Technical Document

Tenant Billing Service User Guide

March 19, 2025

niagara4

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Tridium, Incorporated

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Richmond, Virginia 23233
U.S.A.

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Contents

About this Guide

This topic contains important information about the purpose, content, context, and intended audience for this document.

Product Documentation

This document is part of the Niagara technical documentation library. Released versions of Niagara software include a complete collection of technical information that is provided in both online help and PDF format. The information in this document is written primarily for Systems Integrators. To make the most of the information in this book, readers should have some training or previous experience with Niagara software, as well as experience working with JACE network controllers.

Document Content

The Niagara Tenant Billing Service is designed to automate the billing process for tenant consumption using the Niagara history database. The service includes installation and configuration for Owners and Tenants. Tenant Billing Service that utilize historical data to collect and store information about meter consumption over time, to ensure accurate billing. Invoices can be generated manually or automatically, whereas automatic billing is more efficient for tracking and managing data.

Document change log

Changes to this document are listed in this topic.

March 19, 2025

Initial release with updates for Niagara 4 document.

Related Documentation

This topic lists documents that are related to this guide.

- *Getting Started with Niagara*

Chapter 1. About Tenant Billing Service

Tenant Billing Service is a web based platform for smart building applications, used for to monitor the building resources and billing tenants on their actual usage. The framework allows you to record and collects the billing information would be stored in the Niagara history database, which is able to generates a invoice and notify the tenants with detailed reports.

The Niagara Tenant Billing Service is used to streamline billing processes, minimize errors, and ensure accurate billing for invoice generation. It also has its own terminology

TBS Terminology

- **Owners**: Who have control over the resources or owns the entity.
- **Tenants**: Tenant is responsible for utilities usage.
- **Contracts**: Contracts assign the meters to tenants and invoice template to be used for invoice generation.
- **Utilities**: Utilities are essential services, including electricity, gas, water, and other necessary resources provided to entities. Also, these services are provided by the owner.
- **Meters**: Each utility has its own meter to measure resource usage. We can define multiple meters based on our requirements for each utility.
- **Template**: Template is a graphical representation of an invoice that is set in contracts. In our case, the template is referred to as a Px View, and invoices are generated based on the selected template.
- **Automatic Billing Profile**: Automatic Billing Profile is where we schedule the timing for invoice generation. Based on these profiles, you can select automatic invoice generation, allowing invoices to be generated according to the date, time, and rates defined in the profile.
- **Invoices**: Invoices can be generated manually or automatically, whereas automatic billing is more efficient for tracking and managing data.

Software modules

Following are the licensing, software, and platform requirements for running the **Tenant Billing Service**.

To use the **Tenant Billing Service** , a licensed target host or machine is required.

The following software modules are required to run the TBS.

- niagaraTenantBilling-rt contains runtime class files and components.
- niagaraTenantBilling-ux contains HTML graphical views.
- niagaraTenantBilling-wb contains Workbench graphical views.

Chapter 2. Install and configure

The following procedures describe the steps to add the **Tenant Billing Service** to your station and provide basic configurations to collect the billing information.
Once the modules and niagaraTenantBilling palette is installed, need to add the **Tenant Billing Service** to the station and configuration of the service is done in 4 steps.

- Configure Owner
- Configure Tenants
- Configure Utilities and Meters
- Configure Contracts

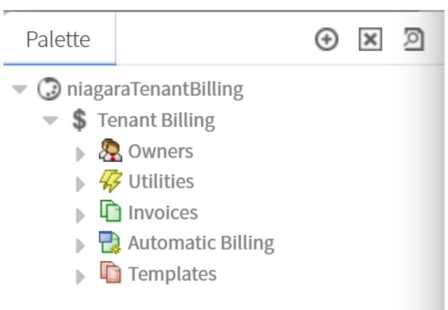
Adding the Tenant Billing Service

This topic explains how to install the **Tenant Billing** component into the **Services** container of the connected station.

Prerequisites:
You can configure and use the Tenant Billing Service from both the browser view and the Workbench view.
Below are the steps to perform from the browser view.

Step 1. To open the palette, click icon in the Nav tree.
The palette side bar appears in the sidebar pane.

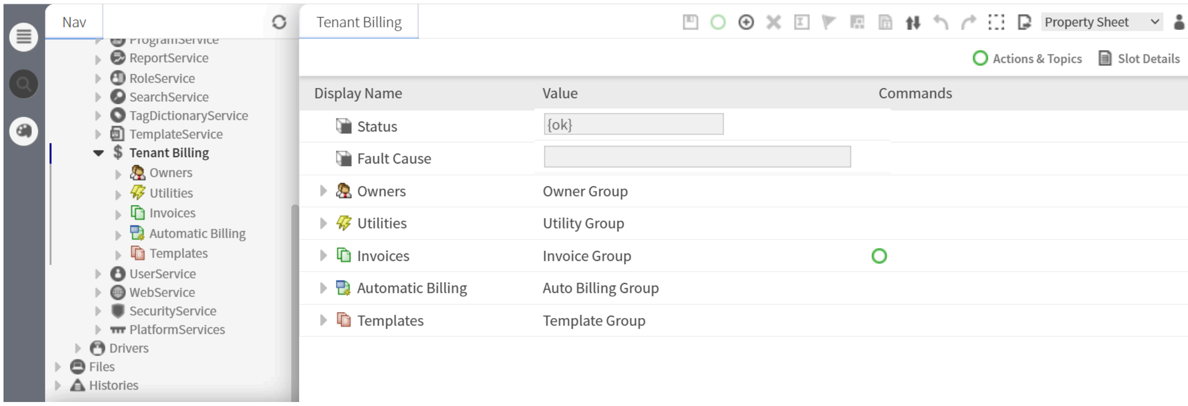
Step 2. Click icon to open the palette and select the **niagaraTenantBilling** module in the filter and click **OK**.
The **niagaraTenantBilling** modules appear in the palette.



Step 3. Expand station and drag **Tenant Billing** to the **Services** container in the Nav tree.

Step 4. To open the **Property Sheet** view, double-click **Tenant Billing**.

The **Property Sheet** view opens. You can check if the service is running correctly and status is `ok`.



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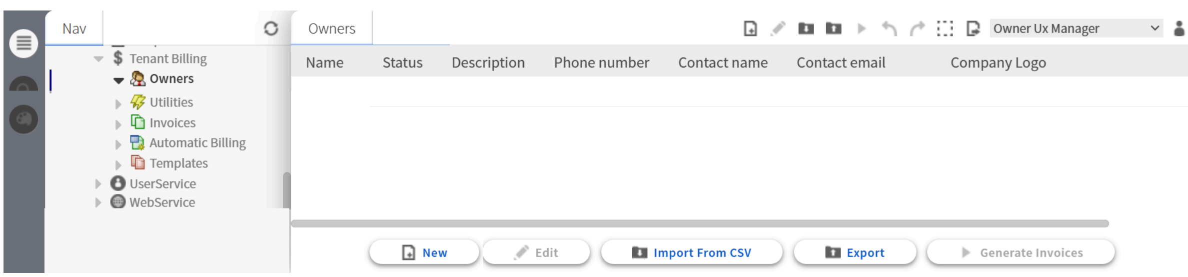
Configure Owners

The initial configuration step is to configure Owners, which involves specifying individuals or entities who have ownership or responsibility for a particular space. This topic explains how to add the owners within the system.

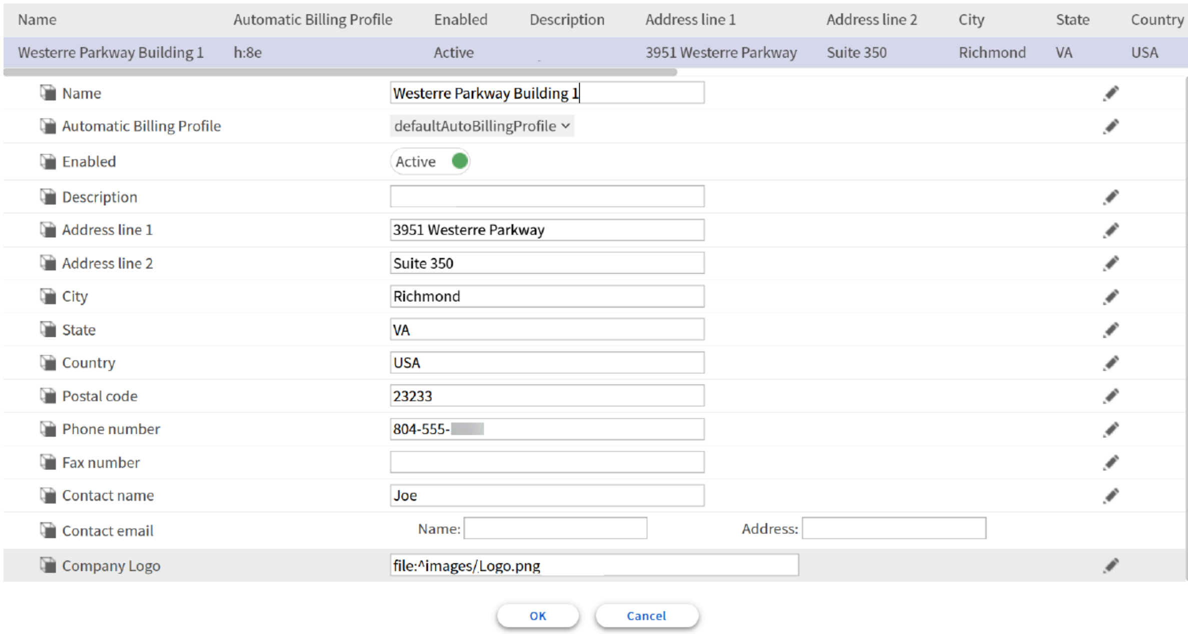
Prerequisites:
Station in the running browser view.

Step 1. Expand **Config** > **Services** > **Tenant Billing** and double-click **Owners**.
The **Owner Ux Manager** view opens.

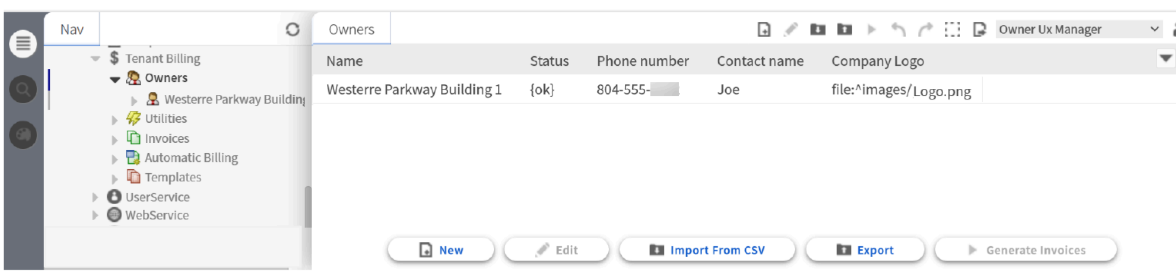


Step 2. To add the Owners, click **New**, select the number of Owners and click **OK**.

The **New** window opens.



Step 3. Enter the information and click **OK**.
Added information displays in the **Owner Ux Manager** view.



Step 4. To edit the information, select the owner and click **Edit**.

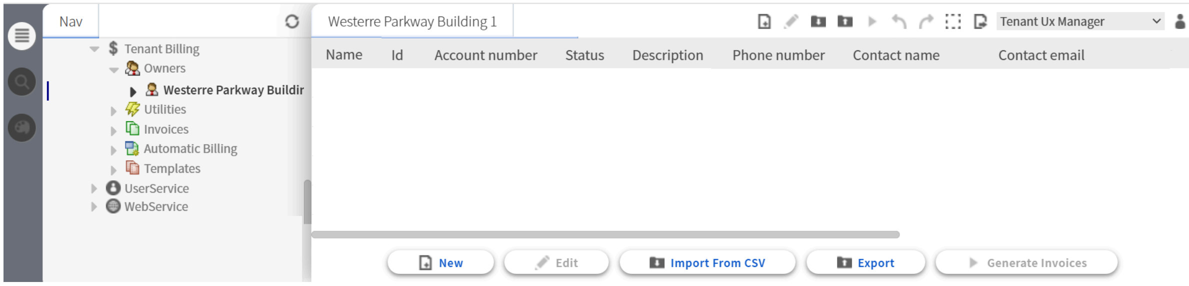
Configure Tenants

A tenant is an individual who occupies or utilizes a space. An Owner has configured at least one tenant. This topic explains how to add the tenant under the **Owners** tab.

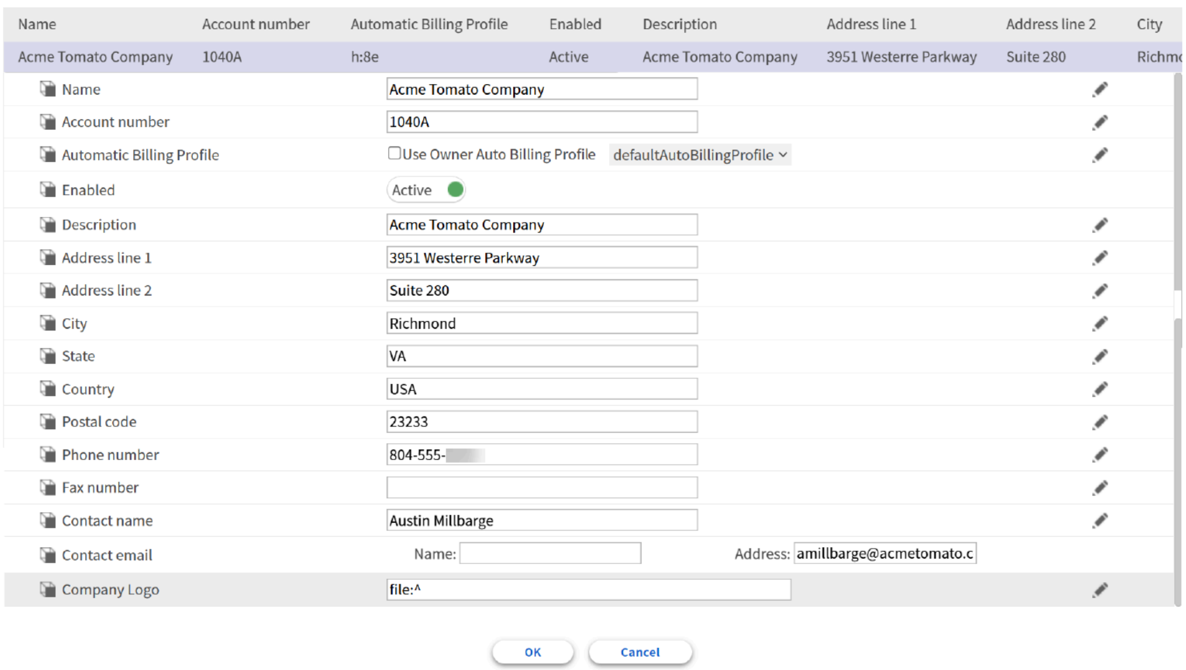
Prerequisites:
Station in the running browser view.

Step 1. Expand **Config** > **Services** > **Tenant Billing** > **Owners** and double-click the **Owner**, where you want to add a tenant.

The **Tenant Ux Manager** view opens.

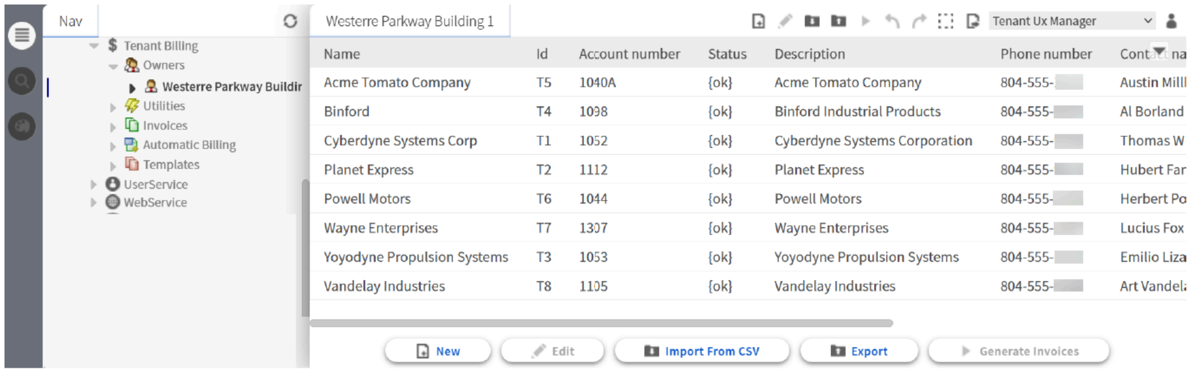


Step 2. To add the tenants, click **New**, select the number of Tenants and click **OK**.
The **New** window opens.



Step 3. Enter the information and click **OK**.

Added information displays in the **Tenant Ux Manager** view.



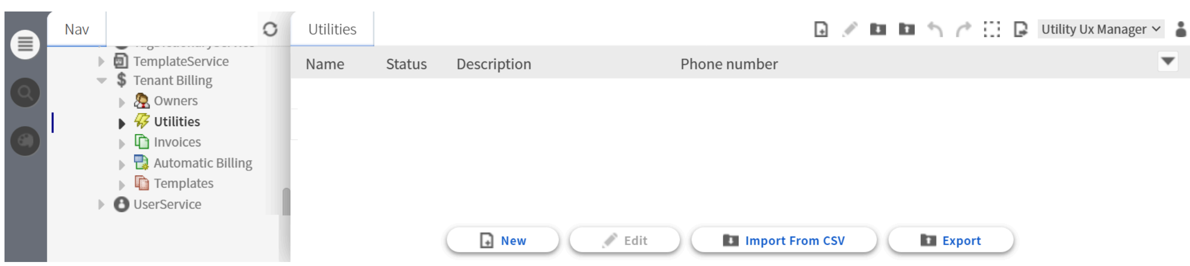
Step 4. To edit the information, select the tenant and click **Edit**.

Configure Utilities and Meters

This topic explains how to add utilities, to be billed by the tenant. You can add any number of utilities such as electricity, water, and gas.

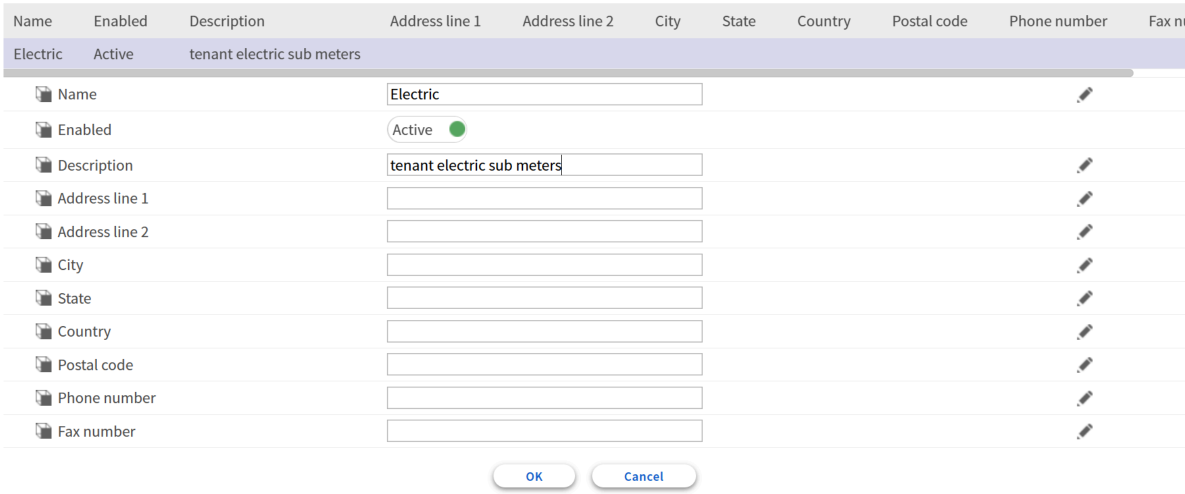
Prerequisites:
Station in the running browser view.

Step 1. Expand **Config** > **Services** > **Tenant Billing** and double-click **Utilities**
The **Utility Ux Manager** view opens.

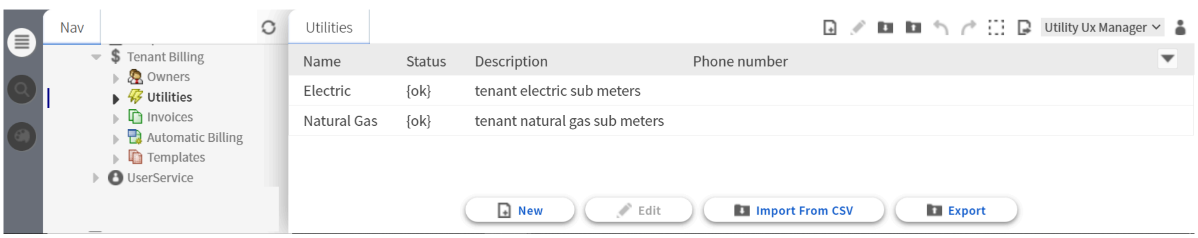


Step 2. Click **New**, select the number of utilities and click **OK**.

