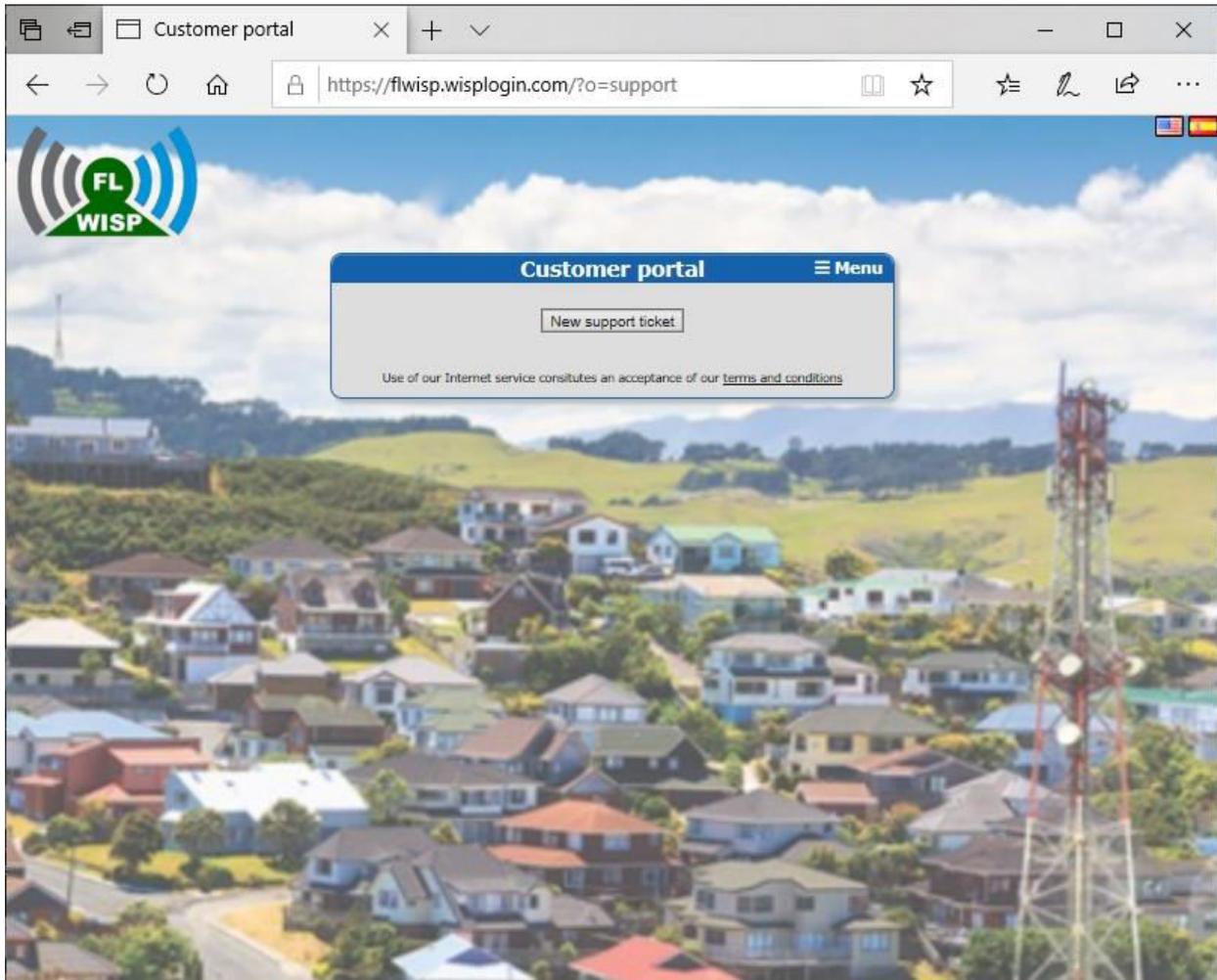


When the subscriber has completed the password process the screen below will be displayed. The menu has five options.

