CBAS-Web
User Manual

computrols

Overview

Introduction

Welcome to the CBAS-Web Overtime Server (CBAS-Web), Computrols' flagship web-based building automation software that provides point monitoring and command interface to any Professional or Enterprise CBAS DPU, as well as providing some programming features, such as schedules and overtimes. CBAS-Web provides a complete, professional, clean, and easy to use interface to CBAS.

Great care has been taken in the details of CBAS-Web. While the main purpose is the monitoring and automation of CBAS, you will find a rich assortment of other useful features:

- Context-sensitive help that can be turned on or off
- Text and bar graph reports, featuring in-place sortable data by any field
- Per-user customizable preferences such as color-scheme, default views, point status update rate, and how many points appear per screen
- An easily customizable look and feel by allowing the administrator to change logos and even the tag line that appears at the top of the screen
- User to user or user to group messaging
- One-click backups
- Smart suggestions for overtimes that overlap an already programmed schedule or overtime
- The ability to program any number of CBAS DPUs into CBAS-Web, allowing a centralized view for points across many job sites or installations
- An automated security sentry that will message the administrator in the event of suspicious behavior (for example, repeatedly trying to access files that should not be accessible, or many incorrect passwords being entered at the login, etc.)

Getting Started

Installation

CBAS-Web servers are shipped prepackaged with the necessary tools and software needed to maintain your building. For computer specifications, refer to Appendix C.

Connecting the wires

The first step to getting CBAS-Web up and running is getting it connected

1. Connect the network cable into the Ethernet port (B), which is similar to a phone jack.

2. Connect the power cord into the CBAS-Web server (A), which will automatically startup.
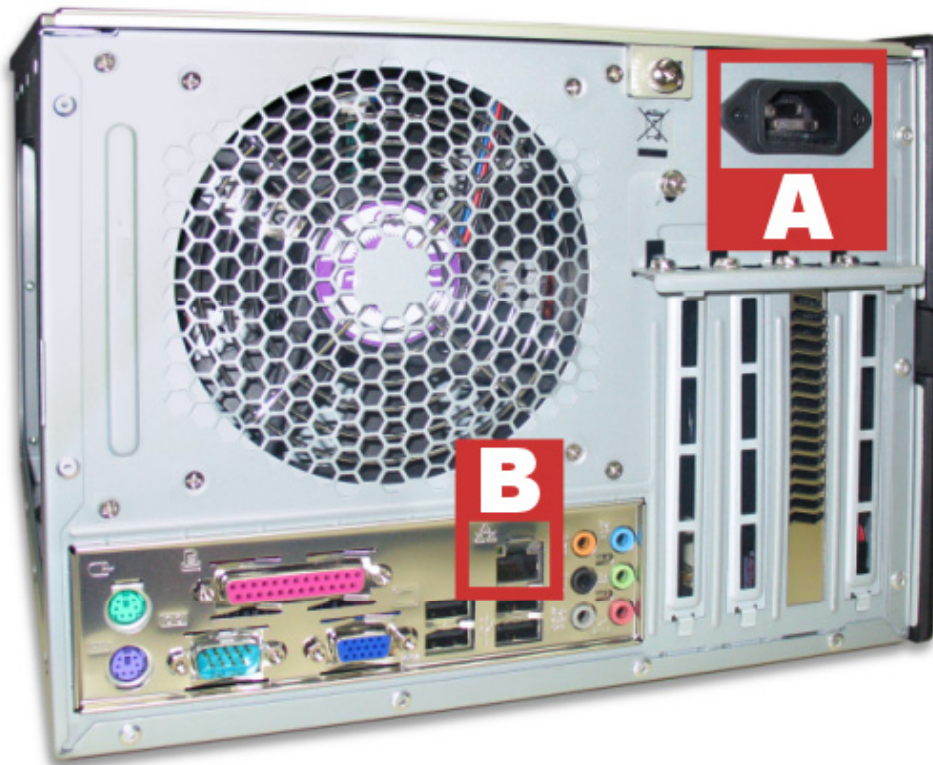
Connecting to CBAS-Web

The default configuration of a CBAS-Web server expects a subnet of the form **192.168.1.0** with a mask of **255.255.255.0**, and expects to find the network gateway at **192.168.1.1**. The network has already been setup this way if a CBAS DPU is installed on it, so there is no need to configure either the network router or the CBAS DPU. If your network is using a different subnet, such as **192.168.0.0**, then refer to **Troubleshooting > Cannot Connect to CBAS-Web**.

The CBAS DPU version must be 3.1.7 for CBAS-Web to connect to it.

In order for CBAS-Web to have access to the points in the CBAS DPU, a string server point must be added to the DPU under the GW channel. From the Hardware View in CBAS, go to

the TCP/IP for Workstations Channel. Go to Add GW/String Server and add the server. It is important that you specify the name as **CBASALL**. Use the IP address of CBAS-Web.

Open up an Internet browser and type CBAS-Web's address in the address bar (**192.168.1.3**). At the CBAS-Web login screen type the username and password:

> Username: admin
> Password: admin

If you are not presented a login to CBAS-Web, refer to **Troubleshooting > Cannot Connect to CBAS-Web**.

Configuring CBAS-Web

Now that you have successfully logged in to CBAS-Web, it is time to configure your overtime server. To begin this process, you must first connect to the CBAS database.

Step 1: Adding a New Server

1. Move your mouse over the Database tab (also referred to as a menu item), click **Edit Servers** and then click **Add New Server**.

2. When you have completed the form, click **Add Server**.

3. For more information about Servers, see **Getting Acquainted > Servers**.

Step 2: Pull and Select Points

1. Move your mouse over the Database tab, click **Edit Servers**. From the Servers List, click **Edit** for the new Server.

2. Scroll to the bottom of the page and click **Validate Server**. If the validation fails, scroll up and verify information and then try again. Once validated, click **OK**.

3. Scroll to the bottom of the page and click **Pull Points**. Once the Points have been pulled, click **Save**.

4. Click the **Edit** button for the Server.

5. Scroll to the bottom of the page and click **View Points**. This may take a few minutes for larger databases.

    1. Hide any points that do not need to be seen.

    2. Enable history on points.

    3. When you have finished setting up the points, click **Save**.

6. For more information about Points, see **Getting Acquainted > Points**.

Step 3: Add and Edit Views

1. Move your mouse over the Database tab, click **Edit Views** and then click **Add A New View**.

2. When you have finished sorting the points, click **Save**.

3. For more information about Views, see **Getting Acquainted > Views**.

Step 4: Add and Edit Groups

1. Move your mouse over the Database tab, click **Edit Groups** and then click **Add A New Group**.

2. When you have finished adjusting the values, click **Save**.

3. For more information about Groups, see **Getting Acquainted > Groups**.

Step 5: Add Users

1. Move your mouse over the Database tab, click **Edit Users** and then click **Add A New User**.

2. When you have completed the form, click **Add User**.

3. For information about the User Form, see **Getting Acquainted > Users**.

Getting Acquainted

The CBAS-Web database is structured around a number of basic data types that describe who has access to what. Basically, Views are a collection of Points, and Groups are collections of Users.

Servers

A Server in CBAS-Web refers to a specific installation of a CBAS DPU that CBAS-Web interacts with. Any number of Servers can be programmed into the CBAS-Web database, allowing a single point for monitoring and automation of many different installations of CBAS.

CBAS-Web uses the String Server to interface to CBAS. On the DPU side, the only thing that needs to be done is to program a String Server in the GW TCP/IP channel of CBAS.

To add and setup a Server, refer to **How To > Add Programmable Objects > Servers**.

Three different license types are available for CBAS-Web: Automation, Tenant, and Both. An Automation license allows Users of CBAS-Web to view, command, or program schedules in CBAS, while a Tenant license allows the building owners to extend to their Tenants the ability to program overtimes on selected Points. The type of license is encoded into the license itself and can only be purchased from Computrols.

Points

Any field device and logic or calculations associated with those devices are Points. A Point can be an actuator, a temperature sensor, a control sequence or any other quantity or status that can be monitored or controlled.

The Points Screen is available to both Automation Administrators and Automation Users. When the screen is navigated to, it will display the Users default View (Users can change this in their **Preferences**). From here, all Views Authorized for that User will appear in the left menu with the currently chosen View appearing in the body of the document. The Point statuses, priorities, and conditions are updated in real time at a rate of between 1 second to 60 seconds (chosen by the User in their **Preferences** – defaulting to once every 5 seconds).

Output, or commandable, Points are listed with a blue sphere with a plus sign at the top right of the sphere, while Input, or non-commandable, Points are listed with a yellow sphere.

If the User has the Authorization, they may click on a commandable Points and send commands to the DPU. Commanding or auto'ing a Point will bring the User back to the View.

When commanding binary Points, the option defaults to a value opposite to the current status, and the cursor is focused on the command button. Simply hitting **Enter** will toggle the value.

For analog Points, the cursor defaults to the selection in the value box (the current status). No units are required to be entered in an analog command screen. For example, when commanding a setpoint, which is currently at 50ºF, the user can simply type "47.5" and hit **Enter** instead of typing "47.5 DEGF." If the box is left blank, then the default action is to auto the point.

If there are more Points in a View than can be displayed on a page then a pager menu will appear at the top and bottom of the points list (the number of Points displayed per page is configurable in the User **Preferences** screen of up to a maximum of 100 Points). This menu can be used to go to any arbitrary page; commanding a Point on that page will bring the User back to that page.