The **New** window opens.



Step 3. Enter the information and click **OK**.
Added information displays in the **Utility Ux Manager** view.

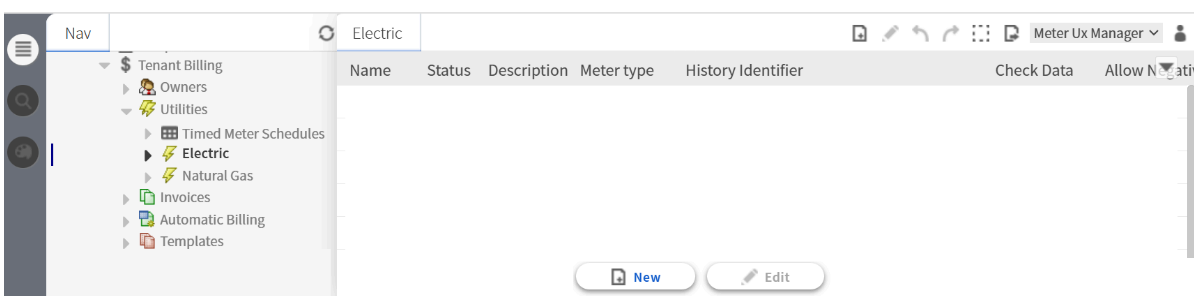


Step 4. To edit the information, select the utility and click **Edit**.

Step 5. To add the meters, double-click the utility.

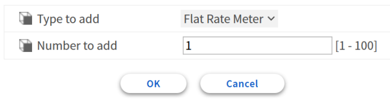
For example, if you want to add the meter under **Electric** utility, you can navigate to the **Meter Manager** view to by double-clicking the **Electric** utility.

The **Meter Ux Manager** view opens.



Step 6. Click **New**.

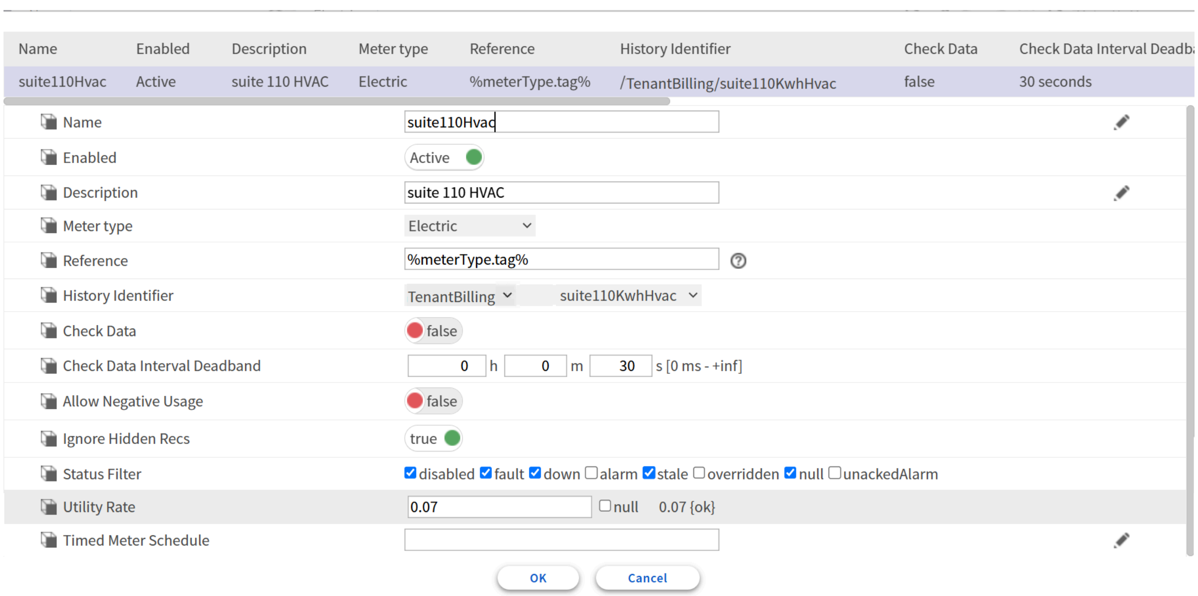
The **New** window opens.



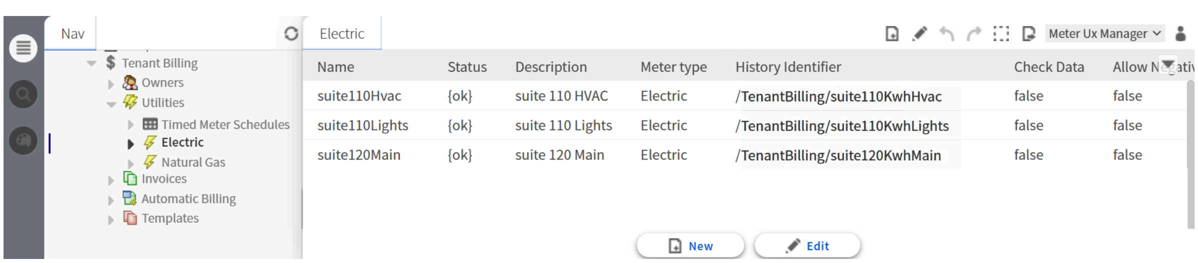
Step 7. In **Type to Add**, click drop-down to select the type of meter, select the number of meters in **Number to Add** and click **OK**.
There are two types of meter. You can choose accordingly.

- `Flat Rate Meter`: The rate of the utility remains constant throughout the billing period. No need to define any schedule in the **`Timed Meter Schedule`**.
- `Timed Meter`: The rate of utility values varies over time. Before using a `Timed Meter`, you first need to configure and define the cost of the schedules. Then, you need to add the configured schedule to the **`Timed Meter Schedule`** (For more details, how to configure schedules, refer to Configure timed meter schedules).

The **New** window opens, based on the type of meter you selected.



Step 8. Enter the information and click **OK**.
Added information displays in the **Meter Ux Manager** view.



Step 9. To edit the information, select the meter and click **Edit**.

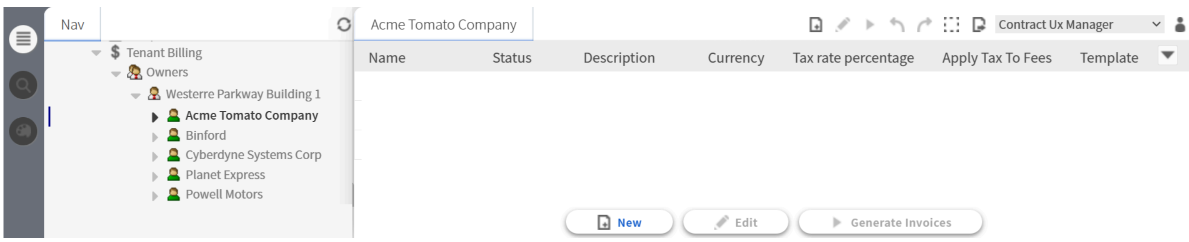
Step10. Repeat the steps from 2 to 7 to add more utilities and meters under the utility.

Configure Contracts

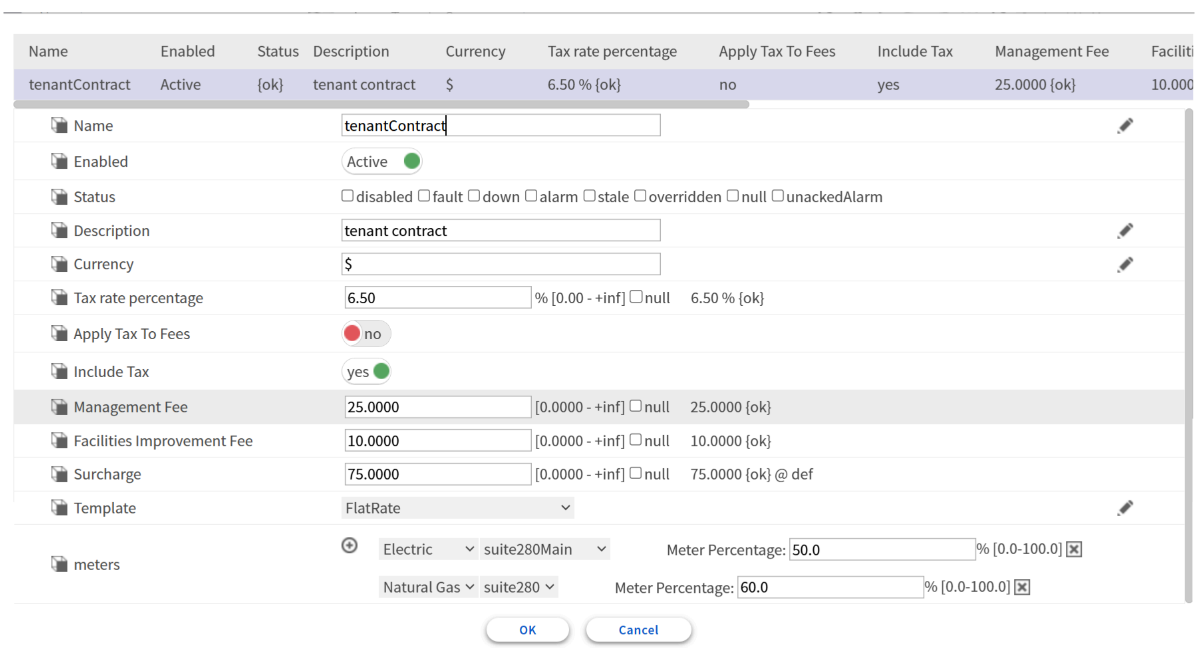
This topic describes how to assign a contract. Assign contracts means assigns a meters to the tenants and invoice templates to be used for invoice generation.

Prerequisites:
Station in the running browser view.

Step 1. Expand **Config** > **Services** > **Tenant Billing** > **Owners** > **Owner** and double-click **Tenant**.
The **Contract Ux Manager** view opens.

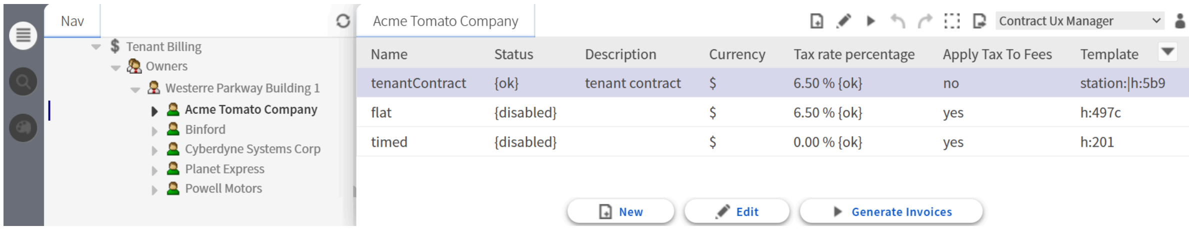


Step 2. To add contract, click **New**, select the number of contracts and click **OK**.
The **New** window opens.



Step 3. Enter the information and click **OK**.

Added information displays in the **Contract Ux Manager** view.



Step 4. To edit the information, select the contract and click **Edit**.

Chapter 3. Generate Invoices

Generating invoices typically involves compiling relevant information such as utilities charges, quantities, rates, and customer details. Once the necessary data is gathered, automated system or a person can create the invoices, which are then sent to customers for payment.

Invoices can be generated manually for all the tenants together or for the individual tenants. Once the invoice is generated, it depends on the tenant how the billing is to be done.

There are two types of billing.

- Manual Billing

  : The utilities charges are used by the individual tenant or group of tenants are entered manually to generate the invoices.
- Automatic Billing

  : Automated systems can track and monitor tenant usage of utilities (such as electricity, water, or gas) and other services without manual data entry. Automatic billing can be setup in the Automatic billing tab under the Tenant Billing Service.

The below procedures are explained how to generate a invoices by billing manually or automatically.

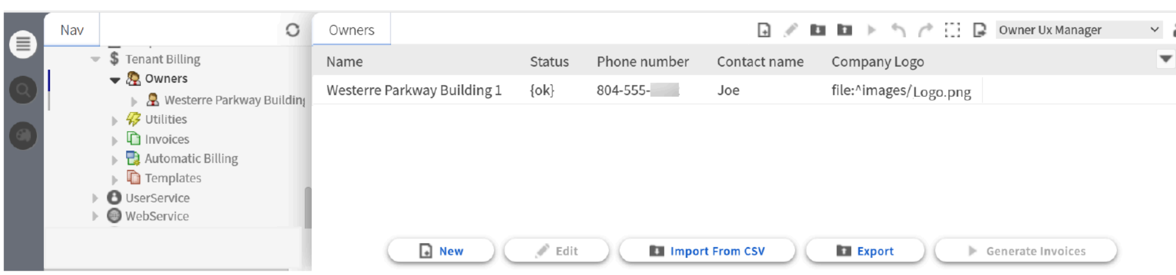
Manual billing

This topic explains how to generate a invoice by manually for individual tenant or group of tenants.

Prerequisites:

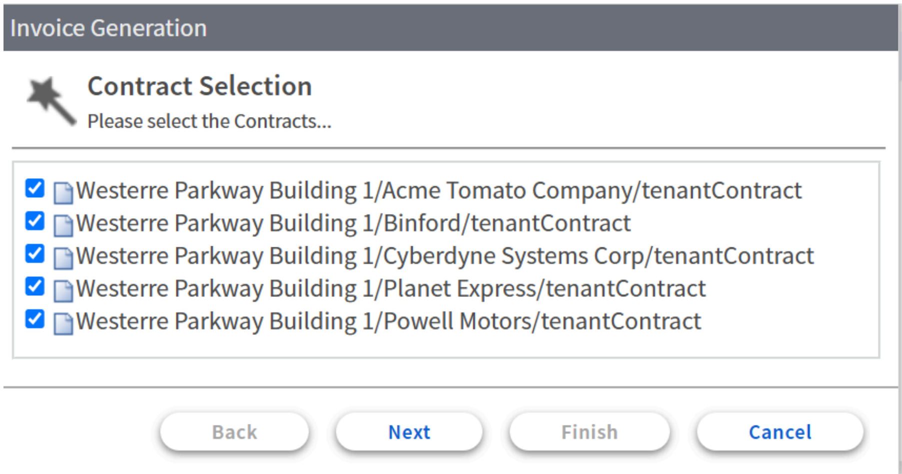
- Station in the running browser view.
- Sending an invoice by Email requires an **Email Service** to be installed.

Step 1. To generate an invoice, expand **Config** > **Services** > **Tenant Billing** and double-click **Owners**. The **Owner Ux Manager** view opens and displays a list of all owners.

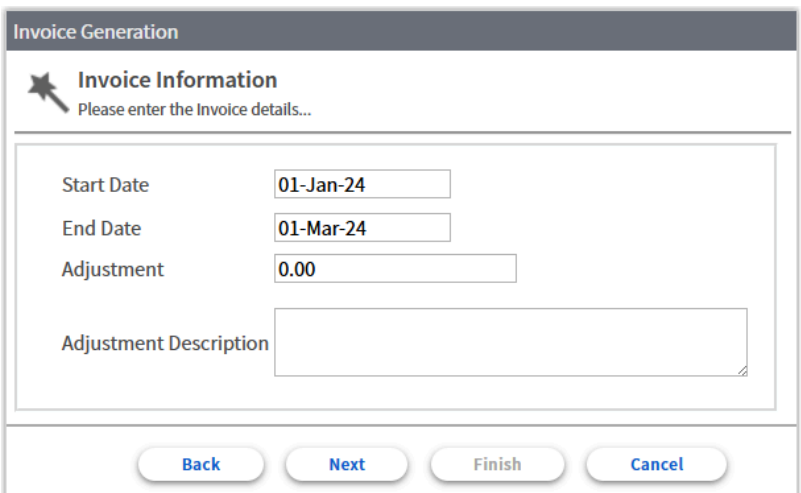


Step 2. Select the owner, and click **Generate Invoices**.

The **Invoice Generation** window opens for contract selection.



Step 3. Select the contract and click **Next**.
The **Invoice Information** window opens.

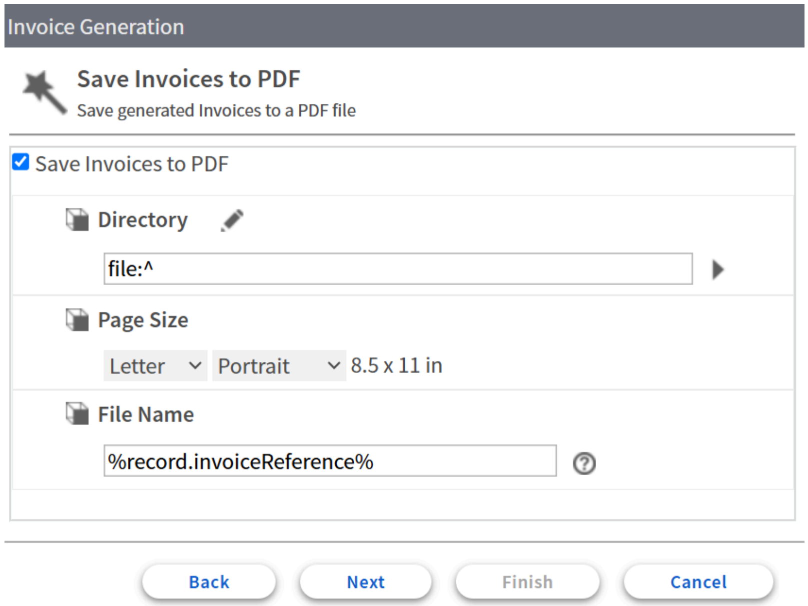


Step 4. Select the duration for the invoice, enter the **Adjustment**, type the **Adjustment Description** and click **Next**.

There are two types of options to generate invoice and you choose accordingly.

- **Save Invoices to PDF**
- **Send Email**

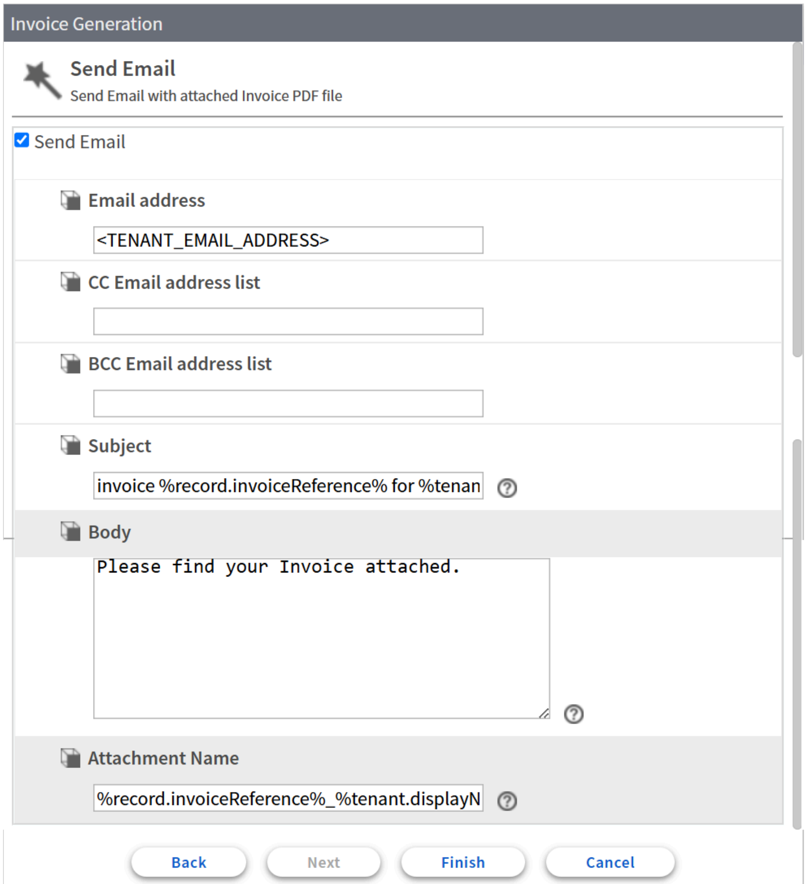
The **Save Invoices to PDF** view opens.