- Account: shows details of the account use
- Billing: provides a means of purchasing additional Internet access
- Support: provides access to the ticket system to send a support request ticket
- Password: change the current password
- Logout

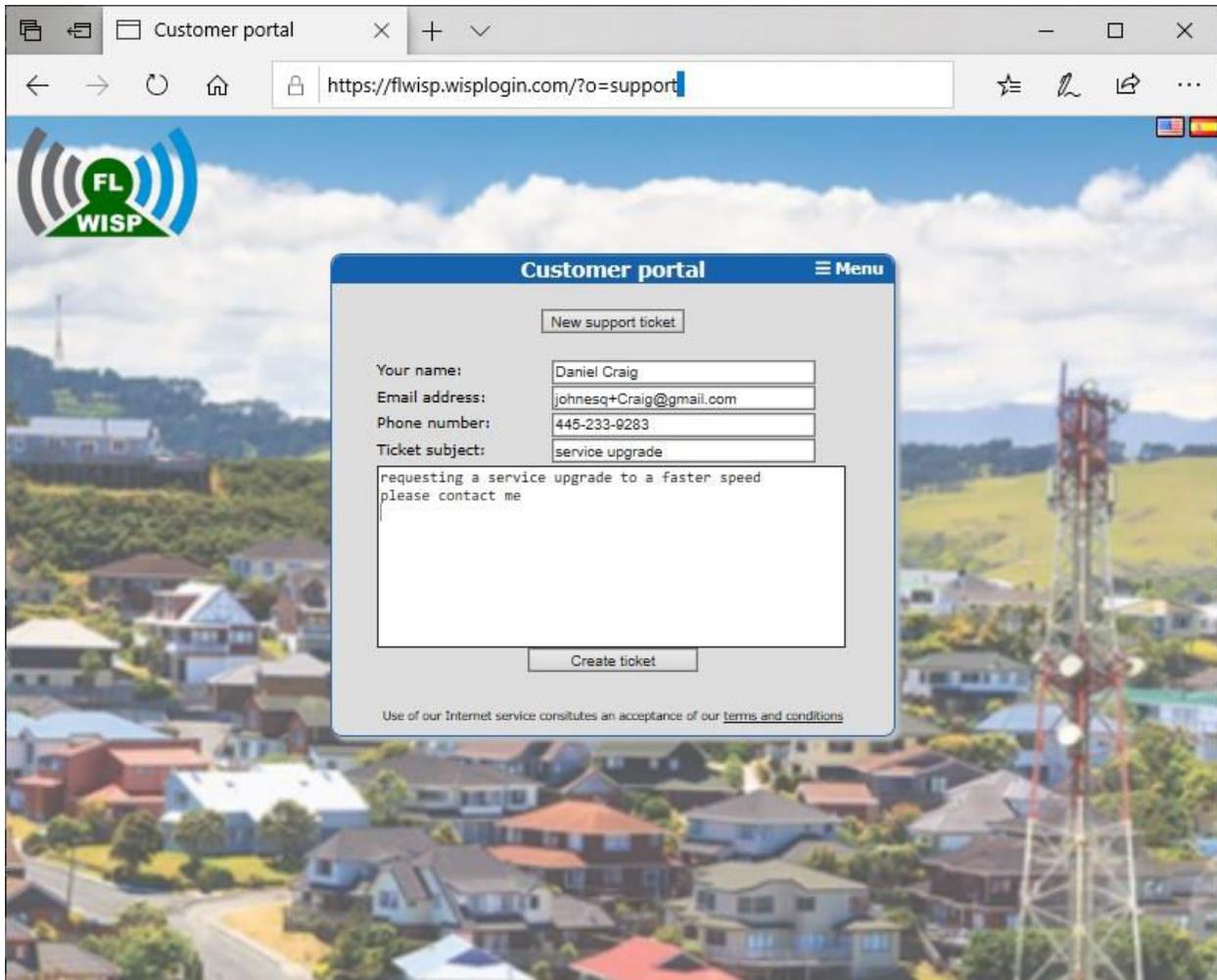


Selecting the support option from the menu will display the screen shown below. The subscriber will then click on the button to open a new support ticket.