To add and setup Points, refer to **How To>Add Programmable Objects>Points and Meters.**

Point Types

Hardware

Hardware Points transmit data back to a controller or physically carry through a CBAS command. There are four main types of Hardware Points: Analog Inputs, Analog Outputs, Binary Inputs, and Binary Outputs. Points that monitor the status of a field device are inputs, while Points that control the status of a field device are outputs. Overtimes can only be scheduled on Binary Outputs.

Binary Points have only two states such as ON/OFF, OPEN/CLOSE, or START/STOP. Analog Points, on the other hand, represent a range of measurement such as a temperature of 0°F to 110°F, a pressure of 1psi to 5psi, or a flow rate of 100 CFM to 200 CFM.

Software

Software Points include calculations, points of reference, and logic statements. They are intelligent Points that are not physically connected to the controller. Instead, they gather data and send commands to Hardware Points. An example of gathering data is the average supply temperature of all AHUs in a building. An example of sending commands is, "if Outside Air Temp is less than 50°F, then start VAV heat strips."

Types

There are a number of differing Points in CBAS that are imported into CBAS-Web. Any of them can be a hardware or software Point and can be Commandable or Read Only.

- Channel – Wires that carry a signal between controllers
- Panel – A controller or DPU
- Binary – Two-state Point (usually ON/OFF)
- Supervised – Five-state Point. Comes from Supervisory, which has the following state: OPEN, SHORT, RESISTOR, GROUND, and ON
- Analog – Has a range of –32,767 to 32,767 or 0 to 65,535
- Counter – Counts ON/OFF ticks in a range of 0 to 4,000,000,000 (four billion)
- Fire - Special fire point

Meters

Points communicate with Meters, which measure the amount of kilowatts per hour or gallons

per minute used. The counts on a Meter are only recorded in CBAS-Web if the Meter has been setup with a Group over an extended period of time. Like Points, Meters are pulled in from CBAS through the **Pull Points** feature on the System Settings page.

To view all Meters, move your mouse over the **Database** tab and click **Edit Meters**. This page allows you to see all or specific Meters and change their functions. To change a Meter's function, click on the cell of the Meter in question to toggle between **KWH** or **BTU**. Do not forget to also check the **Select** box located to the right of each function. When you have completed changing the function of a Meter and have checked the **Select** box, click on **Save**, located at the top and bottom of the Meters page.

The **Filter** allows you to display any Meter with the specified characters, as well as omitting any Meters that you do not want to list. This enables you to more efficiently change the function of a Meter.

The **Aux** option allows you to specify a **Tics per Unit** value for any of the selected Meters. Specify the **Aux** value and select any Meters to which this value needs to be applied.

Meter Selection and Meter Sorting is available on a per Group basis. To select what Meters should be setup with a Group:

1. Click **Edit** under Edit Groups on the group in question.

2. On the left menu, click **Meter Selection**.

3. Check **Assign** for any Meter(s) that should be associated with the current Group.

4. When you have finished your selections, click **Save**.

To sort Meters, click **Meter Sorting** on the left menu and click-and-drag the order in which the Meters should appear. When you have sorted the Meters, click **Save**.

To add and setup Meters, refer to **How To>Add Programmable Objects>Points and Meters**.

Views

Views, called Points in an Automation Group's menu bar, or Schedules in a Tenant Group's menu bar, will likely be the most frequented screen when CBAS-Web is in use, so it is important to set them up correctly.

The Administrator can create new Views and assign Points to them. Each View can have a different set of Points, or even the same Points, but in a different order. Example Views may include System Overview, Lighting, Door Alarms, Chiller Operation, or Supply-Return Temperature Differentials.

There are three types of views available to automation groups: List, Bar, and Tabular. Only the List View is available to Tenant Groups.

Views are viewed, commanded, or programmed by Groups. View Authorization allows the Group to see the actual View. Command Authorization allows the Group to change values on output Points. Program Authorization allows Group members to change or create schedules for binary output Points.

To add and setup a View, refer to **How To > Add Programmable Objects > Views**.

List Views

A list View is simply a list of Points and is the most basic view possible. Point statuses are displayed along with their priority and condition. Points in alarm will appear in *red*, while lost points will appear in *yellow*.

Bar Views

A Bar View is similar to a List View except that a graphical representation of the value of the point is displayed alongside the actual value. When the bar is empty, it signifies that the Point is at its minimum possible value. When the bar is completely filled, it signifies that the Point is at its maximum possible value.

Tabular Views

Tabular Views allow the User to see Point statuses grouped in two dimensions. A Tabular View is a grid of Points with headings on the x- and y-axes. An example of where this might be useful is showing critical operating information on a floor-by-floor basis.

To create this View, the Administrator might have decided that one floor will appear on each row while the minimum and maximum CFM being called for, the supply and return air temperatures, and the worst temperature error are each displayed in one of the columns.

To add and setup a Tabular View, refer to **How To > Setup a Tabular View**.

Groups

When a User is created, they are assigned to a Group. They have access to all Views that the assigned Group has access to. When the User logs in, they can choose from any of the Views authorized to their group and monitor their status or, if the Group has authorization, command them. Example Group names are Engineering, Management, Security, or the name of the Tenant.

To add and setup a Group, refer to the **How To>Add Programmable Objects>Groups**.

Group Types

Depending on the license, you may either be programming Automation or Tenant Groups (or both if you have multiple licenses or an inclusive license).

An Automation license allows Users of CBAS-Web to view, command, or program schedules in CBAS, while a Tenant license allows the building owners to extend to their Tenants the ability to program overtimes on selected Points. The type of license is encoded into the license itself and can be only be purchased from Computrols.

Users

When a user is created, they are created as a member of a Group. There are two levels of membership within a Group: Normal or Administrative.

Administrative Users are allowed to add and remove a User to and from the Group they are an administrator of, as well as run reports on the activities of the Group. It should be noted that an Administrative User is not the same as the System Administrator, who has complete control over CBAS-Web.

When creating a User, an email address may be entered for that User. While this is optional, it is used in the event that that User forgets their password. Once logging in for the first time, the User has the option of going to the Preferences screen and entering a confirmation question and answer. If the User does so, they will be prompted with this question before CBAS-Web will reset the password to a random string and email it to the registered email address. If no question and answer are programmed, then the reset proceeds without prompting.

Users can change several aspects of their CBAS-Web experience by clicking on the **Prefs** (Preferences) tab, including changing their passwords, confirmation question and answer, the number of Points that appear on a screen for a View, the color scheme and font size, and the

default View.

User Types

Multiple User Types are available when adding a new User to CBAS-Web: Normal, Group Administrator, Concierge, Accountant and System Administrator.

- Only Normal and Group Administrator Users can schedule Overtimes if they a part of a Tenant Group.

- Group Administrators can add Users to the assigned Group.

- Concierge has the freedom of moving between Groups easily.

- Accountants can only print reports and invoices and is usually a Staff User.

- System Administrators has complete control over CBAS-Web, and can move between Groups like the Concierge.

Access Policy

Access policy is set on the Group level, not on the User level. While this may at first seem limiting, it actually allows great efficiency in designing the policy. If a new Point is added to the DPU, it can be added to the appropriate View(s) where it should appear. Any User that is a member of a Group with access to that View will automatically have that Point appear under the appropriate View when they log in. Similarly, if it is decided that a Group of Users should have access removed or added, the whole Group is updated at once.

There is no rule saying that you have to have more than a single User in a Group. If there is a real need that access policy is modified for a single User, a new Group could be made for that one User. Another feature that makes access policy assignment more fluid is the Administrator can reassign Users to different Groups at will.

Accounting Business Logic

General Accounting Report Principals

Accounting reports run from the 00:00:00 of the start date until 23:59:59 of the end date. That is, starting and ending dates are *inclusive*. This means that reports should run from Day X of a particular month to Day X-1 of the next. A particular date must not be repeated across invoices so that a tenant is not double-billed for the same usage.

While most people use monthly billing cycles, the accounting module is not bound to a specific time span, so weekly, bi-monthly, or quarterly cycles are certainly possible. Whatever the billing cycle choice, group allowances must be set accordingly (in Edit Groups > Edit > Billing Information).

Allowances specified are applied to each invoice, regardless of the period in which it is run. This means that, if the invoicing period is 4-months, allowances must be specified for 4-months at a time. In this case, if the desired KWH allowance was 1000KWH/month and A/C Overtime allowance was 10 hrs/month, then the correct amount to enter is 4000KWH and 40 hrs. Allowances do not carry over from one invoice to the next.

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The allowance is subtracted from the final usage. If the result is a negative number (i.e. a credit), then it is set to zero.

Any activity within CBAS-Web that can appear on an invoice is called a billable entity. There are currently five billable entities:

- Overtime A/C
- Overtime Lights
- KWH Meters
- BTU Meters
- Adjustments

The entities that appear on a report or invoice are selectable. The business logic used in computing Overtimes is the same whether the overtime is A/C or Lights, and Metering logic is the same for KWH or BTU.

Two decimal places are shown in the final bill tabulation. This number is obtained rounding the actual bill to the nearest $0.01 (i.e. 0.005 will become 0.01, while 0.00499 will become 0.00).

Overtimes

The logic used to bill scheduled overtimes is sometimes confusing to tenants and billing departments and deserves a thorough treatment. In the following discussion and examples, it is assumed that:

- Alice and Bob are members of the Umbrella Corporation.
- Carol and Dave are members of the Umbrella Corporation Accounting group and the Umbrella Corporation Logistics group respectively. Both of these groups were created by the Umbrella Corporation group's tenant administrator.
- Eve is a member of ACME, a group that is unrelated to the Umbrella Corporation.

The rules that are used in billing are bulleted below, with example given as sub-bullets.