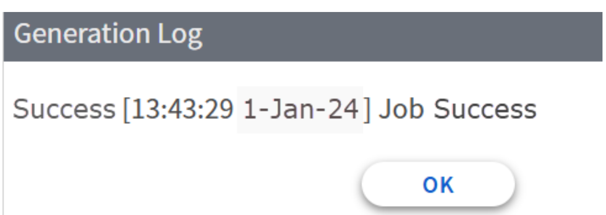
Step 5. To generate invoice in PDF format, select the check box **Save Invoice to PDF** and follow the below steps or click **Next** to continue.

- In **Directory**, click the edit icon next to the directory, and select the file location to save invoice.
- In **Page Size**, click the drop-down to select the size and modes.

The **Send Email** window opens.



Step 6. To send a invoice in Email, select the check box **Send Email**, enter the following information and click **Finish**.
Shows the status as `Running` and **Generation log** window opens.



Step 7. To generate an invoice for particular tenant or contract, navigate to the appropriate view, select the tenant or contract and click **Generate Invoice**.

Step 8. Repeat the steps from step 2 to step 6.

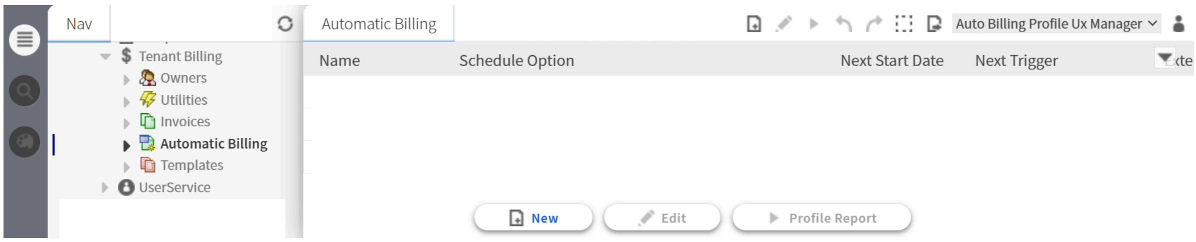
Automatic billing

This topic explains how to create a profile to generate an invoice automatically, by using the **Automatic Billing** tab. The default billing profile is created with **No Schedule** to support manual billing in the **Automatic Billing Schedule**.

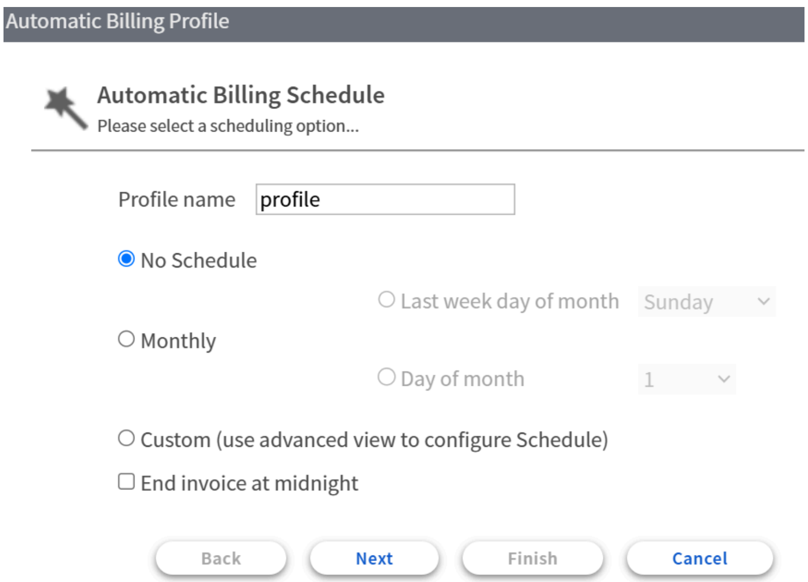
Prerequisites:

- Station in the running browser view.
- Sending an invoice by Email requires an **Email Service** to be installed.

Step 1. Expand **Config** > **Services** > **Tenant Billing** and double-click **Automatic Billing**.
The **Auto Billing Profile Ux Manager** view opens.



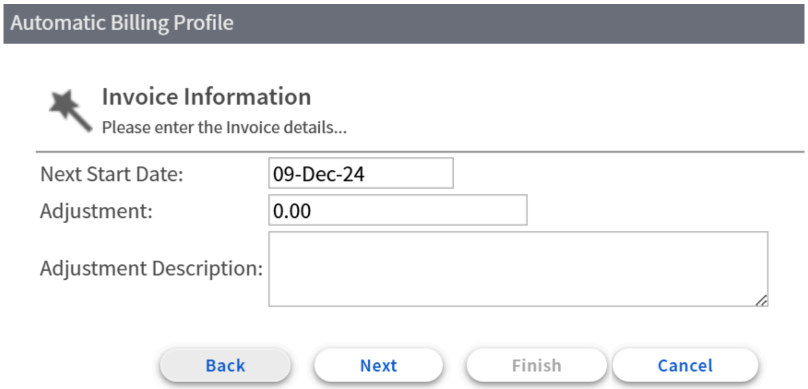
Step 2. Click **New**.
The **Automatic Billing Schedule** view opens.



Step 3. Select the billing schedule from below and click **Next**.

- Select **No Schedule**, which allow bills to be generated without setting a periodic schedule.
- To generate an invoice for a particular day or date, select **Monthly** option, click the drop-down to select **Last week day of month** and **Day of month**.
- Select **Custom** profile to allow you to configure a schedule.

The **Invoice Information** view opens.

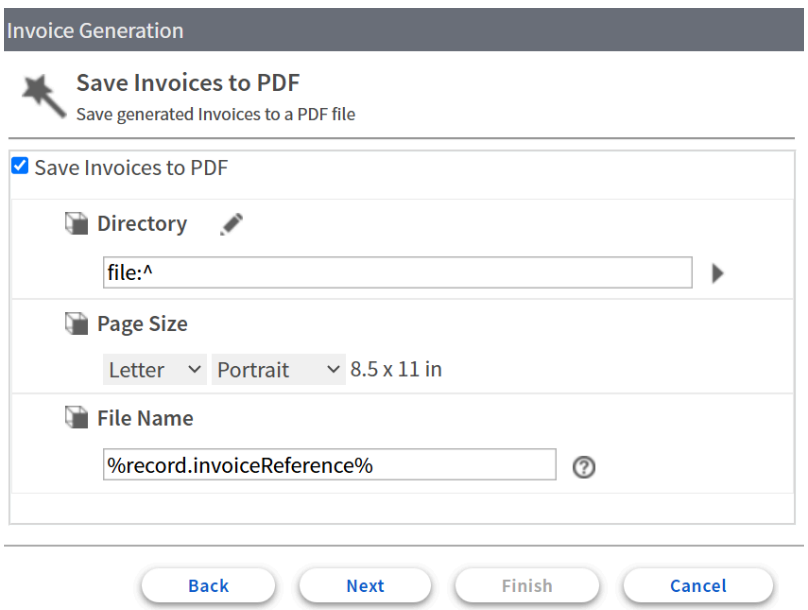


Step 4. Enter the **Next start date** and click **Next.**

There are two types of options to generate invoice and you choose accordingly.

- **Save Invoices to PDF**
- **Send Email**

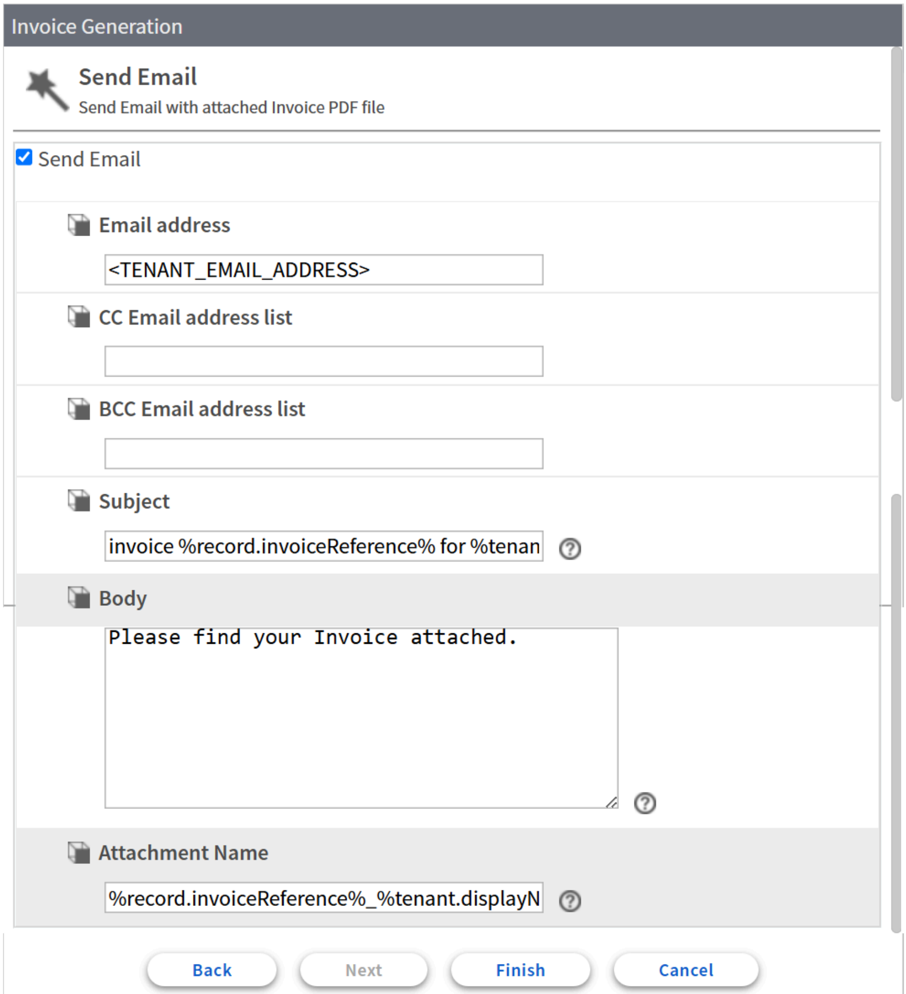
The **Save Invoices to PDF** view opens.



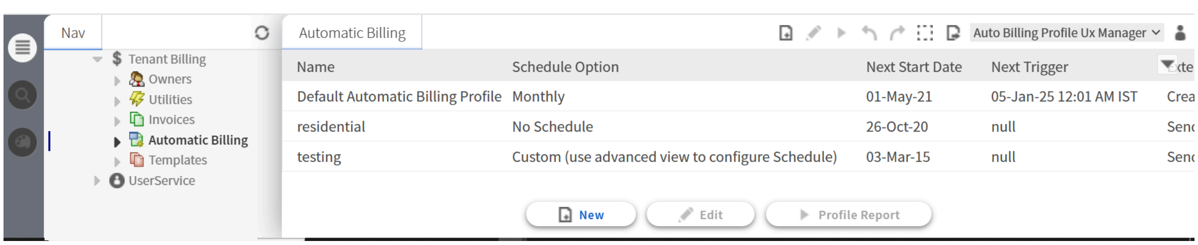
Step 5. To generate invoice in PDF format, select the check box **Save Invoice to PDF** and follow the below steps or click **Next** to continue.

- In **Directory**, click the edit icon next to the directory and select the file location to save invoice.
- In **Page Size**, click the drop-down to select the size and modes.

The **Send Email** window opens.



Step 6. To send a invoice in Email, select the check box **Send Email**, enter the following information and click **Finish**.
Added information displays in the **Auto Billing Profile Ux Manager** view.



Step 7. To edit the information, select the profile and click **Edit**.

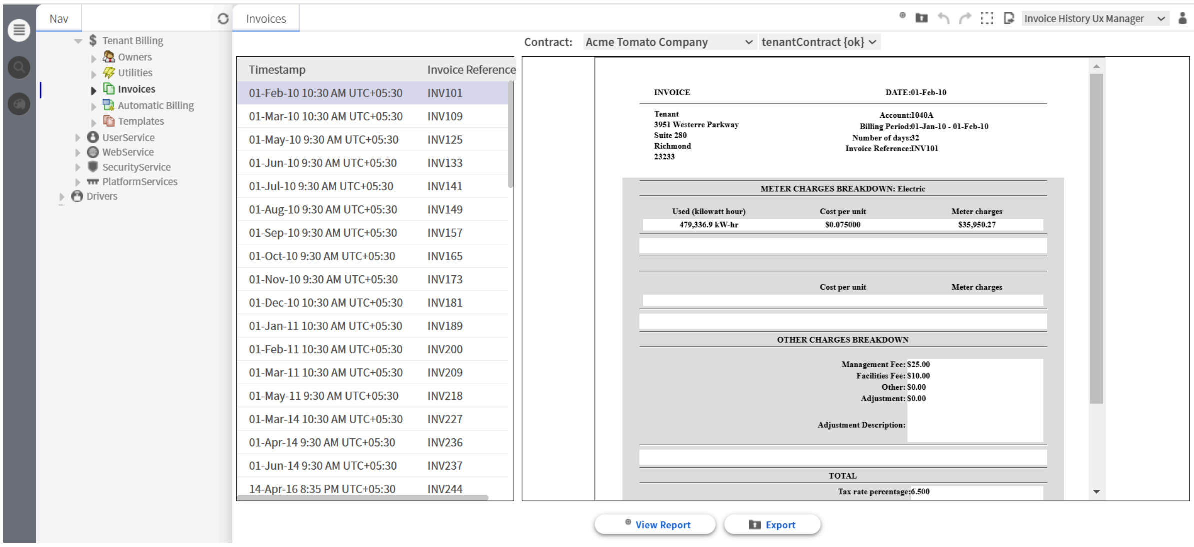
Step 8. Open the **Property Sheet** of owners, tenants or contracts, in the **`Automatic Billing Profile`**, click drop-down to select the profiles and click **Save**.

Export invoices

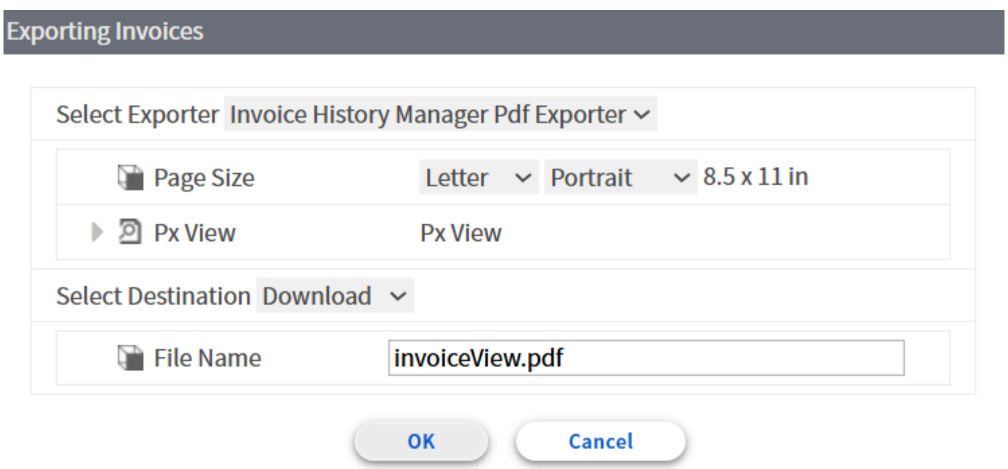
This topic explains how to export invoices in PDF format.

Prerequisites:
Station in the running browser view

Step 1. To export invoice, expand **Config** > **Services** > **Tenant Billing** and double-click **Invoices**.
The **Invoice History Ux Manager** view opens.

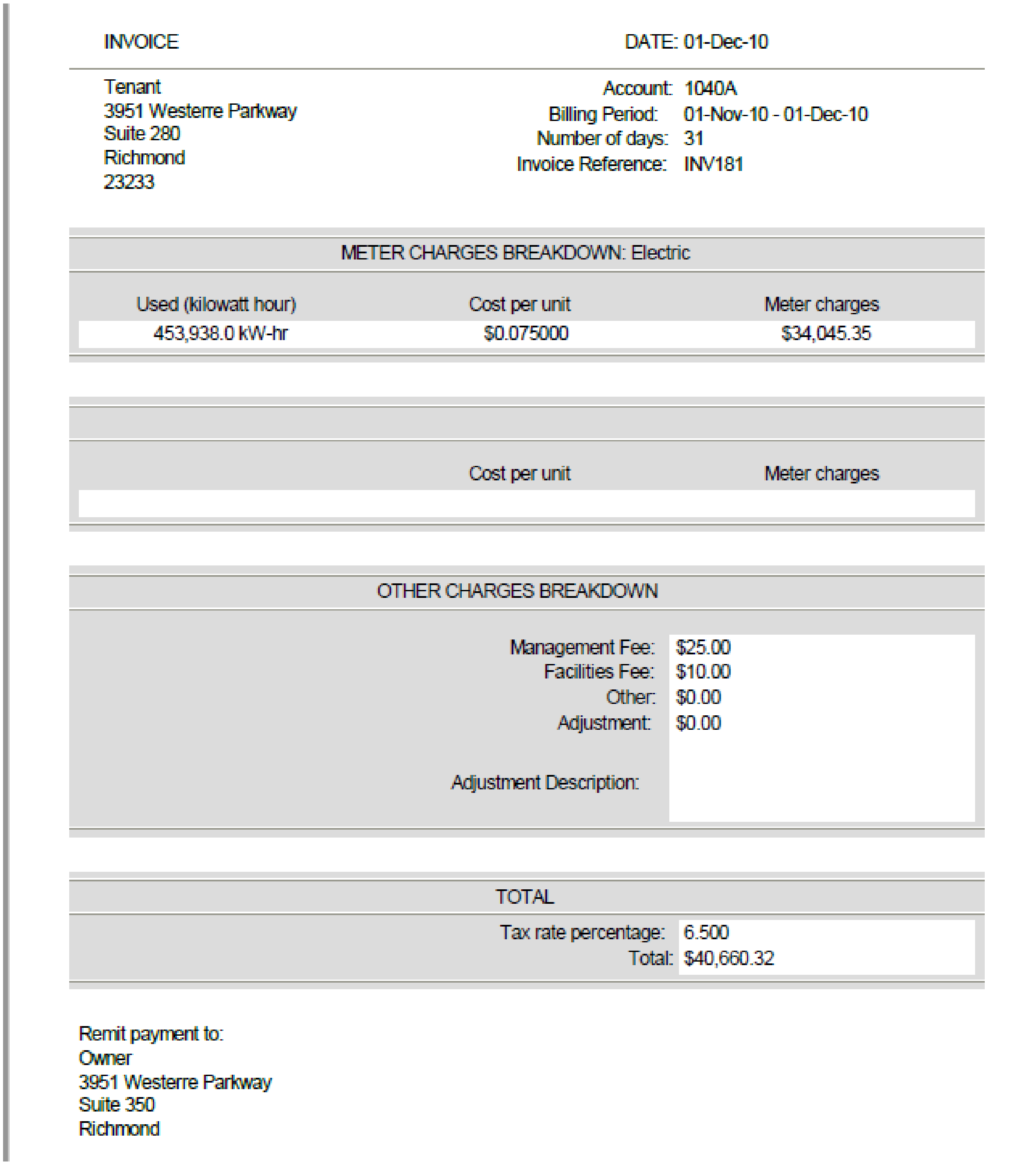


Step 2. Select the invoice and click **Export**.
The **Exporting Invoices** window opens.



Step 3. In the new window, **Select Exporter** as `Invoice History Manager Pdf Exporter`, edit or continue with the changes and click **OK**.

The invoice is exported in PDF format and you can view the information.



INVOICE DATE: 01-Dec-10

Tenant 3951 Westerre Parkway Suite 280 Richmond 23233	Account: 1040A Billing Period: 01-Nov-10 - 01-Dec-10 Number of days: 31 Invoice Reference: INV181

METER CHARGES BREAKDOWN: Electric

Used (kilowatt hour)	Cost per unit	Meter charges
453,938.0 kW-hr	$0.075000	$34,045.35

	Cost per unit	Meter charges

OTHER CHARGES BREAKDOWN

Management Fee:	$25.00
Facilities Fee:	$10.00
Other:	$0.00
Adjustment:	$0.00
Adjustment Description:	

TOTAL

Tax rate percentage:	6.500
Total:	$40,660.32

Remit payment to:
Owner
3951 Westerre Parkway
Suite 350
Richmond

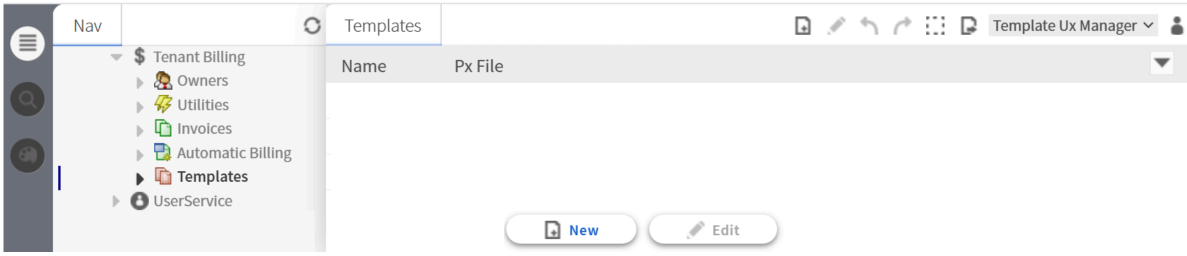
Configure templates

Section explains how to configure the templates. Templates are Px files, used to create a layouts for invoices by using different type of templates.