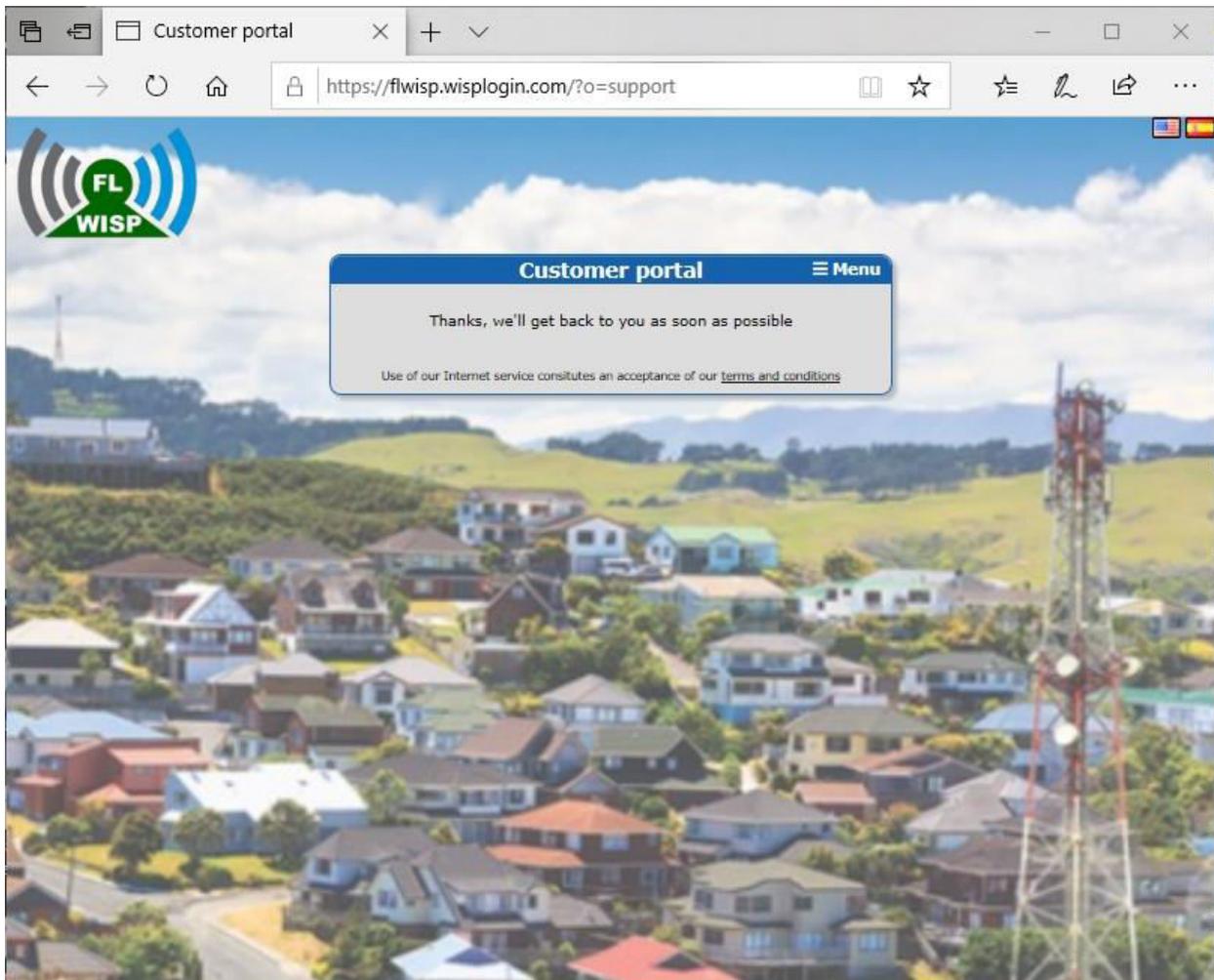


The support ticket page adds the name, address and phone number from the subscribers account. The subscriber then types the subject followed by the message.