- Time slots are scheduled in 15-minute increments. It is not possible to bill for less than 15 minutes at a time. It is also not possible to schedule an overtime for less than 15 minutes. Overtimes that are stopped while they are running will end at the next higher 15-minute increment.
    - An overtime starts at 09:00 and is terminated at 09:03. It will actually stop at 09:15 and be billed accordingly.
- Overtimes spanning two days will be broken up into two overtimes.
    - An overtime starts at 21:00 on one day and runs until 02:00 on the next. It will be broken into an overtime running from 21:00 to 00:00 and another on the next day running from 00:00 to 02:00.
- Repeating overtimes are schedules as independent entities. They can be canceled, stopped, or extended individually.

- If two users from the same base group schedule overlapping overtimes, only the first to schedule a specific time-slot is billed for it. Members of subgroups created by a tenant administrator are considered to be members of the same base group as the creator of the subgroups, as are members of sub-sub-groups and so on.
    - Alice schedules an overtime from 09:00 to 11:00 for a particular day. Bob later schedules an overtime for 08:00 to 12:00. Alice is billed for 2 hours, and Bob is billed for 2 hours.
    - Carol schedules an overtime from 08:00 to 12:00 for a particular day. Dave later schedules an overtime for 09:00 to 11:00. Carol is billed for all 4 hours, while Dave is not billed since his overtime is completely within Carol's scheduled overtime.
    - Eve schedules an overtime from 08:00 to 12:00 for a particular day. Alice later schedules an overtime for 09:00 to 11:00. Eve is billed for 4 hours, and Alice is billed for 2 hours.
- Billing is not final until an overtime has completed running. If two or more overtimes from the same base group overlap, then only the first scheduled overlap is billed. However if one of the overtimes is canceled, then the first scheduled overlap is recalculated.
    - Alice schedules an overtime from 09:00 to 11:00 for a particular day. Bob later schedules an overtime for 08:00 to 12:00, and still later, Carol schedules one from 07:00 to 13:00. Alice, Bob, and Carol are tentatively billed for 2 hours each. At 09:45, however, Alice stops her scheduled overtime. The final invoice will show that Bob is billed for 3:15 hours and Alice is billed for 0:45 hours. Carol is still billed for 2 hours, since the cancellation did not affect the portion he was responsible for.
- Extending or stopping an overtime leaves the creation time of that overtime unchanged. That is, the time at which it was extended or stopped is not the creation time for billing purposes.
    - Alice schedules an overtime from 09:00 to 11:00 for a particular day. Bob later schedules an overtime for 08:00 to 12:00. At 10:49, Alice extends her overtime by an hour (to run from 09:00 to 12:00). At 11:41, Alice stops the overtime (which is now at 09:00-11:45). Alice is billed for 2:45 hours, and Bob is only billed for 1:15 hour.

Meters

- Only "counter" and "analog in" points can be set up as meters. History must be enabled in Edit Servers > View Points for a point to act as a meter.

- Meters that provide instantaneous readings, rather than cumulative readings are inappropriate for billing purposes since counts may be lost if the controller stops reporting (for example, by failing). Most meters can provide cumulative counts, even if they also provide instantaneous measurements.

- Meters can be scaled in the Edit Meters screen. The counts value from the meter is

divided by the tics/unit value specified in the Edit Meters screen. For example, if a meter is specified at 12 counts per BTU, the tics/unit should be set to 12. Conversely, if the meter is specified for 0.2 BTU/count, then the tics/unit would be 5 (1/0.2).

- A loss of data for a short period of time (when using cumulative readings) will not result in the overall loss of billable units. For example if the CBAS-Web server is out of service from July 8 to July 10 inclusive (i.e., 3 days), and the average consumption is an average of 100 KWH/day, then an invoice ran for the month of July will show no consumption during the outage period, but will see a 400KWH jump on July 11. This jump reflects the new cumulative counts reading of the three missing days along with the 100KWH for July 11.

Notes

All programmable objects in CBAS-Web (Servers, Groups, Users, and Views) allow the Administrator to record notes that are attached to the object in question. This is completely optional, and has no programmatic use within CBAS-Web. It may be used to record phone numbers for Users, descriptions for Groups or Views, or any additional information that the Administrator desires for that object.

Auto-Complete

Within all **Edit** pages under the **Database** tab (minus **Edit Servers**) as well as in the **History Report** and **Points Selection** under **Edit View**, exists an Auto-Complete feature. What this feature will do is take the text that you have typed in a corresponding text box and performs an instant search for the item in question and lists the results.

For example, if you were to navigate to the **Edit Users** page, there is a text field called **Find** that allows you to type your search. If you type the letter **a**, a box will appear below the text box with any results it can match to that letter. You can narrow the search by typing in more letters. The same principal applies to **Edit Views**, **Edit Groups**, and **Edit Meters**. On **History Report**, the results will list all matching Points in a box below, and also includes an exclusion box, to omit any Points that you do not want listed. For **Points Selection**, after specifying the filters, you can click on **Filter**, which will list all Points matching the filter criteria.

Date Ranges

There are a number of pages that contain a date range of sorts, most having **From** and **To** fields, with a calendar next to the text box for easy date searching. A resulting click on any date on the calendar produces a date range that looks similar to the following: **Tue, 4 Jul 2006**.

The date range is flexible in that it can receive date ranges in various other formats, such as: **7/4/2006, 2006-07-04** and **July 4th, 2006**. A large part of the flexibility of the date range is that it can also accept time formats as well: **8:00 PM, 20:00**, and **8PM**. Any of these acceptable formats can also be used in conjunction with the above date ranges, to produce a variety of ranges: **2006-07-04 8:00 PM, 7/4/2006 20:00**, or **July 4, 2006 8PM**.

Another feature of the date range is its ability to handle relative date and time formats as an interval. For example, if it is currently 8:32 AM and we wanted to search the **History Report** of a Point for the past hour, you would set the **From** field to **-1 hour** and set the **To** field to

now. The History Report would list the selected Point(s) History from **-1 hour** (7:32 AM) to **now** (8:32 AM). The interval time does not require the **s** (**plural**) when specifying multiple time spans. **-4 hours and -4 hour** are treated the same, so either input will be sufficient.

Any page with a date range field is capable of handling any of the above mentioned formats. It is recommended that date ranges be kept within a minimal time frame for specific pages of CBAS-Web, such as the **History Report, Activity Report**, and the **Accounting** module. These pages execute numerous tasks when a search is performed, therefore searches within a month or two are reasonable.

How To

Synchronizing CBAS-Web with the DPU

Before anything useful can be accomplished with CBAS-Web, the DPU database must be retrieved so that information on the Point names, types, ranges, and indices are available. This can be accomplished by clicking on the **Pull Points** button in the **Edit Server** screen. If the Server information (address and license) is correct and there exists a route between CBAS-Web and the DPU, it will retrieve all Points on the DPU and produce a summary screen.

The summary screen lists any differences that may exist between the Points on the DPU and currently in the CBAS-Web database. If the two have been previously synchronized, then it's possible that there are no differences. If a Point has been added or deleted, then it will be listed under its new or old name and will indicate that the Point is new or that it has been deleted. If a Point still exists, but has been changed in some other way (for example, a change in an analog Points range or a binary Points units, or a change in Point name), then this will also be indicated, however there will be a checkbox beside the Point labeled, **Retain Authorization**. It is checked by default, but if it is unchecked before proceeding, then the Point will be removed from any Views it exists in. It may be added back to the Views, but since the order information has been lost, it will appear at the end of the Points in the View and should be reordered if desired.

Once the Point differences have been reconciled, the Administrator has the option of saving the new Point information. Until the Administrator does this, no changes will be made to the database. If they click on the cancel button or navigate away, then the DPU Points will have to be resynchronized again.

Editing Points

To review the Points on a particular Server, click on **Edit Server** under the **Database** tab and click on **View Points**. This pulls up a list of all the Points programmed in CBAS-Web for that Server. Next to each of the rows in this list is a check box marked **Hidden**. If this box is checked, then this Point effectively vanishes from all other CBAS functions; it does not appear in the list of Points from which Views can be created.

For Points residing in a Server with a license allowing Tenant access, Points in this list will have an additional field which can be toggled between A/C and Lighting by clicking on it. When the Administrator later goes to program Groups, they will have the option of creating a Tenant group, where different hourly billing rates are specified for A/C and Lights, allowing the Administrator to charge different amounts for different Points.

Sorting Views, Points and Meters

Point and Meter Sorting allows you to organize the Points and Meters to appear in the order to your fitting. Points can be sorted only on the Edit View page, whereas Views and Meters can be only be sorted on the Edit Group page. The links for sorting these objects can be located on the left menu on each of their respective pages. Sorting any of these objects is as simple as performing a click-and-drag maneuver.

In the above example, you can click on any Point and drag it to the position you wish it to appear.

The same method of sorting is used on Views and Meters under Edit Groups.

Setup a Tabular View

Before setting up your Tabular View, the View Type must be updated. Move your mouse over the **Database** tab and select **Edit Views**. Click **Edit** for the View that you want to change. On the Edit View screen, change the **View Type** to **Tabular View** and click **Save**. After you have saved the change, click on the new left menu link **Tabular Layout**.

Setting up a Tabular Layout, like sorting a Point, is a simple process that mainly involves clicking with your mouse. Only Points setup with the selected View will be listed. The columns

and rows can be named with whatever naming convention that you choose. To organize the layout, we recommend expanding the number of rows and columns to match the amount of Points the View has. This will make it easier to organize what column and row a Point should be placed in.