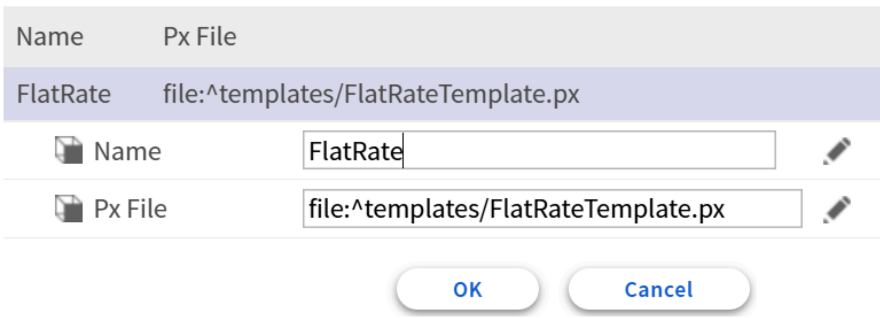
Prerequisites:
Station in the running browser view.

Step 1. Expand **Config** > **Services** > **Tenant Billing** and double-click **Templates.**

The **Template Ux Manager** view opens.



Step 2. Click **New**, select the number of templates and click **OK**.
The **New** window opens.

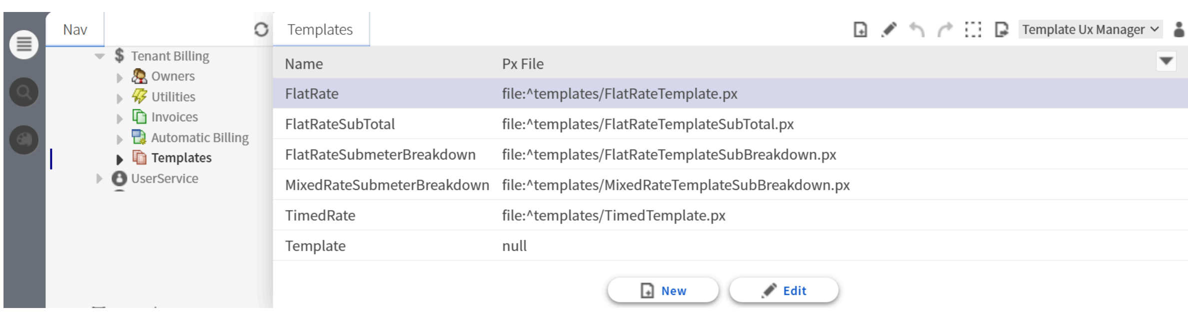


Step 3. Enter the following information and click **OK**.

a. In the **Name**, enter the new name or continue with the same.

b. In the **Px File**, click the edit icon and select the Px file.

The templates displays in the **Template Ux Manager** view.



Step 4. Select the template and double-click to edit the Px file.

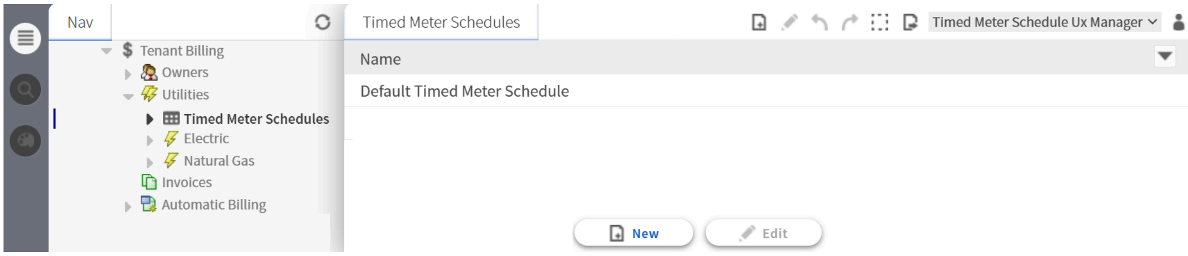
Configure timed meter schedules

This topic explains how to create structured schedules that specifies the rates or charges for utility consumption (such as electricity, water, etc.) based on time intervals.

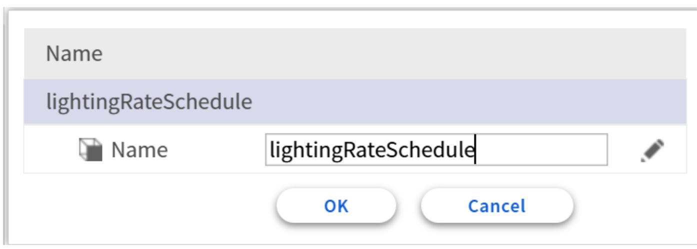
Prerequisites:
Station in the running browser view.

Step 1. In Nav tree, expand **Config** > **Services** > **Tenant Billing** > **Utilities** and double-click **Timed Meter**

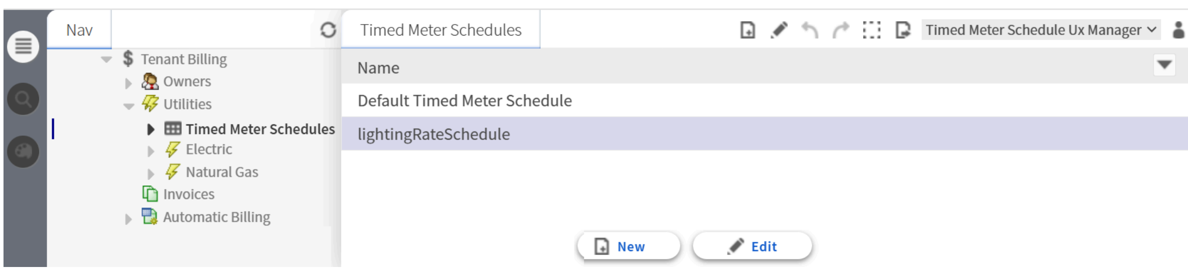
Schedules.
The **Timed Meter Schedule Ux Manager** view opens.



Step 2. Click **New**, select the number of schedules to add and click **OK**.
The **New** window opens.

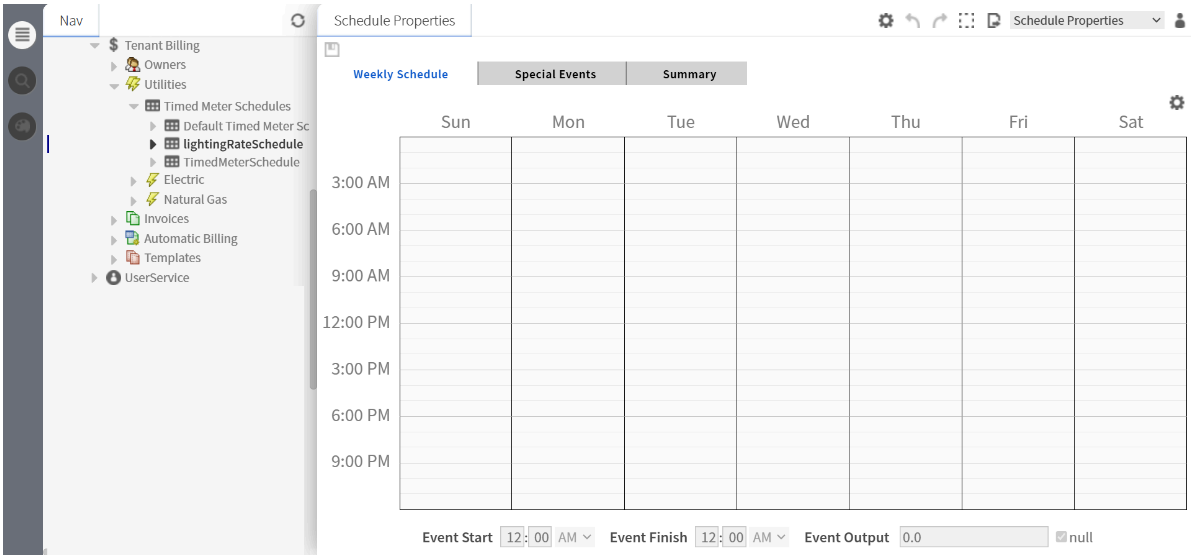


Step 3. In the **Name**, type the new name or continue with the existing one and click **OK**.
Adds the schedule to configure the properties.



Step 4. Double-click the configured schedule.

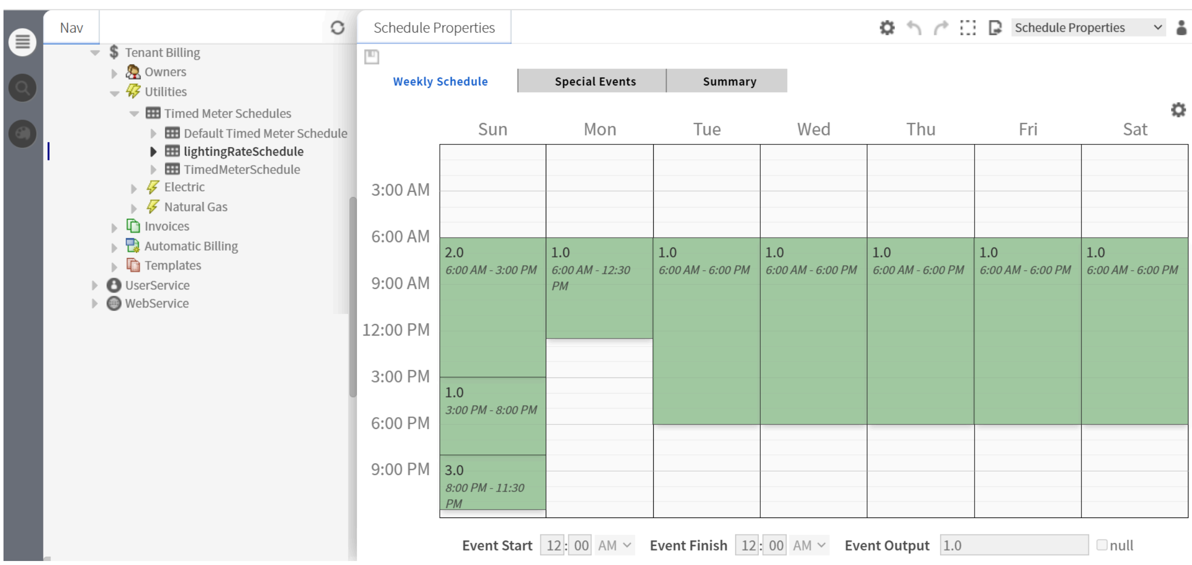
The **Schedule Properties** window opens with the empty schedule.



Step 5. To set a weekly schedule, click in a day at the approximate event start time, and drag down to define the start and finish time, enter the meter consumption rate in the **null**.

When you release the mouse button, the selected schedules remain by default in blue colored.

You can see the configured schedule based on the consumption rates.



Step 6. Right-click the schedule, which provides the most scheduling commands. As needed do one of the following.

- Click again and drag on the event's top or bottom edges to change its start or finish times (in broad increments).
- Right-click on a scheduled block and use the popup menu to copy and paste event times across predefined days of the week, to delete an event or to clear a day or week.
- To fine-tune an event's start and finish times, use the hour, minute and AM/PM option lists.

- To configure the event to occur all day long, right-click the day and click `All Day Event`.
- To clear the whole week, right-click anywhere in the schedule and click `Clear Week`.

Step 7. To continue, click **Save** and **Refresh**.
The schedules are configured on consumption rates and appears in green color.

Chapter 4. Components-TBS

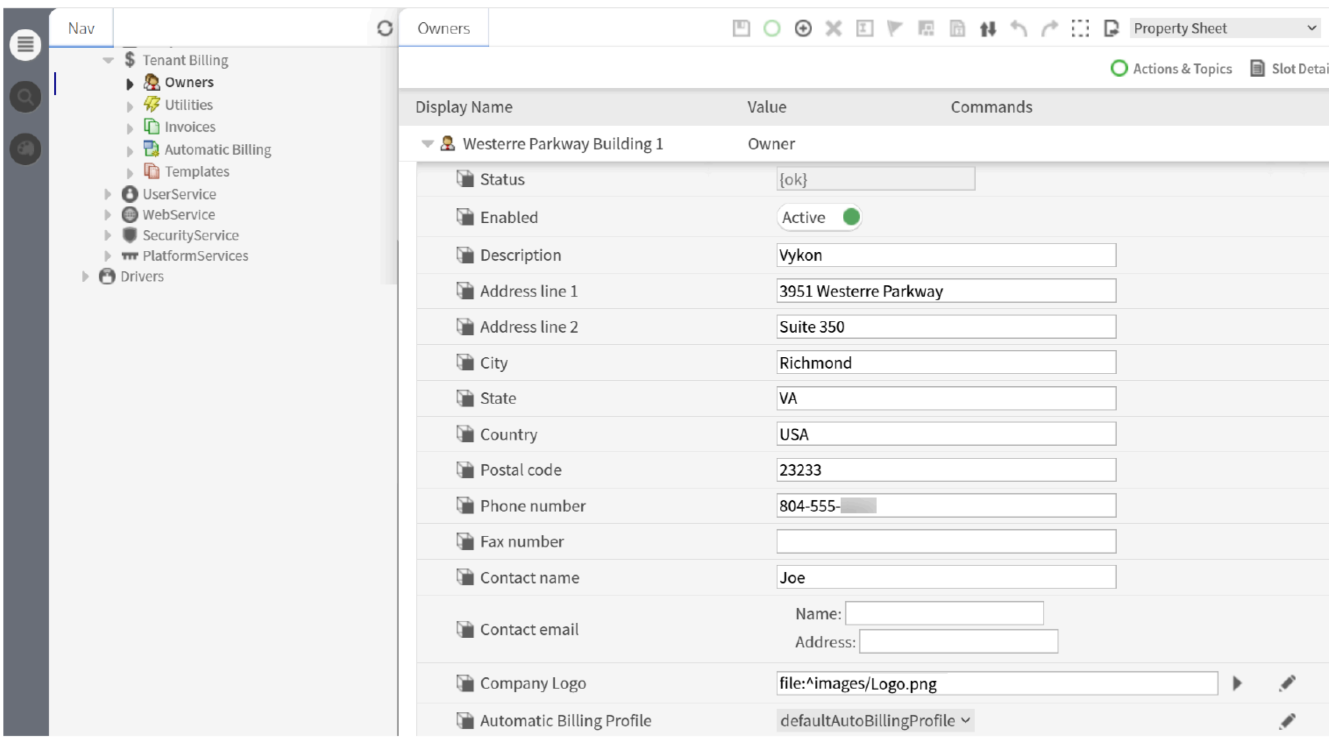
Components include services, folders and other model building blocks associated with a module. You may drag them to a **Property** or **Wire Sheet** from a palette.
Descriptions included in the following topics appear as context-sensitive help topics when accessed by:

- Right-clicking on the object and selecting **Views** > **Guide Help**
- Clicking **Help** > **Guide On Target**

Owners

Owners are the individuals or entities who have ownership or responsibility for a particular space.

Figure 1. Owners Property Sheet



To access these properties, expand **Config** > **Services** > **Tenant Billing** > **Owners**, right-click the owner and click **Views** > **Property Sheet**.

Type	Value	Description
Status	read-only	Reports the condition of the entity or process at last polling. `{ok}` indicates that the component is licensed and polling successfully.

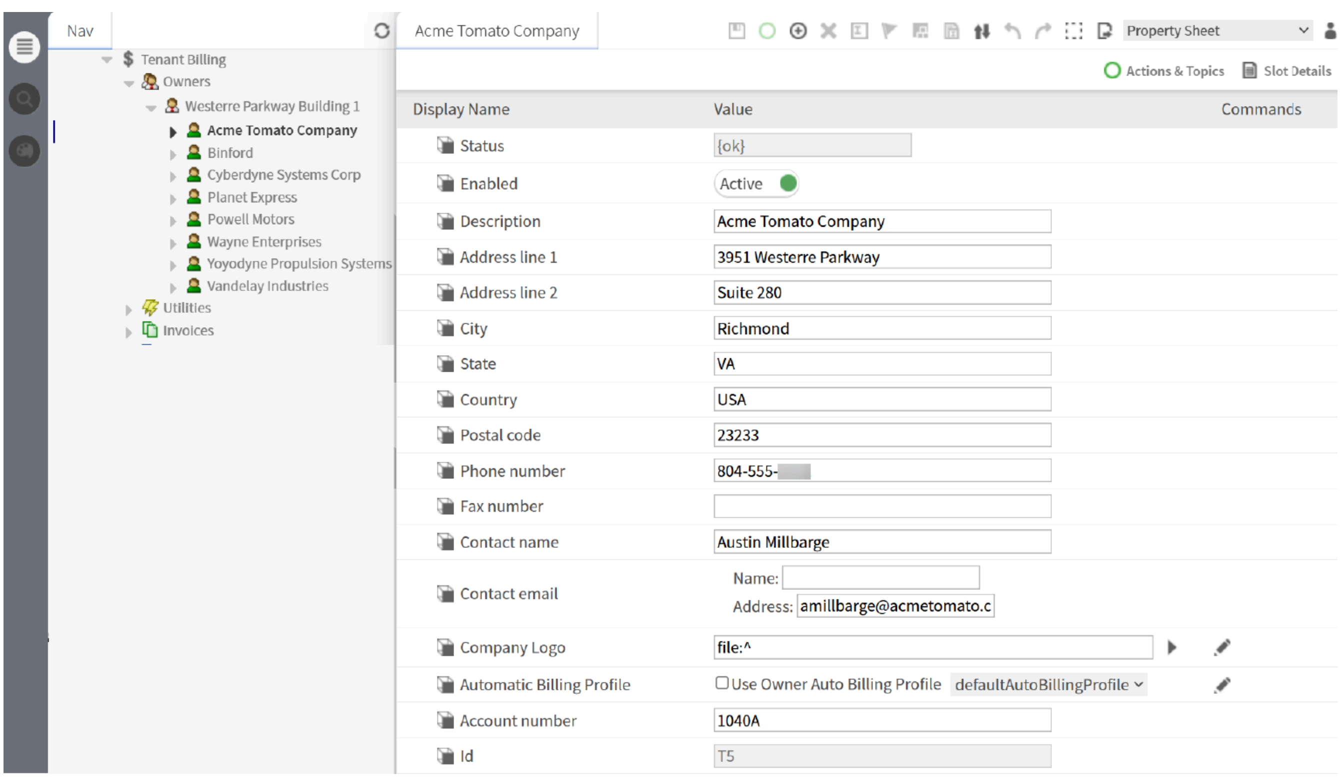
Type	Value	Description
		`{down}` indicates that the last check was unsuccessful, perhaps because of an incorrect property, or possibly loss of network connection. `{disabled}` indicates that the **`Enable`** property is set to `false`. `{fault}` indicates another problem. Refer to **`Fault Cause`** for more information.
Enabled	`true` or `false`	Activates (`true`) and deactivates (`false`) use of the object (network, device, point, component, table, schedule, descriptor, etc.).
Description	text	Provides important information that may not fit into other predefined fields. This can include notes, explanations, or additional details that are relevant to owner.
Address line1	owner address	Provides the primary address information for the location.
Address line 2	owner address	Provides additional space for relevant information related to the primary location address.
City	text	Represents the name of the city.
State	text	Represents the name of the state.
Country	text	Represents the name of the country.
Postal Code	number	Indicates a specific region of the location.
Phone Number	number	Defines the owner telephone phone number.
Fax number	number	Represents the fax number used for communication purposes related to billing, such as sending invoices and receiving documents.
Contact name	text	Indicates name of the owner.
Contact email	email address	Indicates the owner's name and

Type	Value	Description
		email address for communication purposes.
Company Logo	file chooser	Allows users to upload or display the logo of the company that owns the property which is used for branding purposes and can appear in invoices, reports or other documents. Click the to select the logo from the file chooser or arrow button from the directory.
Automatic Billing Profile	drop-down list	Automates the billing process based on the configured profile, reducing manual effort and ensuring accuracy and consistency in billing. Click the drop-down to select the billing profile to generate bills automatically.