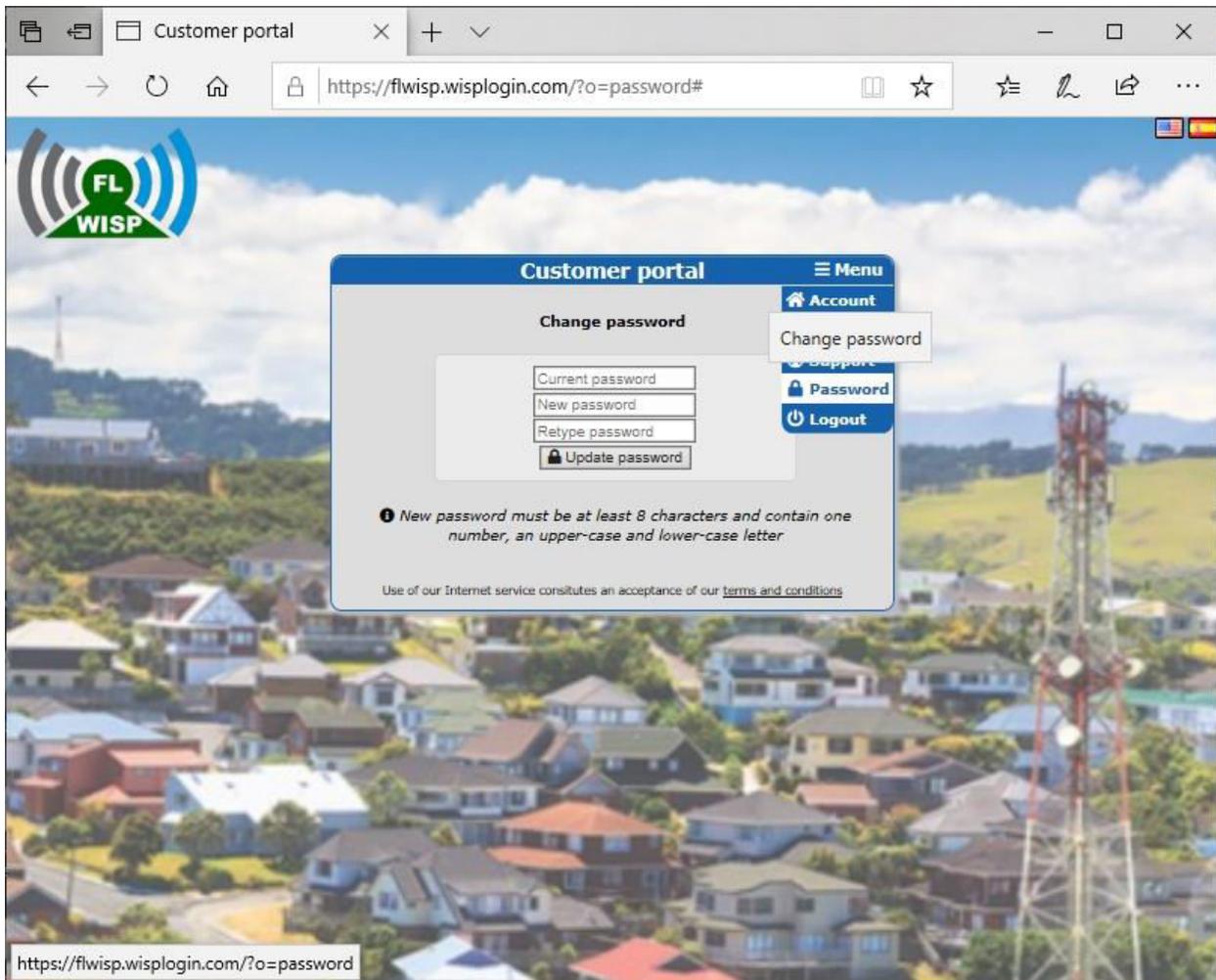
An example of a portal support ticket is shown below.