To organize the Points, click on any Point that you want to move. This makes the background color of the selected Point change to a *dark yellow*. Move your mouse to the area that you wish to move the selected Point. This will be indicated by a faint, *lighter yellow* color. When you have found the cell you wish to move the Point to, click on the Point you are swapping. This will switch the two selected Points. See the second and third examples to see this process.

In this example, the *UNICARE* View contains 12 different Points, therefore, we expanded our table to contain four rows, representing a floor in the building, and three columns, representing various points that exist in CBAS-Web. This enables all of our points to appear on the screen. We have selected *Test: FL2 AHU CHW DRIFT* and have swapped it with *Test: FL4 AHU CHW VALVE*. The initial setup of this will have all of the Points scattered. Organizing them will take a little more time, but as seen above, all it takes is the click of a mouse.

If 13 or more Points had existed in our example view, we would have wanted to expand either the rows or columns so that all points were visible. To do this, specify the number of rows and/or columns you wish to appear at the top of the page. When you have specified the numbers, click **Save** and resume organizing the points.

The final product contains all of our view's points, organized to our needs.

Points in alarm will still display in *red* and in *yellow* when lost in the Tabular View. This makes an efficient way of providing a summary of all critical systems on a single page.

Configure a Point's Schedule

To begin setting up a point's schedule, select a point, click on the *blue* **Start** button, and click the time frame that this point is accessible for normal use. A tool tip will follow your mouse movements and display the time when you mouse-over. Starting (or active) schedules are indicated in *blue*, while the *white* space represents no normal usage for the selected point.

In the above example, the normal schedule for the point *FL2 AHU S/S* occurs **Monday through Friday, from 6:00AM to 6:30PM**. To set a schedule, click-and-drag on any part of the image that the normal point usage should occur. Note that the click-and-drag movements have a specific limitation on your mouse movements. Clicking on a part on the image and dragging to the left or up from the spot you clicked will produce no results. Performing an opposite movement, such as clicking on **Friday at 8:00PM** and dragging to **Friday at 10:30 PM** is acceptable. The schedule is for setting the regular point usage and not for overtimes.

To clear the schedule, click on the *white* **Stop** button and perform the same click-and-drag mouse movements. When you have completed setting up the schedule, click on **Save Schedule**. Clicking **Save Schedule** configures the usage for the point. Clicking on **Done** returns you to the point list. Keep in mind that clicking **Done** without clicking **Save Schedule** *will not* save the schedule.

Schedule an Overtime

In order to schedule an overtime on a point, the user has to be an administrator or normal user of a group. For a user to schedule an overtime, they must click on the **Schedule** tab and select a point from the list of points.

The user should specify the date and time the overtime needs to occur as well as the duration of the overtime. In the case where the CBAS-Web user is shared, the **Notes** section is a good place to indicate who is making the overtime. Clicking on **Make Repeating** allows the user to specify what day(s) of the week the overtime should occur on. The user is also able to view the regular schedule for the selected Point by clicking **Show Weekly Schedule**. Once the overtime is set, click **Schedule Overtime**. The user will be asked to confirm the overtime they are scheduling. If there is a problem with the overtime, click **Back**. If the information displayed is correct, click **Confirm**, which will schedule the overtime.

Adding Programmable Objects

Programmable Objects include Servers, Views, Groups and Users. Each section below covers the forms of each object in greater detail.

Servers

1. Name of Server – The server name is used as an aid to identify the DPU it is setup with and can be changed at any time.

2. DPU IP Address – The IP address of the DPU, normally set to **192.168.1.2**.

3. String Server License – Obtain a string server license from Computrols Tech Support and add it to this field. You will need the Machine ID from the CBAS DPU. To get the Machine ID, you must be in CBAS and go to System and click CBAS Version. The Machine ID is located towards beneath the CBAS release that is currently running (Professional, Enterprise, etc.)

4. Notes – Optional. Any notes you may want to specify about this DPU can go here.

5. For more information about Servers, see **Getting Acquainted > Servers**.

Points and Meters

1. Points and Meters can only be added by connecting to a CBAS DPU through CBAS-Web. To begin pulling points and meters, move your mouse over the Database tab, click **Edit Servers**. From the Servers List, click **Edit** for the new server.

2. Scroll to the bottom of the page and click **Validate Server**. If the validation fails, scroll up and verify information and then try again.

    1. Once validated, click **OK**.

    2. If you are unable to validate the server, refer to **Troubleshooting > Cannot Validate Server**.

3. Scroll to the bottom of the page and click **Pull Points**. This will begin the process of pulling both points and meters.

    1. For more information about points, see **Getting Acquainted > Points**.

    2. For more information about meters, see **Getting Acquainted > Meters**.

    3. Click **Save**.

4. Click **Edit** for the new server.

5. Scroll to the bottom and click **View Points**. This may take a few minutes for larger databases.

    1. Hide any points and meters that do not need to be seen.

    2. Enable history on any specified points.

6. Click **Save** when you have finished.

Views

1. Specify the name of the view and any notes you have for that view.

    1. For more information about views, see **Getting Acquainted > Views**.

    2. Click **Add**.

2. Click **Edit** for the new view and click **Point Select** on the left menu.

3. Check the Auth box next to the points that should be seen with this view.

    1. When you have finished authorizing points, click **Save**.

4. If you desire to place the points in a specific order, click **Point Sorting** on the left menu.

    1. Click and drag the points into the desired order.

Groups

1. Group Name – Identifies the automation or tenant being added.

2. Select Group Type – Specifies the type of group being added. You may have multiple options if your license allows more than one type.

    1. For more info on Group Types, see **Getting Acquainted > Groups > Group Types**.

3. Address/Other – Used in conjunction with our Accounting Module, which is capable of creating billable invoices that can be sent to tenants for their usage in one or all of the following categories: KWH, BTU, A/C, Lighting, and Adjustments.

   1. For more information about the Accounting Module, see **Reports > Accounting**.

4. Notes – Optional. This can be used for any relevant information about the group, such as a description, main contact, suite number, etc.

5. When you have completed the form, click **Add Group**.

6. From the Groups Overview screen, click **Edit** on the newly added group.

7. Click **View Selection** on the left menu and check the appropriate boxes next to the views.

   1. View – Allows group to view the points in the selected view(s).

   2. Command – Allows group to schedule overtimes in the selected view(s).

   3. Program – Allows users in Staff Groups to command points in the selected view(s).

   4. When you have completed selecting the View Authorizations, click **Save**.

8. If more than one view was selected you can sort the order of the views by clicking **View Sorting** on the left menu.

   1. Click and drag the order in which you want the views to appear.

   2. When you have finished sorting the views, click **Save**.

9. Click **Meter Select** on the left menu to choose Meter Points.

   1. When you have finished selected the meter points, click **Save**.

   2. For more information about meters, see **Getting Acquainted > Meters**.

10. If more than one meter point was selected you can sort the order of the views by clicking **Meter Sorting** on the left menu.

    1. When you have finished sorting the meter points, click **Save**.

11. If KWH, BTU, A/C, or Lighting overtimes are charged, or if free time schedules are assigned to a Group, then click **Billing Information** on the left menu. Further information about Group Billing can be found below.

Group Billing

For A/C and Lighting, set the Cost Per Hour and the free usage Per Month for each type, if applicable. For KWH and BTU, set the Cost Per KWH and the free usage Per Month for each type, if applicable. If, for example, tenants are not charged for Lighting overtimes, you can leave the amounts as 0 for both the Cost Per Hour and the usage Per Month.

Free time schedules are used for accounting purposes to tabulate the number of hours that will enter into the billing calculations. They are separate from the Free Lighting and A/C hours per month, which will still be applied to overtimes outside of the free time schedule being used.

There are three modes of free overtime scheduling:

1. No scheduled free time: Overtimes are billed even if the unit is scheduled to be on at that time.

2. Get free time schedule from point schedule: The schedule of the point in CBAS is used. Only overtimes outside of the point schedule will be billed.

3. Use a custom free time schedule: This selection allows manual entry of a schedule for the tenant group. The custom schedule should be entered into the fields labeled 'Sunday' through 'Saturday' as a time range.

Times can be expressed in any of the following formats:

- 18:00
- 18:00:45
- 6:00pm
- 6:00 pm
- 6:00:45 pm
- 6pm
- 6 PM

A range is designated by inserting a hyphen, or minus sign (-), in between two times. Spaces after or before a time range are ignored. The following are examples of acceptable time ranges:

- 06:00-18:00
- 6:00am - 6:00pm
- 6am - 6PM
- 6:00am - 6:00pm
- 6:00:00 AM - 6:00:45 PM
- 6am - 6:00:45 PM

Users

1. User Name – A name for each individual user that requires access to the overtime server.

2. First/Last Name – The first and last name of the user being added. These fields are required.

3. E-mail – Optional. Allows the user to have their password reset and emailed to them if they forget their login information.

4. Password – A suggested security measure is to make the password unique, a mixture of letters and numbers, and not shared. However, this is not required as simple passwords are allowed.

5. Groups

   1. Users can be added to an existing group or to a custom group and view. In order for the user to schedule overtimes, the group must be a Tenant Group and the user must be set to Normal.

   2. If you are creating a User and wish to have a Group and View of the same name created with that User, then leave the **Autogenerate Custom Group and View** selection.

   3. If the Group already exists, click the box to select the Group.

6. Select User Type – Sets the access level the user will have for the group they will be associated with.

   1. It is best to log in as the user you just added to ensure their view is correct.

   2. For more information about User Types, see **Getting Acquainted > Users > User Types**.

The Configuration Screen

Creating Backups

The Administrator can make backups by clicking on the backup button in the System screen. The backup is a compressed and encrypted binary file of all information and settings stored in the database and is sufficient to restore operation from a blank CBAS-Web. The only thing not backed up is the customer logo. While operation may be completely restored, the logo will revert to the original CBAS logo. In general, a compressed database will be about 1KB of size per 5-10 points (about 50kb–100kb for a 1,000 point system).