Tenants

A tenant is an individual who occupies or utilizes a space. An owner has configured at least one tenant.

Figure 2. Tenant Property Sheet



To access these properties, expand **Config** > **Services** > **Tenant Billing** > **Owners** > **Owner**, right-click the tenant and click **Views** > **Property Sheet**.

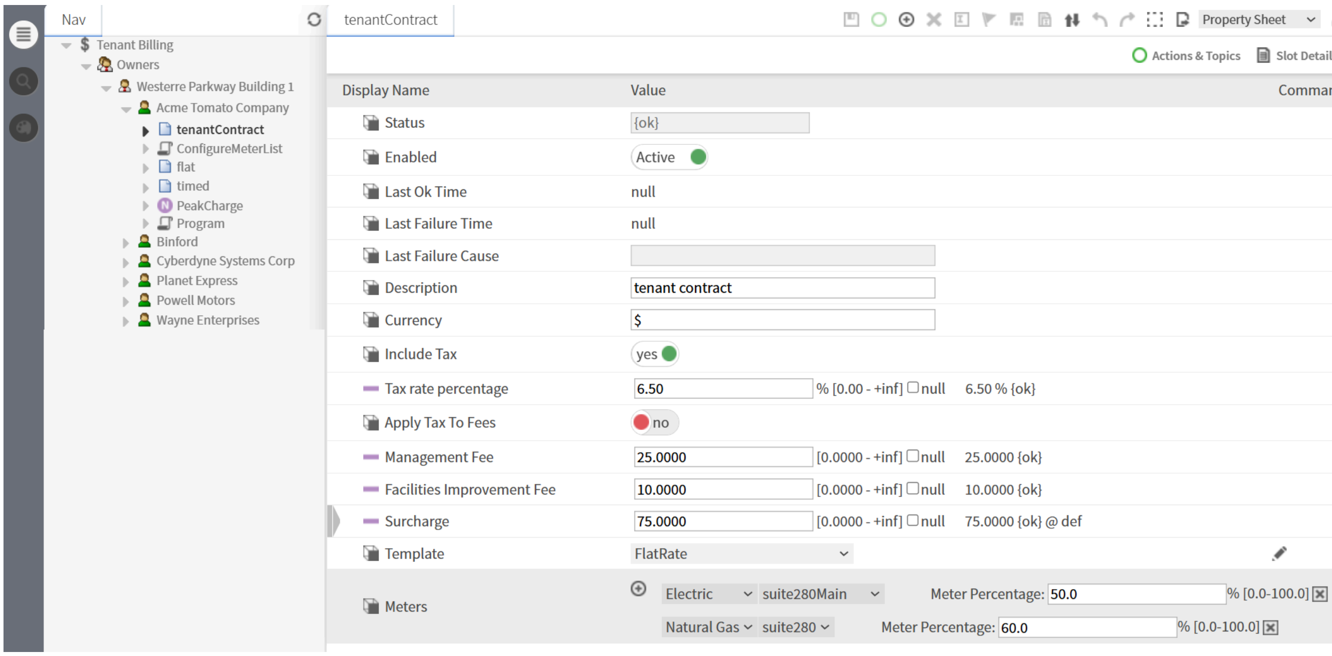
Type	Value	Description
Status	read-only	Reports the condition of the entity or process at last polling. `{ok}` indicates that the component is licensed and polling successfully. `{down}` indicates that the last check was unsuccessful, perhaps because of an incorrect property, or possibly loss of network connection. `{disabled}` indicates that the **`Enable`** property is set to `false`. `{fault}` indicates another problem. Refer to **`Fault Cause`** for more information.
Enabled	`true` or `false`	Activates (`true`) and deactivates (`false`) use of the object (network, device, point, component, table, schedule, descriptor, etc.).
Description	text	Provides important information that may not fit into other predefined fields. This can include notes, explanations, or additional details that are relevant to tenant.
Address line1	address	Provides the primary address information for the location.
Address line 2	address	Provides additional space for relevant information related to the primary location address.
City	text	Represents the name of the city.
State	text	Represents the name of the state.
Country	text	Represents the name of the country.
Postal code	number	Indicates a specific region of the location.
Phone number	number	Defines the tenant telephone phone number.

Type	Value	Description
Fax number	number	Represents the fax number used for communication purposes related to billing, such as sending invoices and receiving documents.
Contact name	text	Indicates name of the tenant.
Contact email	email address	Indicates the tenant's name and email address for communication purposes.
Company Logo	file chooser	Allows users to upload or display the logo of the company that owns the property which is used for branding purposes and can appear in invoices, reports or other documents. Click the to select the logo from the file chooser or arrow button from the directory.
Automatic Billing Profile	drop-down list	Automates the billing process based on the configured profile, reducing manual effort and ensuring accuracy and consistency in billing. Select the checkbox **Use Owner Auto Billing Profile** and click the drop-down to select the billing profile to generate bills automatically.
Account number	number	Indicates the account number of the tenant.
Id	read-only	Indicates a unique identifier assigned to each tenant in the database. For example T1 represents Tenant1, T2 represents Tenant 2 and so on.

Contracts

This component is responsible for assigning contracts, which means assigning contracts to the tenants and invoice templates to be used for invoice generation.

Figure 3. Contract Property Sheet



To access these properties, expand **Config** > **Services** > **Tenant Billing** > **Owners** > **Owner** > **Tenant**, right-click the contract and click **Views** > **Property Sheet**.

Type	Value	Description
Status	read-only	Reports the condition of the entity or process at last polling. `{ok}` indicates that the component is licensed and polling successfully. `{down}` indicates that the last check was unsuccessful, perhaps because of an incorrect property, or possibly loss of network connection. `{disabled}` indicates that the **`Enable`** property is set to `false`. `{fault}` indicates another problem. Refer to **`Fault Cause`** for more information.
Enabled	`true` or `false`	Activates (`true`) and deactivates (`false`) use of the object (network, device, point,

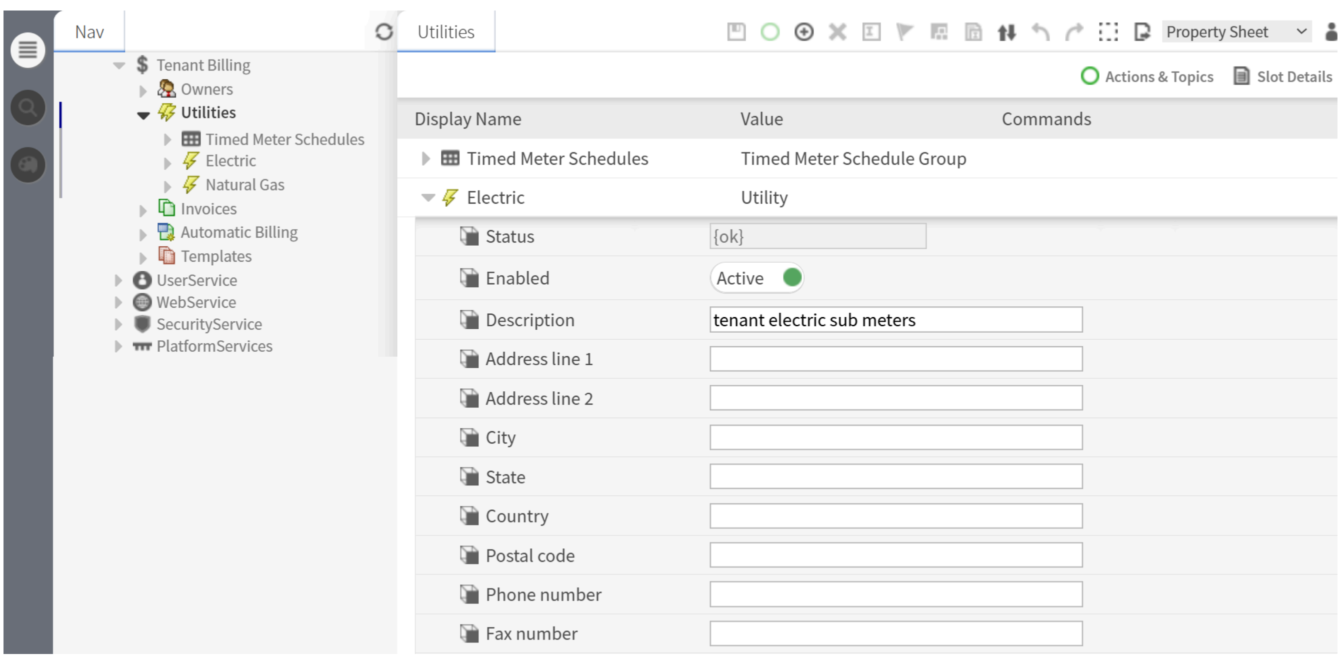
Type	Value	Description
		component, table, schedule, descriptor, etc.).
Last Ok Time	read-only	Displays the date and time of last successful transaction.
Last Failure Time	read-only	Displays the date and time of last failure transaction.
Last Failure Cause	read-only	Displays the reason or cause of last failure transaction.
Description	read-only	Provides important information that may not fit into other predefined fields. This can include notes, explanations, or additional details that are relevant to contract.
Currency	text	Specifies the currency for the financial transaction.
Include Tax	drop-down	Specify whether the contracts include or exclude a taxes. Click drop-down to select the taxes. • If it set to yes implies that the contract includes a taxes. • If it set to no implies that the contract doesn't have any taxes.
Tax rate percentage	number	Allows users to set the percentage of the tax that is applied to the specific contracts.
Apply Tax To Fees	drop-down	Determine whether taxes are applied to additional fees specified in the contract. • If it set to yes implies that the contract includes additional fees. • If it set to no implies that the contract doesn't have any additional fees.
Management Fee	number	Refers to a specified fee or charge associated with the management of the contract.
Facilities Improvement Fee	number	Refers to a specified fee or charge associated with enhancements to the facilities or amenities provided to tenants.

Type	Value	Description
Surcharge	number	Refers to an additional fee or charge that is added to a tenant's bill for specific reasons.
Template	drop-down	Defines the type of templates to be used to generate invoice. Click drop-down to select the templates.
Meters	drop-down	Refers to different types of meter devices that allow the measurement and tracking of resource usage, such as electricity, water, and gas. Click the drop-down to select the utilities, choose the meter, and user can configure meter percentage according to the meter. Click the plus symbol to add more utilities.

Utilities

This component explains what utilities are used and billed by the tenant, such as electricity, water, and gas.

Figure 4. Utilities Property Sheet



To access these properties, expand **Config** > **Services** > **Tenant Billing**, select the **Utilities** and right-click **Views** > **Property Sheet.**

Type	Value	Description
Timed Meter Schedules	Timed Meter Schedule Group	Provides information about the schedules that specifies the rates or

Type	Value	Description
		charges for utility consumption.
Utility (Example as Electricity)	additional properties	Defines the type of utility used by the tenant.

Utility

This component provides details about the type of utility used by the tenant. For instance, the following information elaborates on the electricity utility.

To access these properties, expand **Config** > **Services** > **Tenant Billing** > **Utilities**, right-click the **Utility** and click **Views** > **Property Sheet**.

Type	Value	Description
Status	read-only	Reports the condition of the entity or process at last polling. `{ok}` indicates that the component is licensed and polling successfully. `{down}` indicates that the last check was unsuccessful, perhaps because of an incorrect property, or possibly loss of network connection. `{disabled}` indicates that the **`Enable`** property is set to `false`. `{fault}` indicates another problem. Refer to **`Fault Cause`** for more information.
Enabled	`true` or `false`	Activates (`true`) and deactivates (`false`) use of the object (network, device, point, component, table, schedule, descriptor, etc.).
Description	text	Provides important information that may not fit into other predefined fields. This can include notes, explanations, or additional details that are relevant to utility used by the tenant.
Address line1	address	Provides the primary address information for the location.
Address line 2	address	Provides additional space for relevant information related to the primary location address.

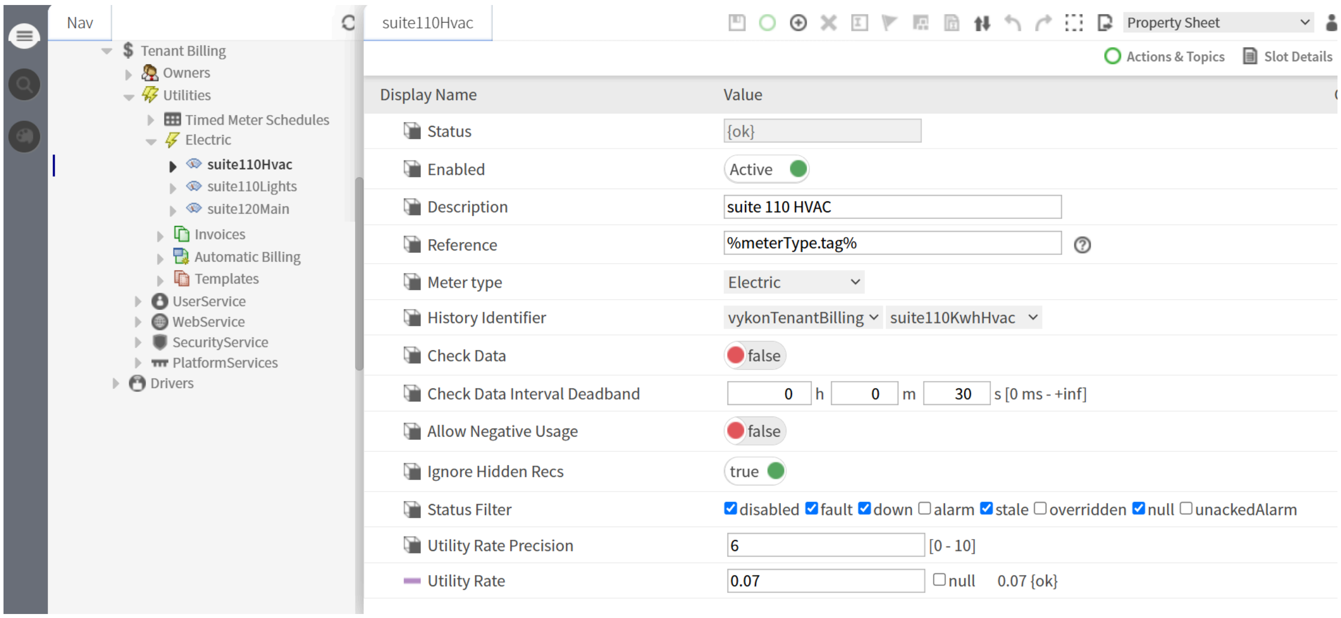
Type	Value	Description
City	text	Represents the name of the city.
State	text	Represents the name of the state.
Country	text	Represents the name of the country.
Postal Code	number	Indicates a specific region of the location.
Phone Number	number	Indicates the tenant telephone phone number.
Fax number	number	Represents the fax number used for communication purposes related to billing, such as sending invoices and receiving documents.

Meters

Meters are the devices used to measure the resource consumption. You can assign different meter types for utilities used and billed by tenants.
There are two types of meters. you can choose accordingly.

- `Flat Rate Meter`: The rate of the utility remains constant throughout the billing period. No need to define any schedule in the **`Timed Meter.Schedule`**.
- `Timed Meter`: The rate of utility values varies over time. Before using a `Timed Meter`, you first need to configure the Timed Meter and define the cost schedule. Then, you need to add the configured schedule to the **`Timed Meter Schedule`** (For more details, how to configure schedules, refer to Configure timed meter schedules).

Figure 5. Flat Rate Meter Property Sheet



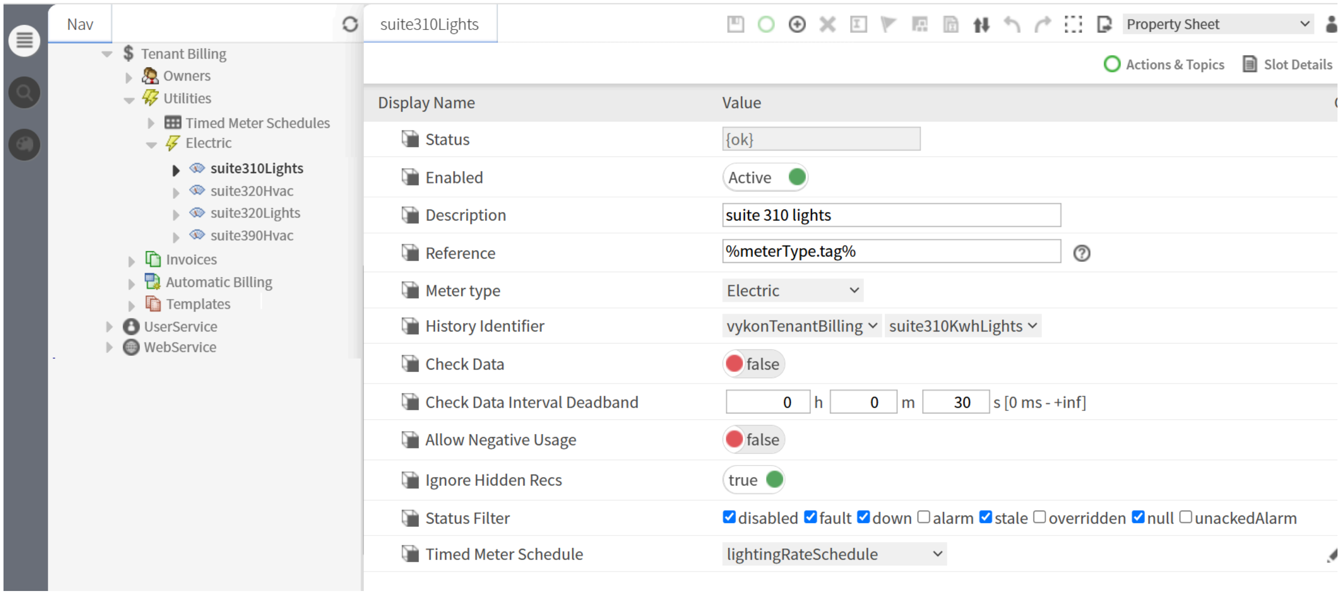
To access these properties, expand **Config** > **Services** > **Tenant Billing** > **Utilities** > **Utility**, right-click **Flat Rate Meter** and click **Views** > **Property Sheet**.

Type	Value	Description
Status	read-only	Reports the condition of the entity or process at last polling. `{ok}` indicates that the component is licensed and polling successfully. `{down}` indicates that the last check was unsuccessful, perhaps because of an incorrect property, or possibly loss of network connection. `{disabled}` indicates that the **`Enable`** property is set to `false`. `{fault}` indicates another problem. Refer to **`Fault Cause`** for more information.
Enabled	`true` or `false`	Activates (`true`) and deactivates (`false`) use of the object (network, device, point, component, table, schedule, descriptor, etc.).

Type	Value	Description
Description	text	Provides important information that may not fit into other predefined fields. This can include notes, explanations, or additional details that are relevant to the meters.
Meter Type	drop-down	Refers to the classification or category of the meter being used to measure resource consumption. Click drop-down to select the type of utility meter.
Reference	text	Represents a unique identifier for the meter, helping to distinguish it from other meters in the system such as its location, installation date, or specifications.
History Identifier	drop-down	Defines the history associated with the meter. Click the drop-down to select the history of the meter.
Check Data	`true` or `false`	Verifies the history data collected for invalid values from the meter. • If it set to `true`, the history data is evaluated for invalid values. The invoice will not be generated if invalid values are present within the billing period. • If it set to `false`, the history data is not evaluated for invalid values. The invoice will be generated if invalid values are present within the billing period.
Check Data Interval Deadband	hours minutes seconds (defaults to 30 seconds)	Provides a way to monitor and validate data readings, maintaining data quality and reliability, and may generate an alert if the difference between consecutive readings exceeds the deadband threshold.
Allow Negative Usage	`true` or `false`	Determines whether the system permits negative usage values. • If it set to `true`, negative values of the meter allowed in the report. • If it set to `false`, negative values of the meter are not allowed in the report.

Type	Value	Description
Ignore Hidden Recs	`true` or `false`	Provides information about the hidden records to include or excluded in the hsitory. • If it set to `true`, any records that are marked or flagged as hidden are ignored in the history. • If it set to `false`, any records that are marked or flagged as hidden are included in the history.
Status Filter	check box	Selects the values that are to be ignored in the history.
Utility Rate Precision	number	Refers the level of accuracy used when specifying the utility rate for the meter. For example, a utility rate with a precision of two decimal places (e.g., $0.10) would allow for rates such as $0.10, $0.20, $0.30, and so on
Utility Rate	number	Defines the unit rate of the utility. The rate of the utility remains constant throughout the billing period.