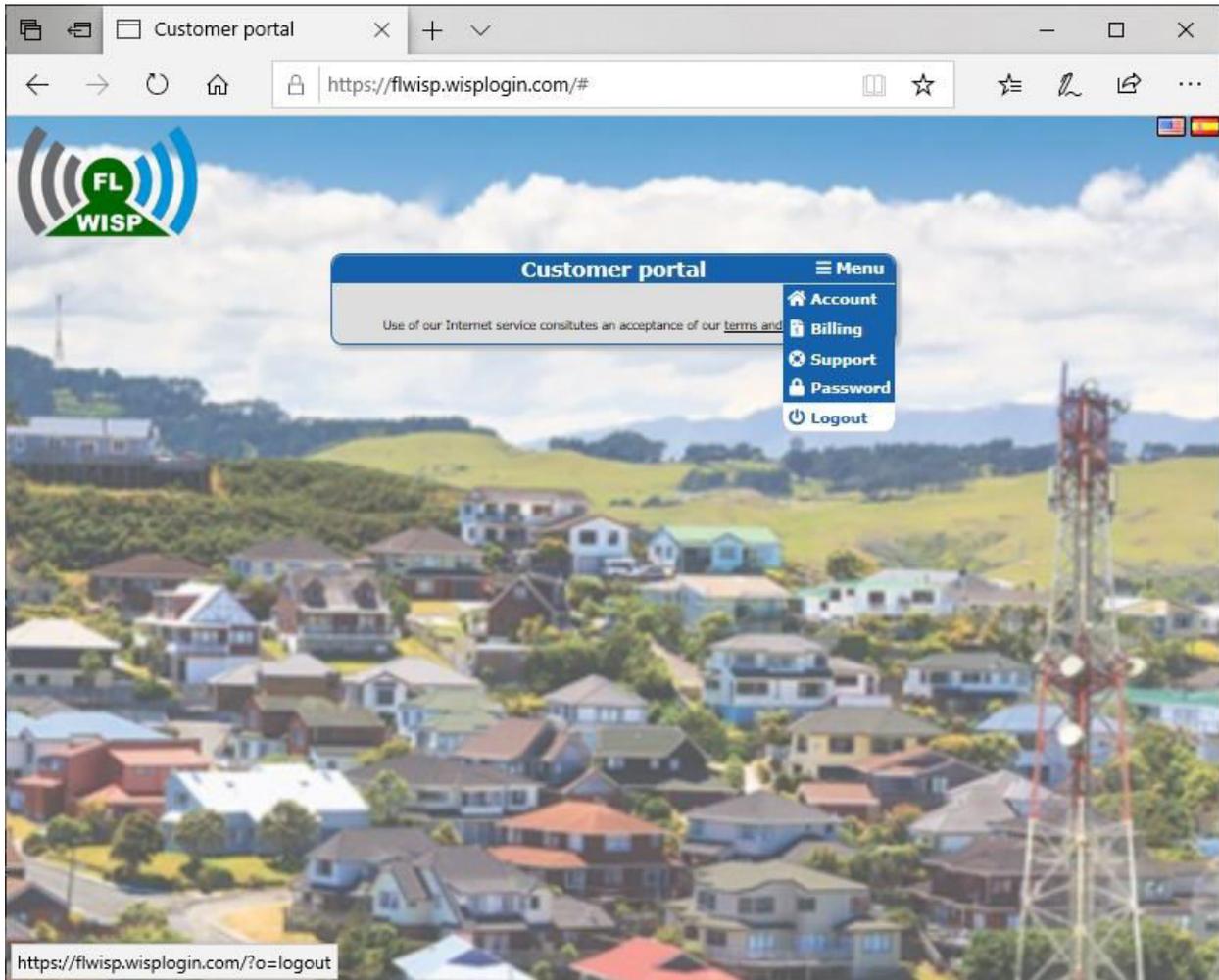
When the subscriber clicks the create ticket button the screen below appears with the auto-reply after sending the ticket.



The password change menu option permits the subscriber to enter the current password then type the new password twice before clicking update password.



When the subscriber has finished interacting with the portal the logout menu entry is clicked.



## 8. Support for cloud4WISP WISP customers

Free online technical support is provided for cloud4WISP customers. Go to the cloud4WISP website and click on the support tab. cloud4WISP does not provide telephone support. The cloud4WISP system has been designed to be very intuitive to minimize the requirement for technical support. We request that WISP's read this manual carefully before contacting technical support. WISP's who require telephone support should contact cloud4WISP to get pricing for an annual support agreement.

The free technical support page is shown below.

The screenshot shows the cloud4WISP website's support page. On the left is a navigation menu with items: Menu, How it works, Features, Deployment, Pricing, and Support (highlighted). The main heading is 'Support Tech Support Request'. Below this, it states 'Support is provided Weekdays 9am-5PM (GMT)'. The form includes a 'Name:' field, an 'Email address:' field, and a text area labeled 'Explain the problem you are having:'. A reCAPTCHA widget is located below the text area. A message reads: 'We may not be able to answer all queries immediately but will try our best to get back to you within 24 hours.' A 'Send Support Request' button is positioned below the message. The footer contains the text: 'Copyright © 2022 cloud4WISP. All rights reserved. Contact: support@cloud4wisp.com 6073 NW 167 St, Suite C12, Miami FL 33015'. There are also links for 'Terms of Service' and 'Privacy Policy' and a small upward arrow icon.