Restoring Backups

The administrator can restore any previously saved backup by clicking Browse and locating the file in the configuration screen. When the file has been selected, clicking **Restore Database** will begin restoring the backup. This process is quite unforgiving since CBAS-Web assumes that the administrator knows what they are doing, and there is no way of guessing exactly what the intention of the administrator was. All information, including messages and users, groups, or views added or changed since the time that the backup was made are lost. *It is strongly recommended that the Administrator make a backup before restoring in case more information is lost than expected.*

Branding CBAS-Web

There are two branding options available for administrators of CBAS-Web. The first is a changeable tagline that is displayed at the top of the screen next to the logo. The second is the actual logo itself. Both can be changed in the System Configuration screen. A logo can be uploaded by browsing to an 180x55 pixel GIF image and clicking **Save**.

Invoice Script

The **Invoice Header Script** and **Invoice Footer Script** information is applicable to the **Invoice Report** and **Accounting Module**. Within each **Invoice Report** is a header (top of the first page) and footer (bottom of the last page) that contains editable information pertaining to the invoice itself. The **Accounting Module** only uses the footer as the header is automatically generated based on the group's **Address/Other** field, **Invoice Number,** and **Usage Dates**.

The default configuration for a header is:

        Invoice Number: [INVOICEID]
        Issued to [GROUPNAME] (Group #[GROUPID]): [INVOICEISSUEDATE]
        Billing Period Start: [PERIODSTART]
        Billing Period End: [PERIODSTOP]

The default configuration for a footer is:

        Please remit this amount: [TOTALBILL]
        You can find a copy of this invoice online at:
        [TAB][TAB]http://your_site/invoices/[INVOICEURL]

For detailed information about possible header and footer configurations, see Appendix D.

RSS Feed

RSS (Really Simple Syndication) feeds are a format for syndicating news and the content of news-like sites, though it is not limited to simply news. Computrols offers an RSS feed so that you can stay up to date with the latest Computrols news and updates. The RSS feed information will be displayed on your **home** page.

Messaging

Users can pass messages back and forth using the messaging option provided in CBAS-Web. When a user logs in, he will be told of any pending messages and may proceed to read them by clicking on the link shown in the home page. Messages may also be read at any time by browsing to the messaging screen.

In this screen, a user has the option of composing a message that they can send to any individual user, all users in a particular group, or all users in the system (depending on the choice made in the selection boxes at the top of the screen).

Two special tags allow the user to cause sent text to be bold-faced ([b][/b]) or italicized ([i][/i]). Any text contained within these tags will be formatted appropriately. Before sending, a preview screen shows the user what the message will look like and will ask for confirmation.

Example of bold-faced and italicized text:

> John Doe,
>
> [i]Important![/i] The meeting is at [b]10:00 AM[/b], not 11:00 AM.

Would result in the following message:

> John Doe,
>
> *Important!* The meeting is at **10:00 AM**, not 11:00 AM.

CBAS-Web itself may also send messages to the administrator. Currently, it will automatically send a message reminding the administrator to back up the database if there have been no backups or DPU synchronizations made within a certain time. CBAS-Web will also send messages warning the administrator if suspicious activity has occurred since they have last logged in, such as excessive failed login attempts or access violations, as well as different kinds of errors.

CBAS-Mobile

CBAS-Mobile allows monitoring and control of automation points in CBAS-Web. The CBAS-Web interface exposed to mobile devices is limited in nature and has been customized for CPU, memory, bandwidth, and feature limited mobile browsers.

CBAS-Mobile is generally licensed separately from CBAS-Web, but runs on the same physical machine and uses the same database as CBAS-Web.

Monitoring and automation uses the same group and view permissions structure that is prevalent elsewhere in CBAS-Web.

CBAS-Mobile does not allow the following:

- Programming schedules or overtimes (hence, CBAS-Mobile is useful only to automation users such as building engineers).

- Most reporting (accounting, activity, or database).

- CBAS-Web database programming (i.e., no new users, groups, or views can be programmed).

What it does provide is alarm monitoring, viewing point statuses, and commanding binary, supervised, and analog outputs.

While the goals of making CBAS-Mobile as widely compatible as possible makes it limited in features, CBAS-Mobile also provides a graphical history for all points is available. This reporting facility was added to assist in diagnosing problems on the fly.

Three policies assist in making CBAS-Web (and hence CBAS-Mobile) more secure:

- Encryption: Encrypted challenge-response password authentication (so your password never leaves your mobile client, hence eavesdroppers can't intercept it). This is true only for CBAS-Mobile on JavaScript-enabled clients (shown on the left).

- Access Levels: Different security levels can be programmed so that different users have access to different sets of points.

- Accountability: Any action performed by a user from a mobile device is recorded and may be viewed by the administrator.

CBAS-Mobile has been tested on all the clients shown on the left, but should work with any relatively recent smart-phone based on the Windows Mobile, Windows CE, or any Linux OS. Symbian-based smart-phones may work, but with possibly restricted functionality (depending on whether or not they have JavaScript capabilities).

To browse from your mobile device, simply enter the following URL:

mybuilding.com/m

Where mybuilding.com is the URL you would normally use to access the CBAS-Web interface.

Screenshots
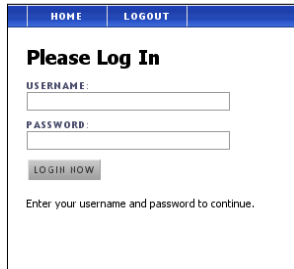
The login screen uses a challenge-response cryptographic protocol to securely connect to the CBAS-Web server. The home page lists all available view that the logged-in user has access to.

Point information is similar to that provided when logged in with a normal browser. Points can be commanded, or auto'ed.
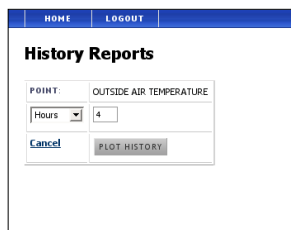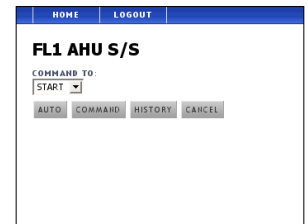
And history can be plotted for time spans as long as 12 months or as short as an hour.

Most mobile browsers allow the choice of resizing the returned image to fit within the screen, or scrolling around the full-sized image (often larger than the screen, depending on LCD resolution).
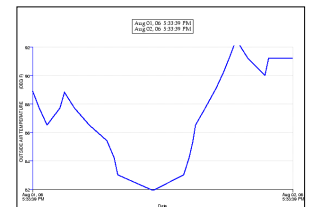
Reports

There are two main types of reports: general Activity Reports and Overtime Reports. While each one is designed for a different purpose, they have much in common.

All activities are logged by CBAS-Web and are available in Activity Reports. Reports can be generated either by time period or by most recent entries. Time period can be selected using the **From** and **To** calendars, or by selecting one of the predefined times: **Today** (starting 00:00:00 and ending 23:59:59), **This Week** (starting Sunday), **This Month** (starting on the first of the current month), **One Day** (exactly 24 hours previous to the current time), **One Week** (seven days previous to the current time), or **One Month** (starting on the same day of the previous month), and on the Overtime Report, **Upcoming** (the current time to exactly one year ahead).

Alternately, the user can select the last 10, 50, 100, 500, 1,000, or 5,000 entries of a particular type. If reporting by entry is requested, then the time is ignored.

Reports can be run on only a selected group or user. When running a report, you may select either group or user, but should not select both since selecting a user that exists within the selected group will result in an empty report.

The actual reports include hits, which details every single access of a CBAS-Web page. This is different from the **All Activities** report, which describes actual actions. For example, if a user tries to add a group or command a point, but clicks **Cancel** at the last moment, then the action is not logged, since no change was actually made.

Finally, whenever a report has the word **Histogram** in its title, it indicates that the report will display a frequency-count bar graph. For example, the **Logins** report will display the actual logins sorted in order of the time they occurred, while the **Logins Histogram** report will show how often each user logged in within the last week, but not the time.

Sorting

Reports are "in-place sortable," which means that clicking on any of the columns will result in sorting the report by that column. Clicking on the same column again will result in a reverse-sort, i.e. if the column is sorted in ascending order, then clicking on it again will result in sorting it in descending order.

Exporting

There are several export options at the bottom of most of the reports: **View as PDF**, **Export to Excel**, and **Export to Text File**. Clicking on any of these links will result in CBAS-Web sending a file containing the current report using the listed format (PDF, Comma Separated Values, or simple Text respectively). Note the order that the data appears in the report screen will be the same order in which it appears in the exported file. Any sort that the user has applied in the report by clicking on one of the columns will cause the resulting exported file to be sorted by that column.

Activity Report

The Activity Report lists all actions (or clicks) taken by users in CBAS-Web, such as logging in, loading a page, running reports, and commanding points. You can narrow your search by selecting the type of report activity you want to list by selecting the option on the bottom of the page. You can also limit the number of entries listed by using **Report by Count**.

Overtime Report

The Overtime Report will list all overtimes scheduled by any and all users and/or groups. It is also the only report that contains the **Upcoming** button, which sets the **From** date range to the current time and the **To** date range to exactly one year ahead.