Figure 6. Timed Meter Property Sheet



To access these properties, expand **Config** > **Services** > **Tenant Billing** > **Utilities** > **Utility**, right-click **Timed Meter** and click **Views** > **Property Sheet.**

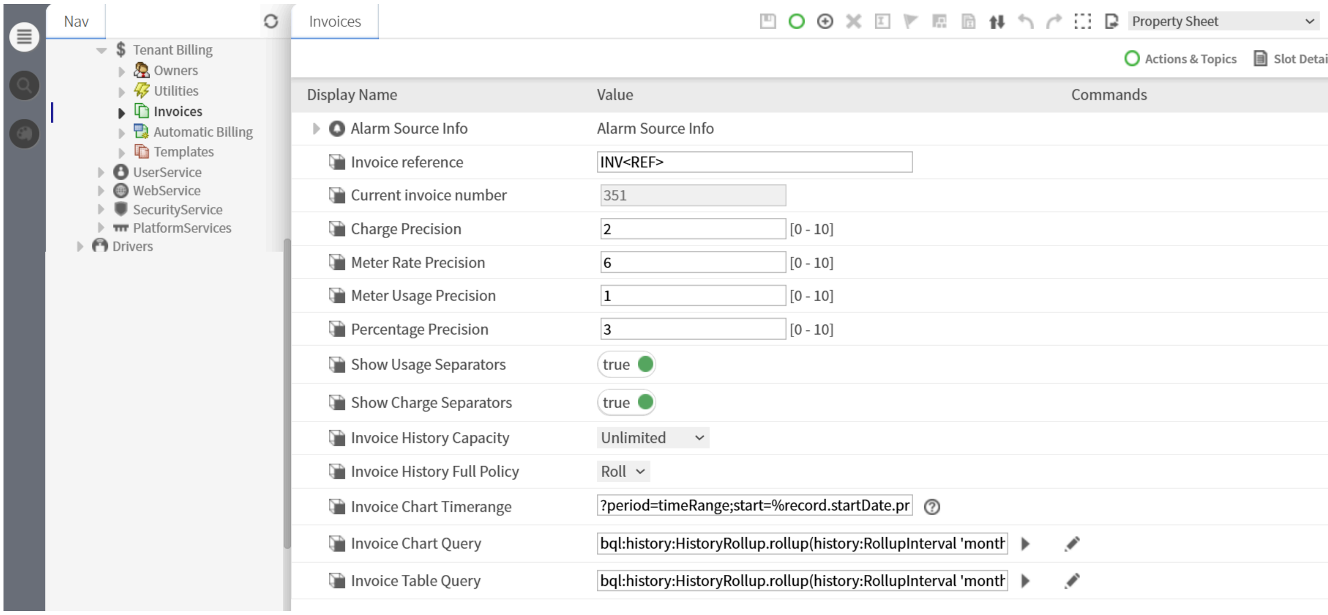
The properties are similar to the **Flat Rate Meter** except `Timed Meter Schedules`.

Type	Value	Description
Timed Meter Schedules	drop-down	Defines the rate the utility values varies by time. The cost should be defined in the schedule and then click the drop-down to select the configured schedule.

Invoices

The component allows you to display and manage various properties and details of an invoice, such as the invoice number, charges, history and so on.

Figure 7. Property Sheet



To access these properties, expand **Config** > **Services** > **Tenant Billing**, right-click **Invoices** and click **Views** > **Property Sheet**.

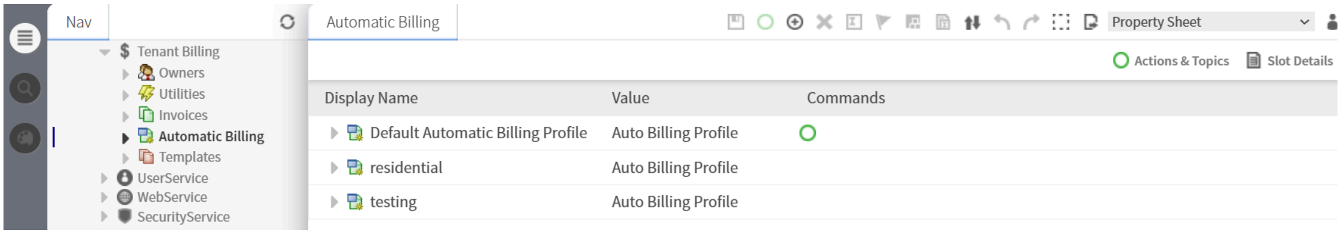
Type	Value	Description
Alarm Source Info	additional properties	Contains a set of properties for configuring and routing alarms when this component is the alarm source.
Invoice reference	text	Represents a unique identifier number for each invoice to track and identify the invoice easily.
Current invoice number	read-only	Displays the current invoice number to generate the invoice.
Charge Precision	number	Represents the level of precision used when calculating and displaying the charges on invoices.
Meter Rate Precision	number	Represents the level of precision used when calculating charges based on metered usage.
Meter Usage Precision	number	Represents the level of precision used when calculating and displaying metered usage on invoices.
Percentage Precision	number	Represents the level of precision used when calculating and displaying the percentages on invoices.

Type	Value	Description
Show Usage Separators	`true` or `false`	Shows the usage breakdown of utilities used and billed by the tenant on the invoice, allowing for a review and verification of the bill.
Show Charge Separators	`true` or `false`	Shows a breakdown of meter charges for the utility consumed by the tenant.
Invoice History Capacity	drop-down list (defaults to `Unlimited`)	Specifies the number of invoice records to store in the histories database. When capacity is reached, newer records overwrite the oldest records. • If is set to `Unlimited` specifies that there is no predefined limit, and the system can store an unlimited number of invoice records in the database. • If is set to `Record Count` specifies the local storage capacity for the invoice records to be stored in the histories database.
Invoice History Full Policy	drop-down	Determines what happens when the history table reaches its maximum capacity. `Roll` ensures that the latest data are recorded. `Stop` terminates recording when the number of stored records reaches capacity.
Invoice Chart Timerange	read-only	Specifies the time range in which they want to view invoice data in a chart format.
Invoice Chart Query	BQL query	Specifies a bql query in the database to retrieve and display the invoice data in graphical format.
Invoice Table Query	BQL query	Specifies a bql query in the database to retrieve and display the invoice data in table format.

Automatic billing

The component provides access to the profiles used to automate the billing process for tenants, minimizing errors to ensure accurate billing.

Figure 8. Property Sheet

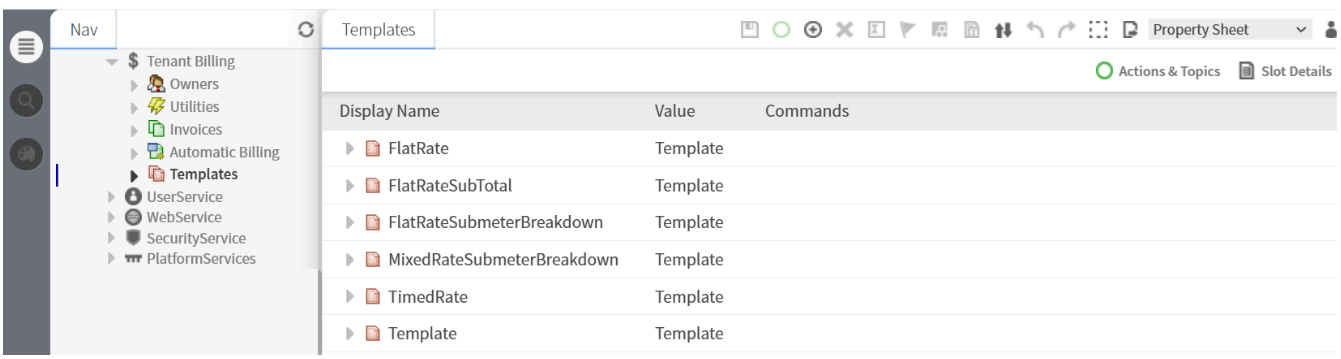


To access these properties, expand **Config** > **Services** > **Tenant Billing**, right-click **Automatic Billing** and click **Views** > **Property Sheet**.

Templates

This components explains different types of templates are created and used for invoice generation. And templates are stored in the form Px views.

Figure 9. Property Sheet



To access these properties, expand **Config** > **Services** > **Tenant Billing**, right-click **Templates** and click **Views** > **Property Sheet**.

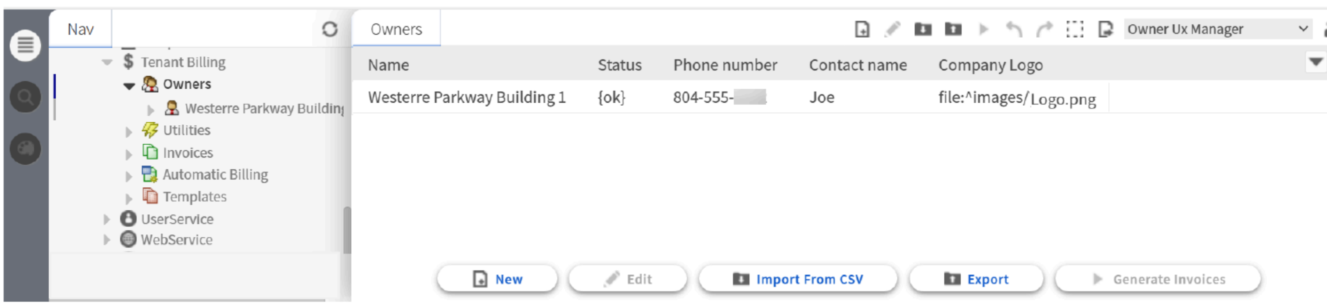
Chapter 5. Plugins (views)

Plugins provide views of components and can be accessed in many ways. For example, double-click a component in the Nav tree to see its default view. In addition, you can right-click on a component and select from its **Views** menu.

Owner Manager View

This view is the default view of any owner. It allows you to create and maintain the profiles of each owner which include basic information. The view provides to generate invoices for billing purposes.

Figure 10. Owner Ux Manager



To access this view, expand **Config** > **Services** > **Tenant Billing** and double-click **Owners**.

Columns

Column	Description
Name	Displays the name of the owner.
Status	Reports the condition of the entity or process at last polling. `{ok}` indicates that the component is licensed and polling successfully. `{down}` indicates that the last check was unsuccessful, perhaps because of an incorrect property, or possibly loss of network connection. `{disabled}` indicates that the **`Enable`** property is set to `false`. `{fault}` indicates another problem. Refer to **`Fault Cause`** for more information.
Enabled	Activates (`true`) and deactivates (`false`) use of the object (network, device, point, component, table, schedule, descriptor, etc.).
Description	Provides important information that may not fit into other predefined fields. This can include notes, explanations, or additional details that are relevant to owner.
Address line1	Provides the primary address information for the location.

Column	Description
Address line 2	Provides additional space for relevant information related to the primary location address.
City	Represents the name of the city.
State	Represents the name of the state.
Country	Represents the name of the country.
Postal code	Indicates a specific region of the location.
Phone number	Defines the tenant telephone phone number.
Fax number	Represents the fax number used for communication purposes related to billing, such as sending invoices and receiving documents.
Contact name	Indicates name of the tenant.
Contact email	Indicates the tenant's name and email address for communication purposes.
Company Logo	Allows users to upload or display the logo of the company that owns the property which is used for branding purposes and can appear in invoices, reports or other documents.
Automatic Billing Profile	Automates the billing process based on the configured profile, reducing manual effort and ensuring accuracy and consistency in billing.

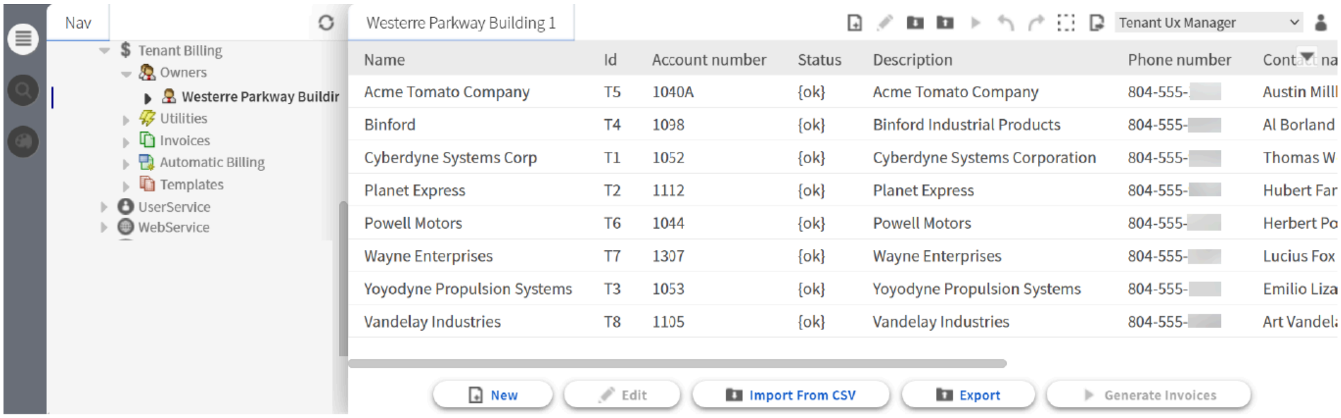
Buttons

- **New** creates a new device record in the database.
- **Edit** opens the device's database record for updating.
- **Import From CSV** allows users to choose a CSV file that contains and efficiently imports data in spreadsheets. When importing the CSV file, the file must adhere to specific requirements to ensure a successful import. The key mandatory fields for the CSV file are as follows:
  - **Name**: contains an alphanumeric value (letters and numbers) and cannot be empty.
  - **Automatic Billing**: contains a value that should be valid handle or null and cannot be empty.
  - **Enabled**: set to either `true` or `false` and cannot be empty.
- **Export** allows users to extract and save data from the system into various formats for external use.
- **Generate Invoices** creates invoices for billing purposes in the database.

Tenant Manager View

This view is the default view of any tenant under particular owner. It allows you to create and maintain the profiles of each tenant which include basic information. The view provides to generate invoices for billing purposes.

Figure 11. Tenant Ux Manager



To access this view, expand **Config** > **Services** > **Tenant Billing** > **Owners** and double-click the particular owner name.

Columns

Column	Description
Name	Displays the name of the tenant.
Status	Reports the condition of the entity or process at last polling. `{ok}` indicates that the component is licensed and polling successfully. `{down}` indicates that the last check was unsuccessful, perhaps because of an incorrect property, or possibly loss of network connection. `{disabled}` indicates that the **`Enable`** property is set to `false`. `{fault}` indicates another problem. Refer to **`Fault Cause`** for more information.
Enabled	Activates (`true`) and deactivates (`false`) use of the object (network, device, point, component, table, schedule, descriptor, etc.).
Description	Provides important information that may not fit into other predefined fields. This can include notes, explanations, or additional details that are relevant to tenant.
Address line1	Provides the primary address information for the location.
Address line 2	Provides additional space for relevant information related to the primary location address.
City	Represents the name of the city.
State	Represents the name of the state.
Country	Represents the name of the country.

Column	Description
Postal code	Indicates a specific region of the location.
Phone number	Defines the tenant telephone phone number.
Fax number	Represents the fax number used for communication purposes related to billing, such as sending invoices and receiving documents.
Contact name	Indicates name of the tenant.
Contact email	Indicates the tenant's name and email address for communication purposes.
Company Logo	Allows users to upload or display the logo of the company that owns the property which is used for branding purposes and can appear in invoices, reports or other documents.
Automatic Billing Profile	Automates the billing process based on the configured profile, reducing manual effort and ensuring accuracy and consistency in billing.
Account number	Indicates the account number of the tenant.
Id	Indicates a unique identifier assigned to each tenant in the database. For example T1 represents Tenant1, T2 represents Tenant 2 and so on.

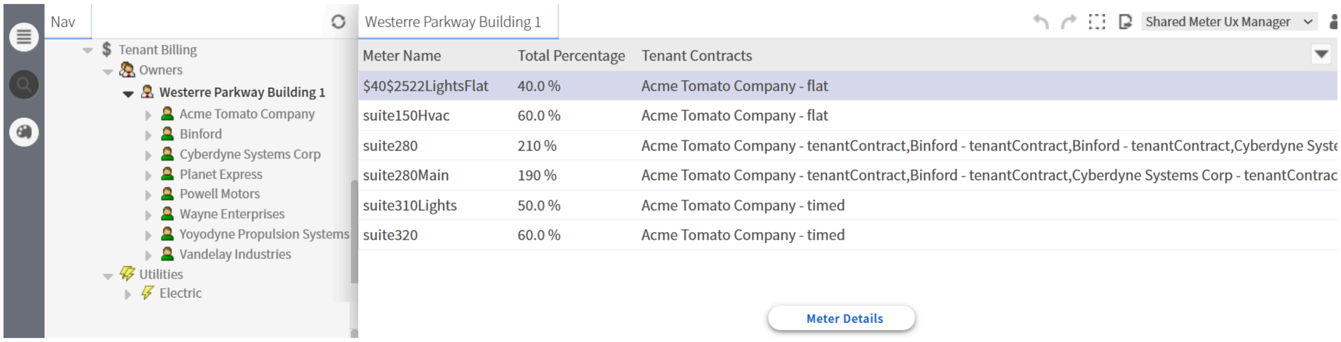
Buttons

- **New** creates a new device record in the database.
- **Edit** opens the device's database record for updating.
- **Import from CSV** allows users to choose a CSV file that contains and efficiently imports data in spreadsheets. When importing the CSV file, the file must adhere to specific requirements to ensure a successful import. The key mandatory fields for the CSV file are as follows:
  - **Name**: contains an alphanumeric value (letters and numbers) and cannot be empty.
  - **Automatic Billing**: contains a value that should be valid handle or null and cannot be empty.
  - **Enabled**: set to either `true` or `false` and cannot be empty.
- **Export** allows users to extract and save data from the system into various formats for external use.
- **Generate Invoices** creates invoices for billing purposes in the database.

Shared Meter Manager

The view provides shared meter details information among multiple tenants, which includes the tenant contract and percentage based on their consumption.

Figure 12. Shared Meter Ux Manager view



To access this view, expand **Config** > **Services** > **Tenant Billing** > **Owners** and right-click the particular owner name then click **Views** > **Shared Meter Ux Manager**.

Columns

Column	Description
Meter Name	Displays the name of the meter
Total Percentage	Represents the total percentage of the meter.
Tenant Contracts	Provides information about tenant contract and type of meter used.

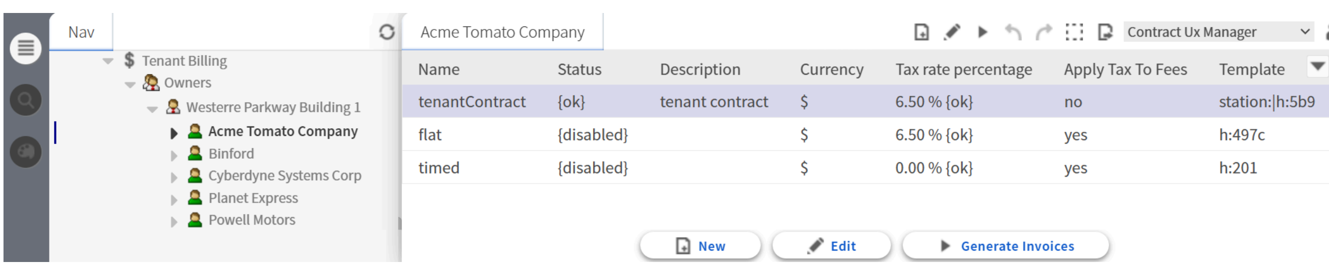
Buttons

- **Meter Details** provides meter details information such as name, percentage and tenant contract.

Contract Manager View

This view is the default view of any contract. It allows you to create and maintain the contracts. The view provides to generate invoices for billing purposes

Figure 13. Contract Ux Manager



To access this view, expand **Config** > **Services** > **Tenant Billing** > **Owners** > **Owner Name** and double-click tenant.