The resulting report will list all overtimes that met the search criteria. Along with the **Group**, **User**, and **Point** will be the **Duration** of the overtime, the **Starting Date** and **Time**, the **Ending Time**, any notes about the overtime, and the amount **Billed**. Three additional columns will also be present, and in most cases, will be blank. For future overtimes, the administrator and the creator of the overtime will see **Extend**, **Stop**, and **Edit** buttons. For any previous overtimes, the **Edit** button will be visible, allowing the administrator or the overtime creator to edit the Overtime Notes.

Printing and export options are available at the bottom of the report. For more information about printing and exporting, see **Reports > Printing and Exporting Reports**.

History Report

The History Report will create a graphical representation on the usage of the selected point(s) within the specified date range. To select a point, type the first letter or two of the point you want to select. If the point name is similar to a large number of other points, it is best to narrow your search down even further. You can also exclude points by using the same criteria in the **Exclude the Following Points** field. Specify the date range by which you wish to search for the Point(s) History. The **Hour**, **Day**, **Week,** and **Month** buttons are convenient ways to quickly set the **From** and **To** fields to look up the history on a point. When you have selected the point(s), click **Plot History** to generate the graph.

The resulting graphic will contain either a graph with the history of the selected point(s) or will contain a message stating **No data found in time range**. One additional feature to the graph is the capability to bookmark the URL of the graph and refer back to it at future times.

Invoicing

The **Invoice Report** provides a means of creating invoices for all or specific groups within the specified date range. Clicking **Create Invoice** will take the search criteria and begin generating the invoice in PDF format. When the file has been generated, you will receive a prompt to download the file. If you have selected **All Groups**, the PDF that is generated will contain information on all groups within in a single PDF file.

Clicking on **View Adjustments** will list any adjustments that meet the search criteria. Only the System Administrator and Group Administrator can delete adjustments. Printing and export options are available at the bottom of the report. For more information about printing and

exporting, see **Reports > Printing and Exporting Reports**.

Adjustments can be created by clicking on the **Make Adjustments**. On the adjustments form, specify the **Date** of the adjustment, **Group**, any **Comment** (if applicable), and the **Amount** of the adjustment. When you have completed the adjustments form, click **Make Adjustment**.

Accounting Module

The **Accounting Module** provides a report of all billable entities (report types) based on the usage of each tenant. The report types can include one or all of the following: Kilowatt Per Hour (KWH), British Thermal Unit (BTU), Air Conditioning (A/C), Lighting, and Adjustments. Other portions of the report include an Executive Summary, which is only applicable when All Groups is selected, and Group Summary, which is only applicable when two or more report types are selected.

The **Accounting** module is a replacement of the **Invoice Report**, as the **Accounting Module** provides the ability to isolate which report types you wish to bill the group, giving a much broader flexibility in the invoicing process, as well as maintaining a history of invoices created for those groups.

An Executive Summary is a collection of all tenant usage and a Group Summary is a summary of a specific tenant's usage. Both summaries are applicable for any of the report types that are selected.

The **Print To** option allows for diversified outputs for the report. The **Screen** option prints the results of your search criteria on to the screen and records no information about the results. The **PDF** option allows the administrator to create PDF and Excel invoices that can be used to send out to groups for billing purposes. When this option is selected, invoice numbers are generated and stored in CBAS-Web and can be referenced at any point in the future using the search feature. When the reports have been generated, a link will appear for you to download a ZIP file that will contain the invoices. **PDF** (**unrecorded**) allows the creation of PDF invoices without recording the invoice numbers. This is primarily useful for testing the invoice system without storing data that does not need to be referenced in the future.

The ZIP file that is created when the invoices are generated is structured to contain information about each group within a folder named after the group, with an additional sub folder named with each report type, and the file names being named with the starting month and year of the invoice. *For instance:* If in creating an invoice for a group named Engineering, and you select only **Metered KWH** and **Metered BTU** leaving the **Group Summary** report checked and performing your search for the whole month of July in 2006, the ZIP file would contain a folder structure similar to this:

> \Engineering
>> \Metered KWH
>>> \July 2006.pdf
>>> \July 2006.csv
>> \Metered BTU
>>> \July 2006.pdf

\July 2006.csv

\Summary

\July 2006.pdf

\July 2006.csv

In the above example, the root folder is *Engineering*, the sub folders, named after the report types, are *Metered KWH*, *Metered BTU,* and *Summary*, and the files are dated with the month Engineering is being billed for, which is *July 2006*.

It is important to note the information that is displayed about the group on the invoices. Each invoice includes a **Billed To** and **Attention** field, which is the **Address/Other** information found in the Edit Group screen. The first line of the **Address/Other** field is used as the attention field on each invoice, while the entire field is used for the **Billed To** portion. For example, if the person receiving the invoice is John Doe, the **Address/Other** field should have:

John Doe
123 Plaza Drive
Suite #101
New Orleans, LA 70138

When this information is used, the resulting header of each invoice will contain something similar to the following:

Billed To: John Doe   **Attention:** John Doe
123 Plaza Drive
Suite #101
New Orleans, LA 70138

To edit a group's billing information, refer to **How To>Add Programmable Objects>Groups**.

For more information about how the Accounting Business Logic works in CBAS-Web, refer to **Getting Acquainted>Accounting Business Logic**.

Database Report

The Database Report provides a summary of all information about **Users**, **Groups**, **Views**, **Points**, and **Servers**. Finer details of the report include all meters and billing information for each group, all points setup with a view, detailed information about each point, and all information about each Server setup with CBAS-Web.

Printing and Exporting Reports

Printing and exporting options are available on **Overtime Reports**, **Activity Reports**, and **Adjustments Report. Click to Print** opens a window for you to print the current page. **View as PDF** creates the same report in PDF format, while **Export to Excel** and **Export to Text** file creates a .CSV and .TXT file of the same report, respectively.

Security

As with any networked application, it is necessary to apply common sense to avoid undue security risk. Here is a short list of suggestions that all Users of CBAS-Web should follow:

- Always pick a good password. Any word found in the dictionary or using only numbers is generally considered a bad password. Also, any password of less than six (6) characters is generally considered easy to crack. It is best to choose a password of at least eight (8) characters that uses both numbers and letters. The use of both upper and lower case characters is even better. It is possible that your administrator has told CBAS-Web to insist on strong passwords, meaning that you need to supply a password of at least eight (8) characters long, using mixed case letters and some numbers.

- Do not allow your web browser to save your passwords for CBAS-Web.

- Always log out of your session. This is automatically done for you once you close all instances of the web browser you logged in from, but it is possible that someone not in the habit of logging out may leave one or more instances open. Note that even instances that are browsing completely different web pages will still hold the session open.

- Change the password you are originally assigned as soon as you log on (in the User **Preferences**) and do not tell anyone your password. If you lose your password, the administrator can provide a new one.

- Store database backups in a safe place. While the database does not contain the passwords in readable form (technically, only a one-way salted hash is stored), it is still possible that having the database may assist someone in planning an attack. For added security, the database has been encrypted with 256-bit AES—still, it is always better to remain cautious.

- You can log in from public terminals but it is important to log out when done. The password is never transmitted in clear text when logging in. However, for added protection, it is strongly recommended to use the secure encrypted SSL interface. This can be accessed by using the prefix **https://** in front of the URL instead of **http://**. For example, if the URL is:

    http://192.168.1.3

    then you would type:

    https://192.168.1.3

Troubleshooting

Cannot Establish Connection to CBAS-Web

If you are unable to connect to CBAS-Web, the most likely cause is an incorrect network configuration on the Ubuntu server. When CBAS-Web is deployed, the following network configuration is used:

> IP: 192.168.1.3
> Subnet Mask: 255.255.255.0
> Gateway: 192.168.1.1

If your network configuration is different (such as the Gateway being 192.168.0.1), the configuration will have to be manually changed to meet the correct specifications. We recommend having someone within your company that has at least a basic knowledge of Linux and of executing commands through a command line interface make the changes outlined below. In order to make the changes, a monitor (C), keyboard (D, purple) and mouse (D, green) must be attached to the Ubuntu server.

When you have attached the specified items, move the mouse to wake the server. You should see a login screen that is asking for a username:

The username to use is **"cbasweb."** The password for this user varies with each CBAS-Web server that is sent out, so you must contact Computrols Tech Support to receive one. When a password to login has been acquired, type that password when prompted. Upon logging in, your screen should look like this:
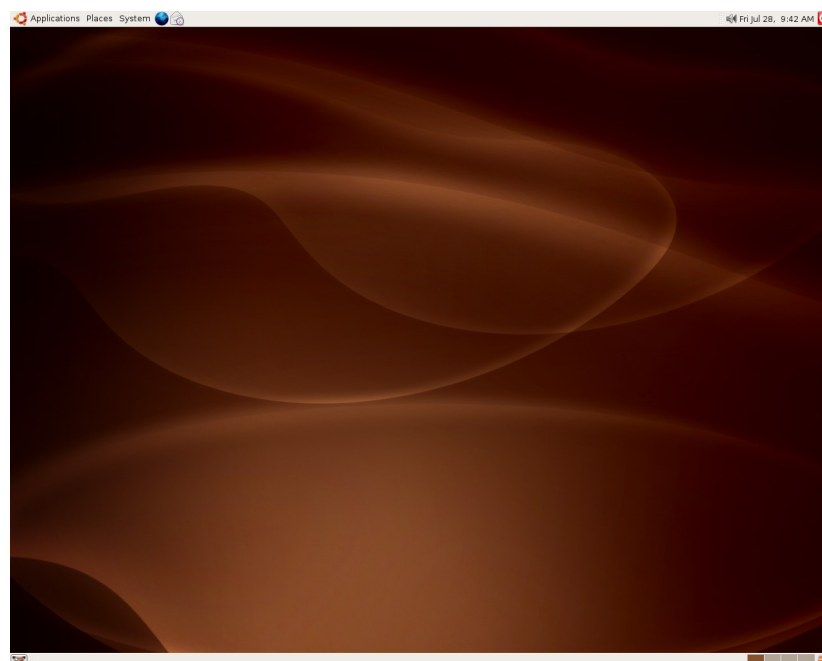
Now that you are in Ubuntu, it is time to change the network settings so that you can get CBAS-Web up and running. Click **Applications > Accessories > Terminal**. This will open a terminal session, which you will use to change the network configuration. In the terminal, type "**vi interfaces**" and press **Enter**.

```
                         cbasweb@cbasweb-server: ~
File  Edit  View  Terminal  Tabs  Help
cbasweb@cbasweb-server:~$ vim interfaces
```
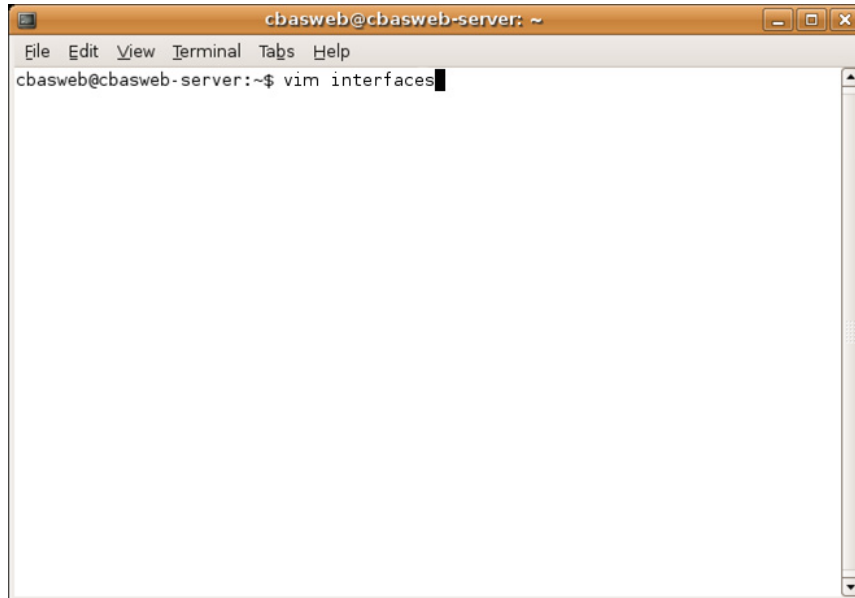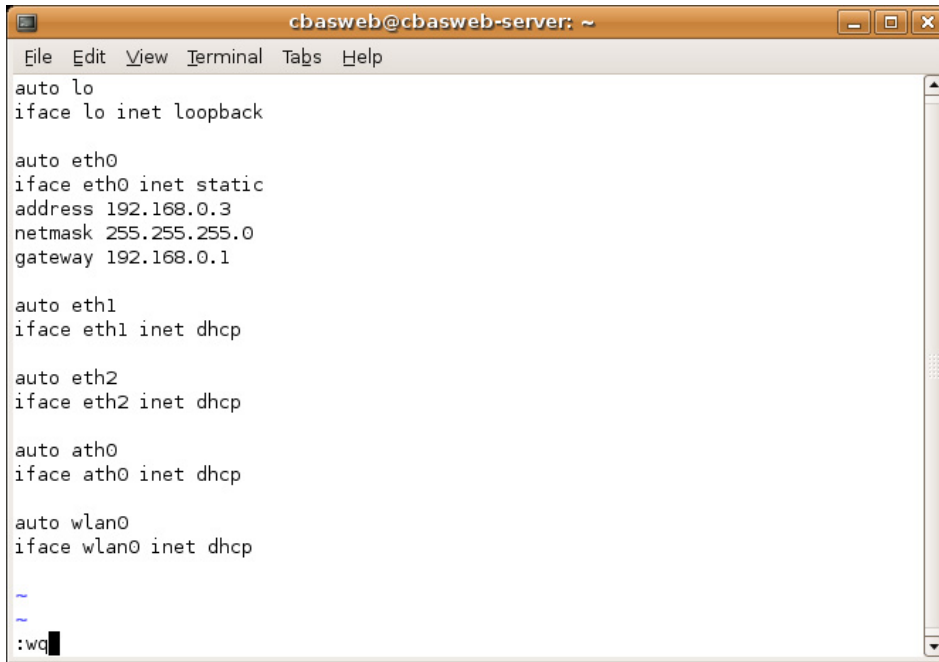
When you execute the **vim** command, you should see the following screen:

```
                         cbasweb@cbasweb-server: ~
File  Edit  View  Terminal  Tabs  Help
auto lo
iface lo inet loopback

auto eth0
iface eth0 inet static
address 192.168.1.3
netmask 255.255.255.0
gateway 192.168.1.1

auto eth1
iface eth1 inet dhcp

auto eth2
iface eth2 inet dhcp

auto ath0
iface ath0 inet dhcp

auto wlan0
iface wlan0 inet dhcp

~
~
-- INSERT --                                          6,20          All
```
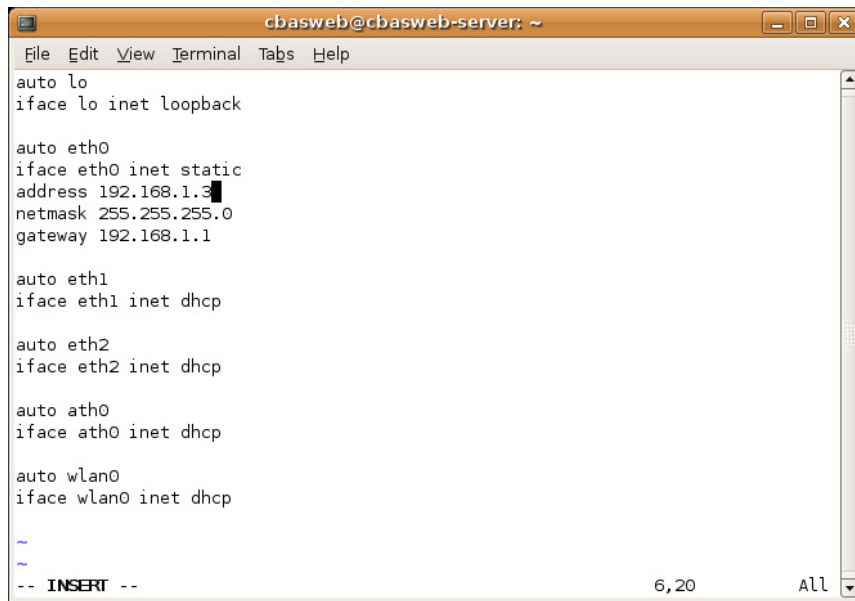
Now that you are looking at the correct file, press the letter **I** (capital i) on the keyboard. You should see **- - INSERT - -** at the bottom of the page. This indicates that you are in Edit mode and can make a change to the document. Using the arrow keys, navigate to the area of the file that reads:

       address 192.168.1.3

       netmask 255.255.255.0

       gateway 192.168.1.1

Change the **address** and the **gateway** to the correct network specifications. For example, if your gateway is **192.168.0.1**, then the network configuration should read like the below image:

```
cbasweb@cbasweb-server: ~
File  Edit  View  Terminal  Tabs  Help
auto lo
iface lo inet loopback

auto eth0
iface eth0 inet static
address 192.168.0.3
netmask 255.255.255.0
gateway 192.168.0.1

auto eth1
iface eth1 inet dhcp

auto eth2
iface eth2 inet dhcp

auto ath0
iface ath0 inet dhcp

auto wlan0
iface wlan0 inet dhcp

~
~
:wq
```

When you have completed your changes, press **ESC**. Be sure to verify that the information on the screen is correct. Not having the correct configuration or adding more to this file than is needed may cause other problems with the network. If a mistake was made, you will need to close the file and re-open it using the procedure previously described. To close the file without saving it, press **:** (colon) and then type **q!** To save the changes, press **wq**, which will write the changes and close the file.

After you have saved the changes and closed the file, you will need to restart Ubuntu. When Ubuntu has restarted, attempt to access its IP address (in the above example, 192.168.0.3) from a separate PC. If you are presented with a CBAS-Web login page, the network configuration is now complete. If you are still unable to connect to CBAS-Web using the specified IP address, check the network settings once more. If everything appears to be correct, contact Computrols Tech Support for assistance.

Cannot Validate Server

There are three common reasons to why a server will not validate when you have added one using the Add Server form.

1. **Invalid License** – The license you have is either expired or has been entered incorrectly.

Verify that you have a valid license and try entering it again.

2. **IP Address of DPU is incorrect** – The IP Address to the DPU is wrong and needs to be corrected.

3. **CBAS version is old** – CBAS-Web requires CBAS 3.1.8 or higher in order to work properly.

To resolve any of these issues, please contact Computrols Tech Support.

Frequently Asked Questions

Can tenants be added on an as needed basis?

Yes. Tenants (groups) and users can be added and removed on a needed basis. For more information about adding tenants or users, see **How To > Add Programmable Objects**.

What is the shortest overtime that can be scheduled—and can we determine the shortest possible time?

The shortest possible overtime is 15 minutes. At this time, this minimum amount cannot be changed.

What is the difference between a "Normal User" and an "Admin User?"

Generally, Admin Users are allowed to add users to their group and schedule overtimes, whereas a Normal User can only schedule overtimes.

What is the difference between a Tenant Group and an Automation Group?