Columns

Column	Description
Path	Reports the path to the station
Name	Displays the name of the contract.
Status	Reports the condition of the entity or process at last polling. `{ok}` indicates that the component is licensed and polling successfully. `{down}` indicates that the last check was unsuccessful, perhaps because of an incorrect property, or possibly loss of network connection. `{disabled}` indicates that the **`Enable`** property is set to `false`. `{fault}` indicates another problem. Refer to **`Fault Cause`** for more information.
Enabled	Activates (`true`) and deactivates (`false`) use of the object (network, device, point, component, table, schedule, descriptor, etc.).
Last Ok Time	Displays the date and time of last successful transaction.
Last Failure Time	Displays the date and time of last failure transaction.
Last Failure Cause	Displays the reason or cause of last failure transaction.
Description	Provides important information that may not fit into other predefined fields. This can include notes, explanations, or additional details that are relevant to contract.
Currency	Specifies the currency for the financial transaction.
Include Tax	Specify whether the contracts include or exclude a taxes. Click drop-down to select the taxes. • If it set to yes. implies that the contract includes a taxes. • If it set to no. implies that the contract doesn’t have any taxes.
Tax rate percentage	Allows users to set the percentage of the tax that is applied to the specific contracts.
Apply Tax To Fees	Determine whether taxes are applied to additional fees specified in the contract. • If it set to yes. implies that the contract includes additional fees. • If it set to no. implies that the contract doesn’t have any additional fees.
Management Fee	Refers to a specified fee or charge associated with the management of the contract.
Facilities Improvement Fee	Refers to a specified fee or charge associated with enhancements to the facilities or amenities provided to tenants.
Surcharge	Displays the additional charge or fee that is added to tenant’s bill.
Template	Defines the type of templates to be used to generate invoice. Click drop-down to select the

Column	Description
	templates.
Meters	Refers to different types of meter devices that allow the measurement and tracking of resource usage, such as electricity, water, and gas. Click the drop-down to select the utilities, choose the meter, and user can configure the meter percentage according to the meter. Click the plus symbol to add more utilities.

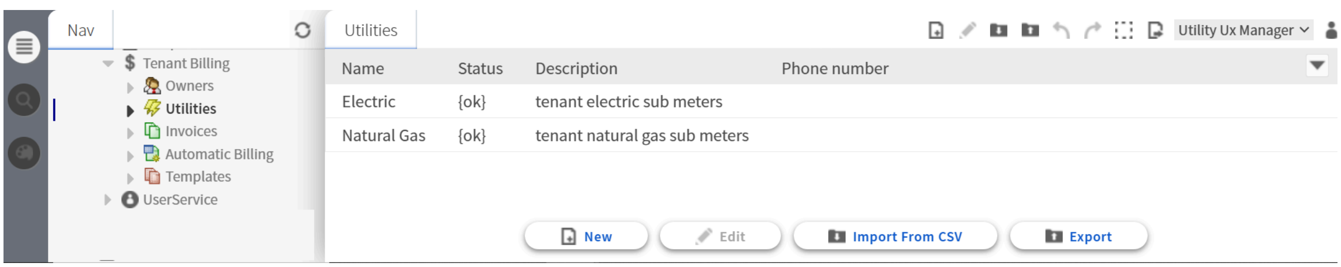
Buttons

- **New** creates a new device record in the database.
- **Edit** opens the device's database record for updating.
- **Generate Invoices** creates invoices for billing purposes in the database.
- **TagIt** associates metadata, such as location or unique configuration with the object.

Utility Manager View

This is the default view of any utility used and billed by tenants. It allows users to create and manage utility information such as electricity, water, and gas.

Figure 14. Utility Ux Manager



To access this view, expand **Config** > **Services** > **Tenant Billing** and double-click **Utilities**.

Columns

Column	Description
Path	Reports the path to the station.
Name	Displays the name of the utility used by the tenant.
Status	Reports the condition of the entity or process at last polling. `{ok}` indicates that the component is licensed and polling successfully. `{down}` indicates that the last check was unsuccessful, perhaps because of an incorrect property, or possibly loss of network connection. `{disabled}` indicates that the **`Enable`** property is set to `false`. `{fault}` indicates another problem. Refer to **`Fault Cause`** for more information.

Column	Description
Enabled	Activates (`true`) and deactivates (`false`) use of the object (network, device, point, component, table, schedule, descriptor, etc.).
Description	Provides important information that may not fit into other predefined fields. This can include notes, explanations, or additional details that are relevant to the utility used by the tenant.
Address line1	Provides the primary address information for the location.
Address line 2	Provides additional space for relevant information related to the primary location address.
City	Represents the name of the city.
State	Represents the name of the state.
Country	Represents the name of the country.
Postal code	Indicates a specific region of the location.
Phone number	Defines the tenant telephone phone number.
Fax number	Represents the fax number used for communication purposes related to billing, such as sending invoices and receiving documents.

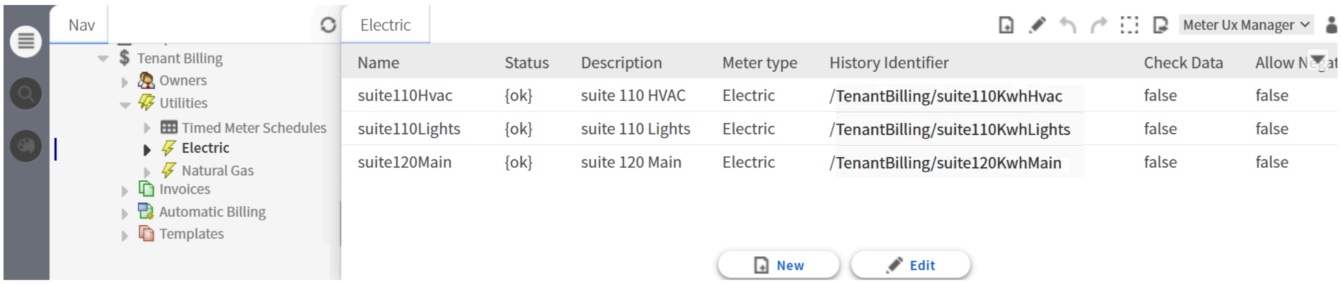
Buttons

- **New** creates a new device record in the database.
- **Edit** opens the device's database record for updating.
- **Import From CSV** allows users to choose a CSV file that contains and efficiently imports data in spreadsheets. When importing the CSV file, the file must adhere to specific requirements to ensure a successful import. The key mandatory fields for the CSV file are as follows:
  - **Name**: contains an alphanumeric value (letters and numbers) and cannot be empty.
  - **Enabled**: set to either `true` or `false` and cannot be empty.
- **Export** allows users to extract and save data from the system into various formats for external use.

Meter Manager View

This is the default view of the meter used for the utility. This view provides tools and functionalities to monitor, record, and manage utility consumption data, typically including electricity, water, gas, or any other utilities measured by meters.

Figure 15. Meter Ux Manager



To access this view, expand **Config** > **Services** > **Tenant Billing Utilites** and double-click on any utility.

Column

Column	Description
Name	Name of meter.
Status	Reports the condition of the entity or process at last polling. `{ok}` indicates that the component is licensed and polling successfully. `{down}` indicates that the last check was unsuccessful, perhaps because of an incorrect property, or possibly loss of network connection. `{disabled}` indicates that the **Enable** property is set to `false`. `{fault}` indicates another problem. Refer to **Fault Cause** for more information.
Enabled	Activates (`true`) and deactivates (`false`) use of the object (network, device, point, component, table, schedule, descriptor, etc.).
Description	Provides important information that may not fit into other predefined fields. This can include notes, explanations, or additional details that are relevant to meters.
Meter Type	Shows the type of meters utilized by tenant, including electricity, water and other utilities.
Reference	Represents a unique identifier for the meter, helping to distinguish it from other meters in the system such as its location, installation date, or specifications.
History Identifier	Allows the system to track and manage the history records that are associated with the meters.
Check Data	Verifies the history data collected for invalid values from the meter. • If it set to `true`, the history data is evaluated for invalid values. The invoice will not be generated if invalid values are present within the billing period. • If it set to `false`, the history data is not evaluated for invalid values. The invoice will be generated if invalid values are present within the billing period.
Check Data	Provides a way to monitor and validate data readings, maintaining data quality and reliability,

Column	Description
Interval Deadband	and may generate an alert if the difference between consecutive readings exceeds the deadband threshold.
Allow Negative Usage	Determines whether the system permits negative usage values. • If it set to `true`, the negative values allow in the report. • If it set to `false`, the negative values not allow in the report.
Ignore Hidden Recs	• If it set to `true`, any records that are marked or flagged as hidden are ignored in the reports. • If it set to `false`, any records that are marked or flagged as hidden are included in the reports.
Status Filter	Selects the values that are to be ignored in the history.
Utility Rate	Defines the unit rate of the utility.
Timed Meter Schedule	Defines the rate the utility values varies by time. The cost should be defined in the schedule and then click the drop-down to select the configured schedule.

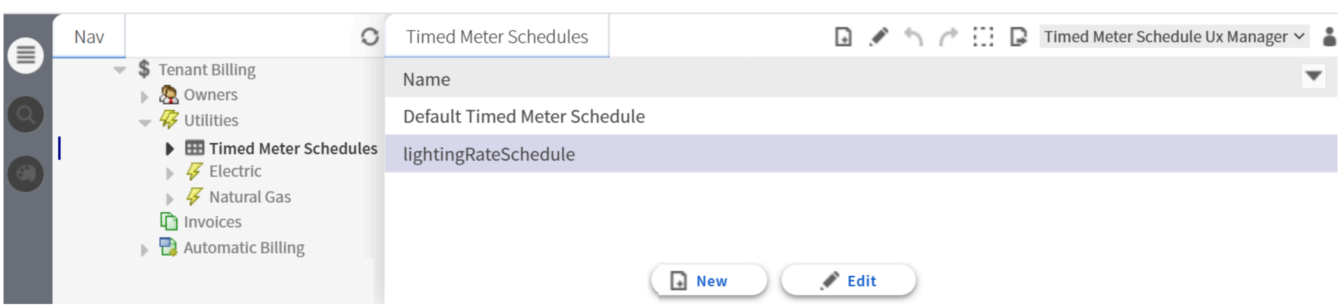
Buttons

- **New** creates a new device record in the database.
- **Edit** opens the device's database record for updating.

Timed Meter Schedule Manager View

This is the default view of Timed meter schedule manager. The view provides to create and manage the schedules for meter consumption used for various utilities within the tenant premises, allowing for the specification of reading frequency (e.g., daily, weekly, monthly) based on specific time intervals or periods.

Figure 16. Timed Meter Schedule Ux Manager



To access this view, expand **Config** > **Services** > **Tenant Billing** > **Utilities** and double-click **Timed Meter Schedules**.

Columns

Column	Description
Name	Displays the name of the schedule.

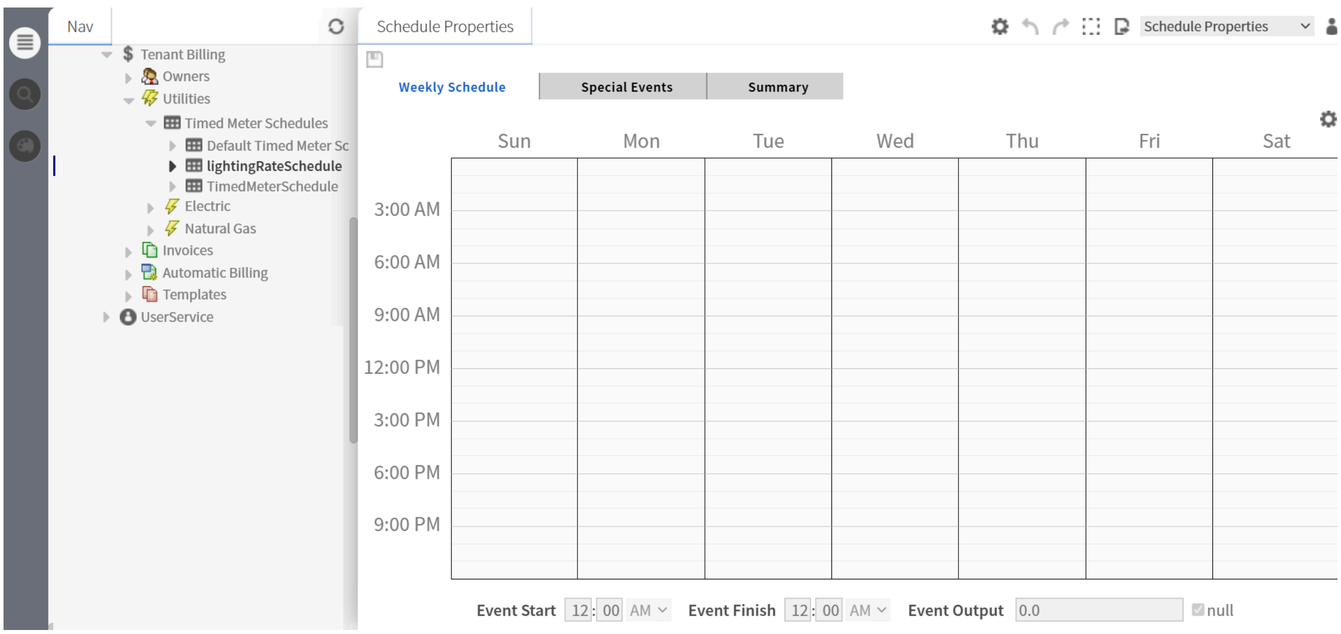
Buttons

- **New** creates a new device record in the database.
- **Edit** opens the device's database record for updating.

Schedule Properties

This is the default view of the schedule properties. The view allows you to set specific rates for schedules at different time intervals for billing purposes.

Figure 17. Schedule Properties



To access this view, expand **Config** > **Services** > **Tenant Billing** > **Utilities** > **Timed Meter Schedules** and double-click the schedule.

Buttons

All scheduler views share the same buttons:

- **Save** downloads your changes to the schedule component's configuration. Immediately following, it activates the **Save** button again. This button is active only if you have unsaved changes in the component's scheduler.
- **Refresh** does one of two things:

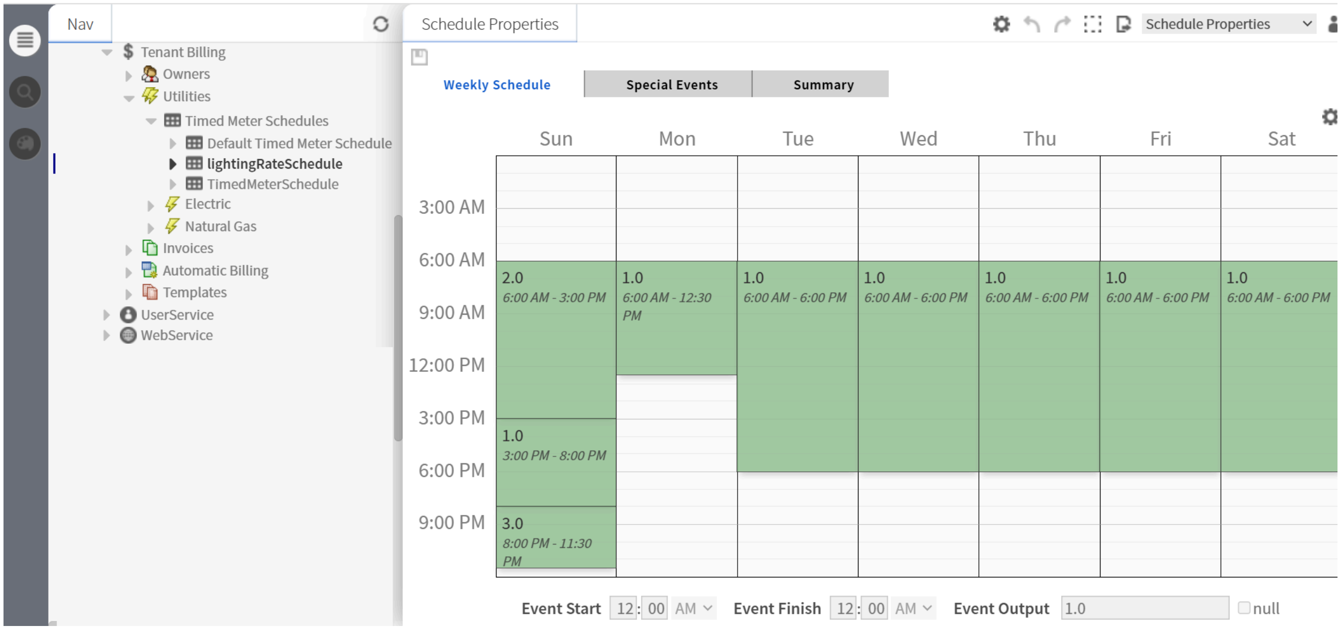
  If the **Save** button is not available (no unsaved changes), clicking **Refresh** re-synchronizes the view with the component's current configuration.

  If the **Save** button is available (unsaved changes), clicking **Refresh** produces a confirmation window:

Weekly Schedule

This view allows you to set specific schedules for meter consumption that repeat on a weekly basis, ensuring accurate billing.

Figure 18. Weekly Schedules



The **Schedule Properties** defaults to the **Weekly Schedule** view. For more details, how to access **Schedule Properties** refer topic Schedule Properties

The view title at the top displays the name of the schedule.

The grid provides a visual representation of the schedule.

To create schedules, refer to topic Configure timed meter schedules

Property	Value	Description
Event Start	time of day, AM and PM with up and down arrows	Fine tunes the start time for the event.
Event Finish	time of day, AM and PM with up and down arrows	Fine tunes the end time for the event.
Event Output	null	Displays numbers in each schedule block. What to display depends on the type of schedule. If you intend nothing to display, click the null check box. To display the meter consumption rates, select the schedule and enter the rate in the null box.

Tabs

- **Weekly Schedule** manages Sunday through Saturday (weekly) event times and values. Use this to define regular weekly schedules.
- **Special Events** manages all exceptions to the defined weekly schedule as special events. Use this to define special event times.
- **Summary**, for any selected day, provides a tabular summary of all schedule events with source.

Right-click action menu

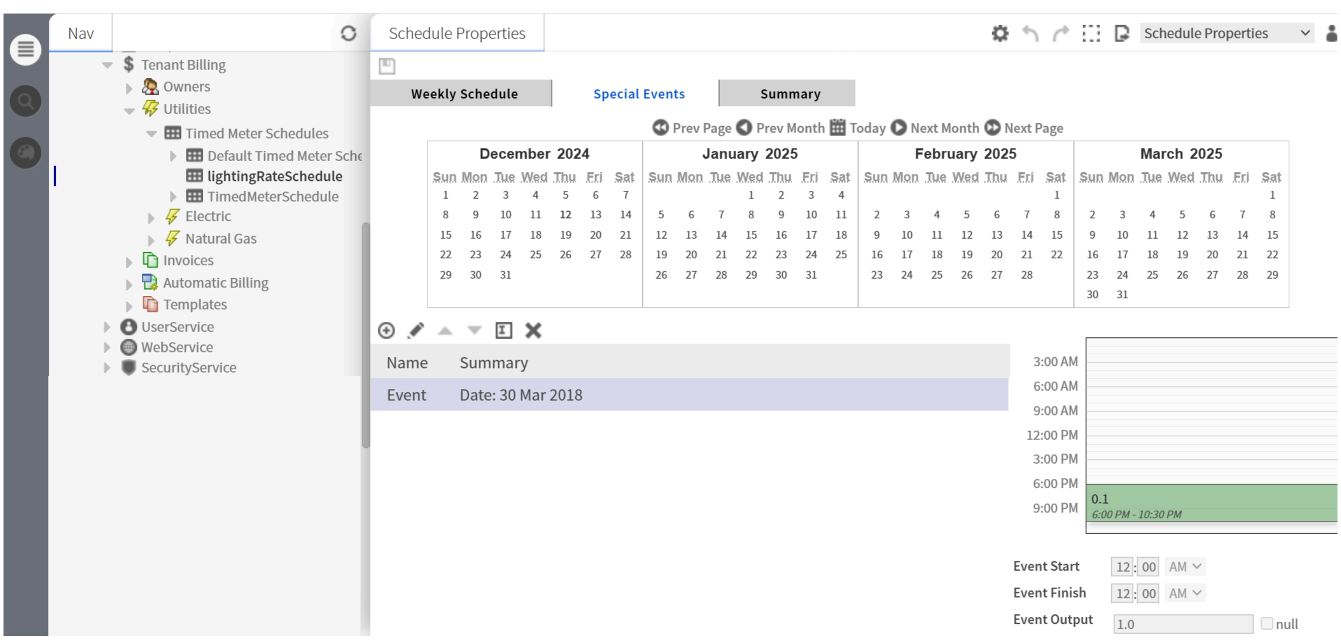
Right-click on a day for an event menu. Event menu options are straightforward, and may include the following:

- `Delete Event` removes the selected event from the schedule.
- `Paste Day` works with **`Copy Day`** to paste the selected day's event into another day.
- `All Day Event` extends the currently selected or last entered event for the entire day.
- `Apply M-F` applies the selected event to each day from Monday through Friday.
- `Copy Day` copies the selected event in preparation to paste it elsewhere in the schedule.
- `Clear Day` removes all events for the selected day.
- `Clear Week` removes all events for the entire week.

Special Events

This is the default view of special events. The view allows you to schedule special events under specific conditions. During a special event, meter readings may be adjusted or recorded differently than during regular readings. For example, special events include holidays, maintenance shutdowns, meter replacements, and so on.