An automation license allows users of CBAS-Web to view, command, or program schedules in CBAS, while a tenant license allows the building owners to extend to their tenants the ability to program overtimes on selected points. The type of license is encoded into the license itself and can only be purchased from Computrols.

Can I customize the look of my web page?

Yes. Currently, CBAS-Web offers two different color scheme interfaces (blue and green) as well as the ability to change the tag line located at the top of each page, and the logo located on the upper left corner of CBAS-Web.

Can I stop an overtime early if I decide not to stay so late?

Yes. Only Group Administrators and the creator of the overtime can stop overtimes.

Can I extend an overtime period once it has started?

Yes. Only Group Administrators and the creator of the overtime can extend overtimes. When viewing the list of overtimes (if the you have proper access), an Extend button will appear allowing you to extend an overtime by hourly intervals.

What is the maximum amount of time I can schedule an overtime for?

Currently, the maximum is 12 hours and 45 minutes.

Can I bill different tenants at different rates?

Yes. If a global rate needs to be set on most tenants, it's best to set the rate on the System Settings page (Global Billing Settings) and then go into each individual tenant's billing

information (link is on the left menu when viewing a group) and specify the billing rates.

How often should I backup my database, and where should I backup to?

Backups can be made at anytime. We recommend backing up your database once a week and storing the file in a safe location.

When I login, what does "last active" mean?

Last Active refers to the last time activity was logged by the username you are logged in with. This includes logging in, clicking on a point, running a report or creating invoices.

Can I schedule an overtime in the morning if I need to come in early before the building is scheduled to be open?

Check with your building manager. It may not be possible if the building is in its "Optimal Start" period.

Appendix A: Quick Start Guide

The Quick Start Guide is very similar to the Getting Started steps outline early in this manual. The steps below contain additional details to the process.

Hardware/Network Setup

CBAS-Web has been configured to be plug-and-play if it is being installed on a standard CBAS network. It expects a subnet of the form **192.168.1.0** with a mask of **255.255.255.0**, and expects to find the network gateway at **192.168.1.1**. The network has already been setup this way if a CBAS DPU is installed on it, and so there is no need to configure either the network router or the CBAS DPU.

Plug the power cord in and connect the Ethernet cable to CBAS-Web in the appropriate jack on the back.

CBAS-Web will be installed by default with the following network configuration:

> IP: 192.168.1.3
>
> Subnet: 192.168.1.0
>
> Mask: 255.255.255.0
>
> Gateway: 192.168.1.1

If the configured network settings need to be adjusted, see **Troubleshooting > Cannot Establish Connection to CBAS-Web**.

Setting up CBAS

CBAS version must be at least 3.1.7.

In order for CBAS-Web to have access to the points in the CBAS DPU, a string server point must be added to the DPU under the GW channel.

From the Hardware View in CBAS, go to the **TCP/IP for Workstations Channel**. Go to **Add GW/String Server** and add the server. It is important that you use the name **CBASALL**. Use **192.168.1.3** for the IP address of CBAS-Web unless you have changed it.

First Login

To test if CBAS-Web is setup correctly on the network, go to the CBAS DPU start menu and click on "Run…" Then type:

> ping 192.168.1.3

You should see an output similar to:

> Pinging 192.168.1.3 with 32 bytes of data:
> Reply from 192.168.1.3: bytes=32 time<10ms TTL=128
> Reply from 192.168.1.3: bytes=32 time<10ms TTL=128
> Reply from 192.168.1.3: bytes=32 time<10ms TTL=128
> Reply from 192.168.1.3: bytes=32 time<10ms TTL=128

```
Ping statistics for 192.168.1.3:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

If you see something similar to the above, then you know that there is a path between the CBAS DPU and CBAS-Web. If you receive an error message that the target was unreachable, refer to **Troubleshooting>Cannot Establish Connection to CBAS-Web.**

Open an Internet browser window and type CBAS-Web's address in the address bar (192.168.1.3). At the CBAS-Web login screen type the username and password:

Username: admin

Password: admin

Binding CBAS-Web to the DPU

While views, groups, and users can be added without having programmed a server, no points can exist in the CBAS-Web database before connecting to a CBAS DPU. Because of this, the first object we will want to setup is the server.

Move your mouse over the **Database** tab and click on the **Edit Servers** menu link. Next, click on **Add New Server** in the Servers Overview page.

You will need to provide the IP address of the CBAS DPU (192.168.1.2 unless you have changed it), a name that the server will be identified by in CBAS-Web, and a license for the DPU (available upon purchase).

Click **Add Server.** Once you are redirected back to the Servers Overview screen, click **Edit** next to the server you have added.

You can now verify that the information you have entered is correct by clicking **Validate Server.** If all the information you have entered is correct and the CBAS DPU is online and at the correct address, you should see the message: "**CBAS String Server connection verified. All parameters are correct.**"

Next, click on **Pull Points**, which pulls the CBAS DPU database onto the CBAS-Web server. You will be asked to confirm the import, which you should do after scanning to verify that the points imported are in fact from your CBAS DPU.

Creating the First View

The final step is to populate the database with views, users, and groups.

Click **Edit Views** under the **Database** tab. Next, click **Add New View** in the **Views Overview** page.

Enter a name and click **Add View.** Once you are redirected back to the Views Overview screen, click **Edit** next to the view you have added.

Once the view has been created, you can add points to it in the **Edit Views** screen by clicking on **Point Selection** menu item on the left navigation menu.

In the **Point Selection** screen, you will see a list of the points that were imported into CBAS-Web in the previous step. Check the **Auth** (authenticate) box next to one or more of the points and then click **Save**.

Creating the First Group

Click the **Edit Groups** menu link under the **Database** tab. Next, click **Add New Group** in the **Groups Overview** page.

Enter a name and click **Add Group,** and—if you are licensed to do so—select the type of group (either automation or tenant—we will assume **Tenant** for this example). Click **Add Group.** Once you are redirected back to the Groups Overview screen, click **Edit** next to the group you have added.

To allow users in this group to have access to the points in a view, you must select the view from the View Selection menu on the left navigation menu.

Simply check off the boxes next to the view(s) you wish to authorize.

Creating the First User

Click **Edit Users** menu link under the **Database** tab. Click **Add New User** in the Users Overview page.

Enter the appropriate information (username, last name, first name, password, etc.) and select the group that this user is a member of. Select the User Type (Normal or Group Administrator—we will assume Normal for this example) and then click on **Add User**.

Done

To see CBAS-Web in action, click the points menu item to take you to your first view. You will see the points you have selected being updated in real time. To command an output point, simply click on it. If it is a binary, then you will see a schedule button in the Point Commander screen, which you can click to change that point's schedule.

To see what a user of the system would see, log out and log back in using the username and password that you created.

Appendix B: Recommended Network Configuration

If outside access to CBAS-Web is desired, we recommend that SSH (port 22) and HTTP (port 80) be forwarded to the CBAS-Web server. HTTP access will allow web traffic to get through, while SSH access will all for upgrades or assist Computrols employees in the case of a service call.0

Appendix C: CBAS-Web Specifications

Hardware

No keyboard, mouse or monitor is necessary. The Ubuntu server can be configured via the Internet by Computrols Tech Support.

Computer Specifications

- 300W Power Supply
- Intel Core 2 Duo 2.13GHz
- 1GB of DDR RAM
- 320GB Western Digital with WhisperDrive
- Intel 82573L 10/100/1000 LAN
- Realtek ALC 800 (8 channel audio)
- Intel GMA 950 Video
- I.C.E. Heatpipe Cooling Technology
- Four USB 2.0 Ports (Two Front/Two Rear)
- Firewire and Audio Ports in Both Front and Rear Panels
- 13.2"x 7.9"x 10.6" (DxWxH) Antec aluminum/plastic case

Relevant Installed Software

- Ubuntu 6.10 or higher LTS
- OpenSSH+OpenSSL
- Apache 2.0.55
- MySQL 5.0.24
- PostgreSQL 8.1
- PHP 5.1.6
- GNOME 2.16.1
- GCC 4.1.2
- Firefox 2.0.0.1
- X.org X11
- Ethereal 0.10.3
- Bash 3.1.17

Network Configuration

- IP: 192.168.1.3
- Subnet: 192.168.1.0
- Mask: 255.255.255.0
- Gateway: 192.168.1.1

Appendix D - Header and Footer Script Keywords

The following keywords are supported in the header and footer scripts for invoice generation:

- [GROUPNAME] — Prints the name of the group for which the invoice is being generated.
- [GROUPID] — Prints the ID of the group for which the invoice is being generated.
- [GROUPINFO] — Prints the 'info' field of the group for which the invoice is being generated.
- [INVOICEID] — Prints the numerical ID of the invoice is being generated.
- [INVOICEURL] — Prints the URL name of the invoice is being generated. The invoice can be accessed online at http://your_site/invoices/[INVOICEURL]
- [PERIODSTART] — Prints the starting date for the period that the invoice is being generated.
- [PERIODSTOP] — Prints the ending date for the period that the invoice is being generated.
- [TOTALBILL] — Prints the total bill (overtimes + meters + adjustments) for the invoice period.
- [INVOICEISSUEDATE] — Prints the date that the invoice was generated.
- [TAB] — Prints four spaces.

Sample Header

Invoice Number: [INVOICEID]
Issued to [GROUPNAME] (Group #[GROUPID]) on: [INVOICEISSUEDATE]
Billing Period Start: [PERIODSTART]
Billing Period End: [PERIODSTOP]

Sample Footer

Please remit this amount: [TOTALBILL]
You can find a copy of this invoice online at:
[TAB][TAB]http://your_site/invoices/[INVOICEURL]