Figure 19. Special Events tab in the Schedule Properties



To access this view, in the **Schedule properties**, select the **Special Events** tab. For more details, how to access

Schedule Properties refer topic Schedule Properties.

The table lists existing special events (if any) by name and summary. When you select a special event, the schedule highlights its day(s) of occurrence in the monthly calendars at the top of the view, and displays its associated event actions in the right-side column.

Property	Value	Description
Event Start	time of day, AM and PM with up and down arrows	Fine tunes the start time for the event.
Event Finish	time of day, AM and PM with up and down arrows	Fine tunes the end time for the event.
Event Output	null	Displays numbers in each schedule block. What to display depends on the type of schedule. If you intend nothing to display, click the null check box. To display the meter consumption rates, select the schedule and enter the rate in the **null** box.

Event Columns

Column	Description
Name	Displays the name of the event.
Summary	Provides key information of the summary such as date, days and year.

Controls

The controls above the tabs manage the configuration of each event.

- **Add** creates a new event.
- **Edit** opens an existing event so you can update it.
- **Priority** up moves the event higher in the table.
- **Priority** down moves the event lower in the table.
- **Rename** opens a window so you can change the event name.
- **Delete** removes the event from the calendar.

Right-click action menu

If you right-click a selected event, this menu of options opens:

- **Delete Event**

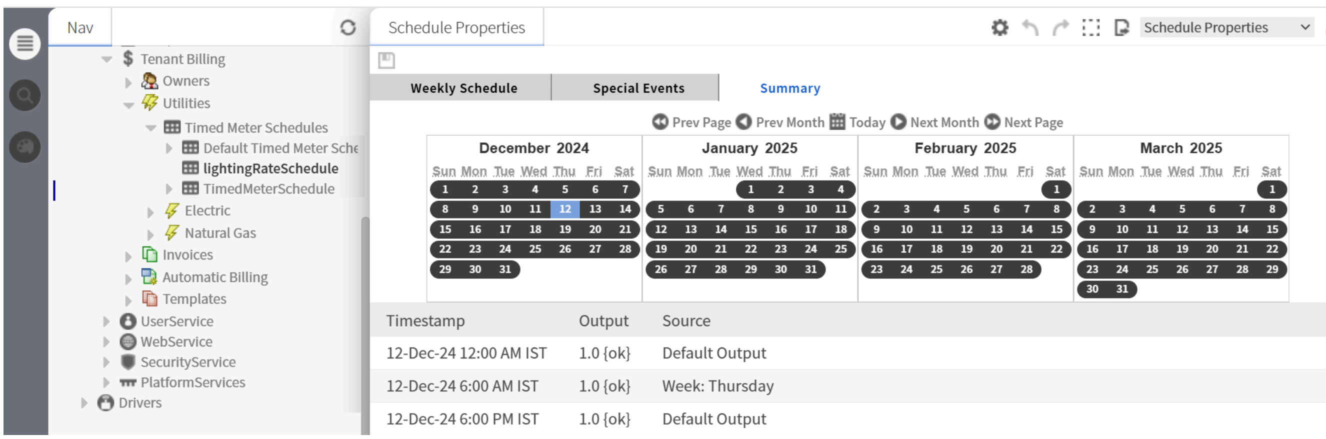
- All Day Event
- Clear Day
- Schedule Defaults

Summary

This tab displays a read-only summary, which you can use to review a schedule's configuration.

The **Summary** tab gives users a quick overview of the key details of the meter schedule, such as the readings, any special events, and the effective period. It displays scheduled events, allowing users to quickly review the schedule's configuration and status.

Figure 20. Summary tab for all schedules



To access this view, in the **Schedule properties**, select the **Summary** tab. For more details, how to access **Schedule Properties** refer topic Schedule Properties.

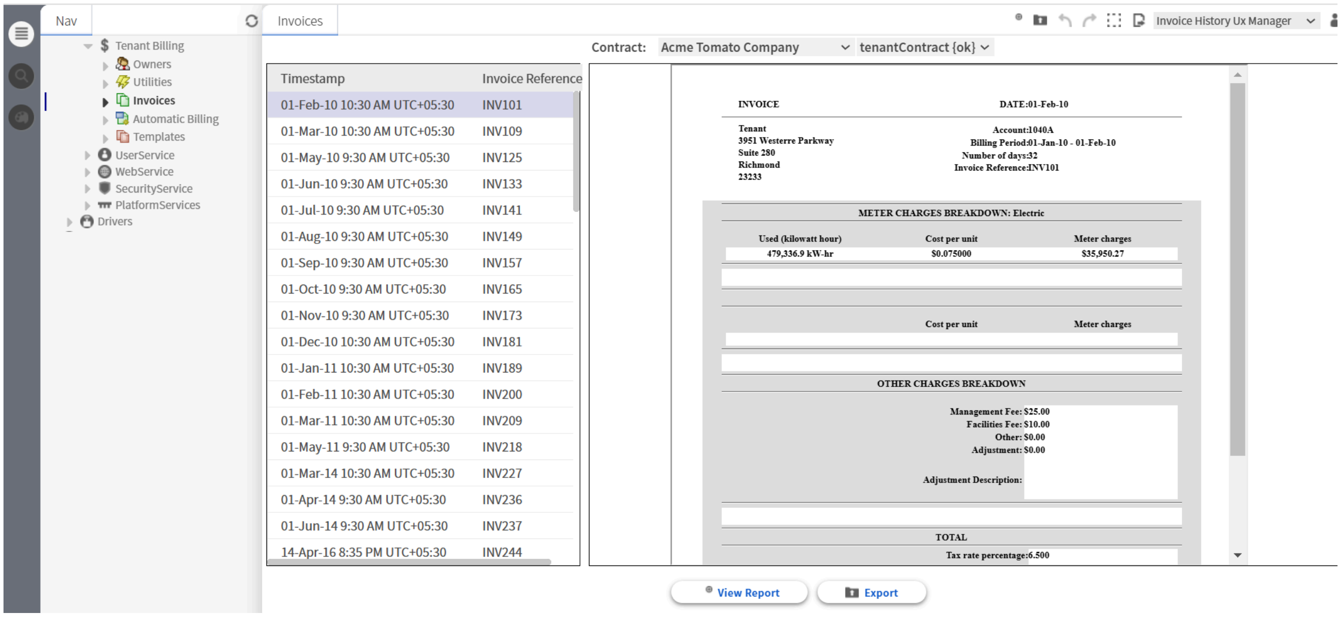
Columns

Column	Description
Timestamp	Display the date and time of the selected schedule.
Output	Displays the output of the selected schedule.
Source	provides information about why the event occurred or originated.

Invoice History Manager View

This is the default view of the Invoice History. The view allows users to manage and view the history of the invoice generated by the system such as the date and time of the invoice and invoice number.

Figure 21. Invoice History Ux Manager

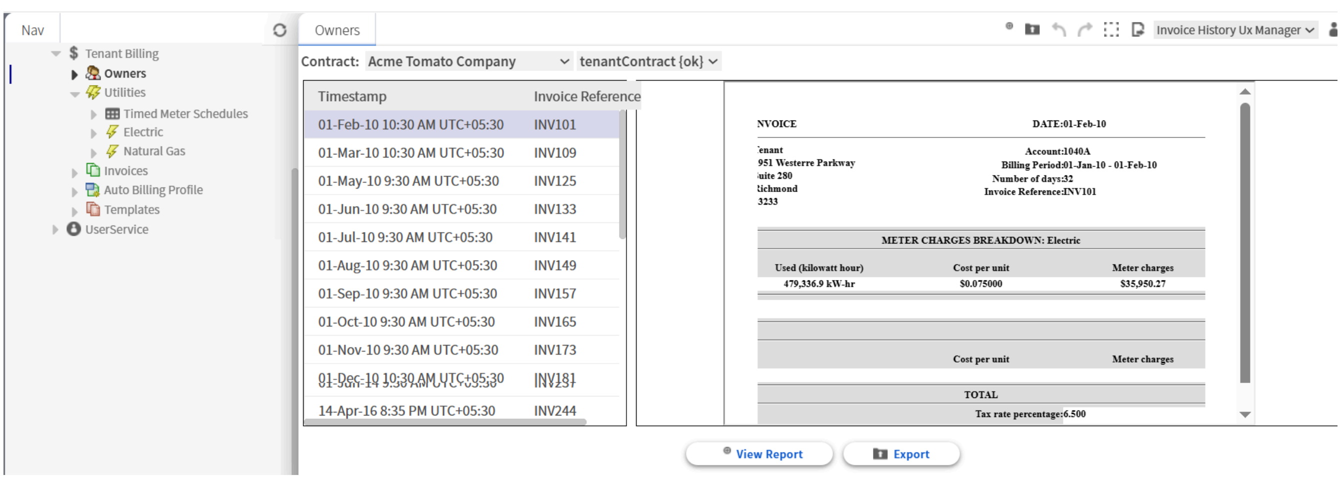


To access this view, expand **Config** > **Services** > **Tenant Billing** and double-click **Invoices**.

Invoice History Manager view for Owner, Tenant and Contract

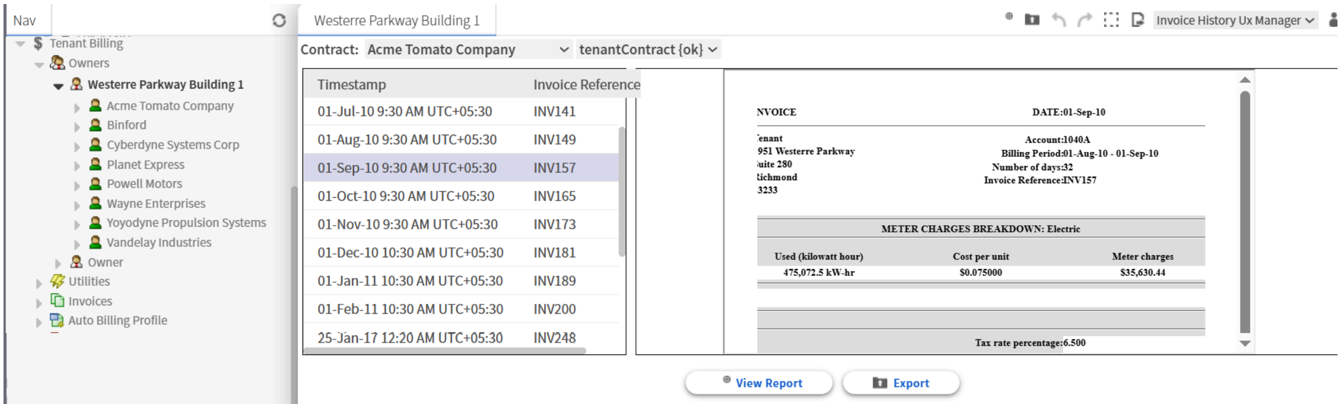
Similarly, you can view the invoices generated for individual owners, tenants, and contracts by selecting the respective owner, tenant and contract.

Figure 22. Invoice History Ux Manager view for Owner



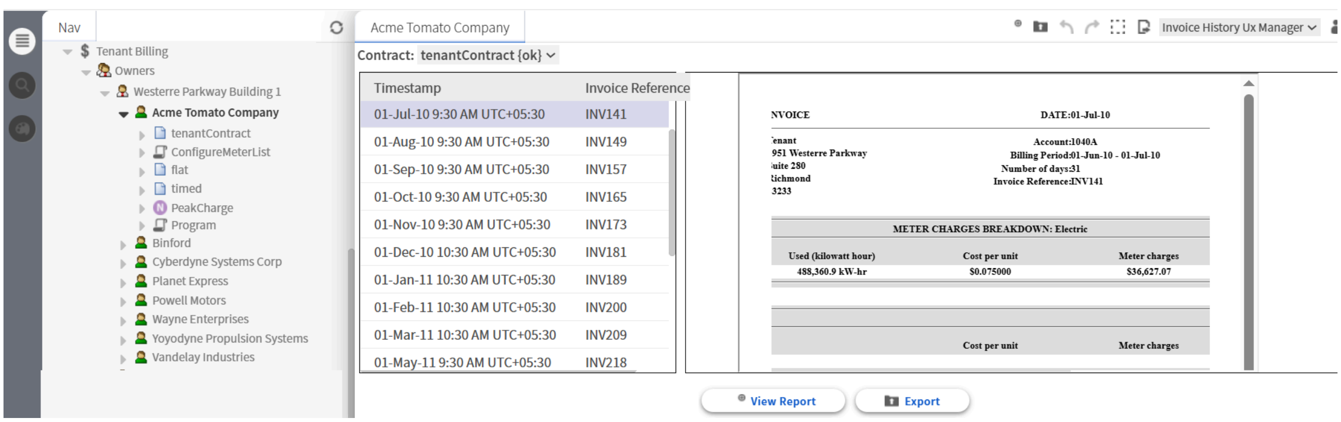
To access this view, expand **Config** > **Services** > **Tenant Billing**, right-click owner and click **Views** > **Invoice History Ux Manager**

Figure 23. Invoice History Ux Manager view for Tenant



To access this view, expand **Config** > **Services** > **Tenant Billing** > **Owners** > **Owner**, right-click the tenant and click **Views** > **Invoice History Ux Manager** .

Figure 24. Invoice History Ux Manager view for Contract



To access these properties, expand **Config** > **Services** > **Tenant Billing** > **Owners** > **Owner** > **Tenant**, right-click the contract and click **Views** > **Invoice History Ux Manager**.

Type	Value	Description
Contract	drop-down	Click the drop-down to select the contract. Based on the selected contract the invoice will be generated.

Columns

Column	Description
Timestamp	Displays the date and time of the generated invoice.

Column	Description
Invoice Reference	Displays the invoice number to uniquely identify each invoice.

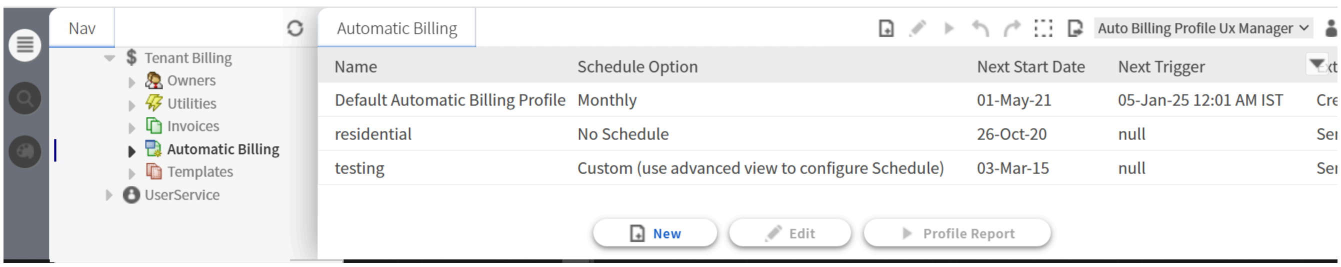
Buttons

- **View Report**: opens the generated invoice to view and analyze the billing data.
- **Export** allows users to extract and save data from the system into various formats for external use.

Auto Billing Profile Manager View

This is the default view of any billing profile. The view provides manage and configure the automatic billing profiles for tenants.

Figure 25. Auto Billing Profile Ux Manager



To access this view, expand **Config** > **Services** > **Tenant Billing** and double-click **Automatic Billing**.

Columns

Column	Description
Name	Displays the name of the profile.
Schedule Option	Specifies the time period to schedule automatic billing for payments.
Next Start Date	Display the timestamp of start date.
Next Trigger	Display the timestamp of the next schedule date.
Extensions	Display the file formats in which the invoice can be saved.

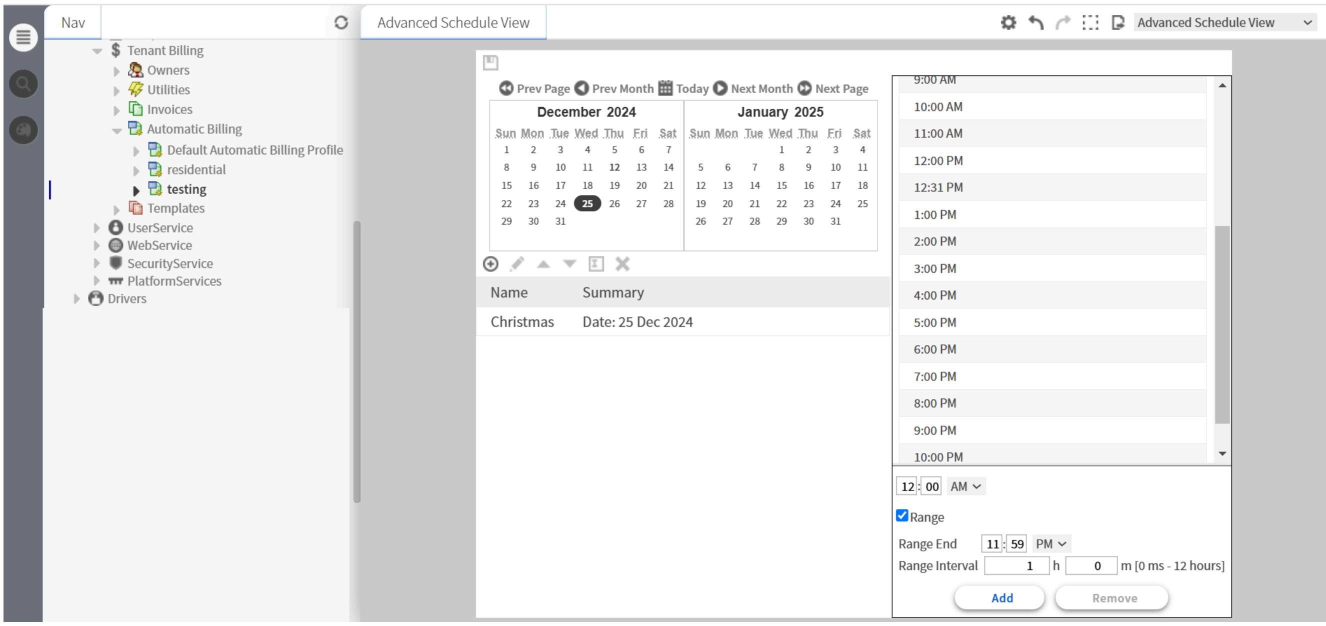
Buttons

- **New** creates a new device record in the database.
- **Edit** opens the device's database record for updating.
- **Profile Report** opens a report of the created profile.

Advanced Schedule View

This is the default view of the custom billing profile. The view provides to create and manage scheduling capabilities for automated billing process.

Figure 26. Advanced Schedule view

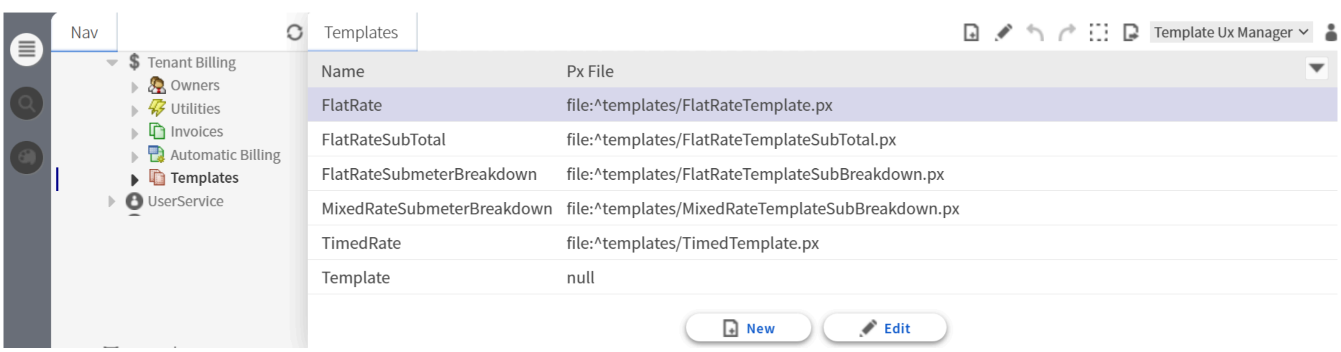


To access this view, expand **Config** > **Services** > **Tenant Billing** > **Automatic Billing** and double-click on custom profile.

Template Manager View

This is the default view of the **Templates**. The view allows users to create and manage various types of templates to generate bills or invoices efficiently for tenants.

Figure 27. Template Ux Manager



To access this view, expand **Config** > **Services** > **Tenant Billing** and double-click **Templates**.

Columns

Column	Description
Name	Displays the name of the template.

Column	Description
Px File	Specify the location of a template file within the system. It provides users with the flexibility to define and customize templates according to their specific needs and requirements.

Buttons

- **New** creates a new device record in the database.
- **Edit** opens the device’s database record for updating.

Chapter 6. Windows

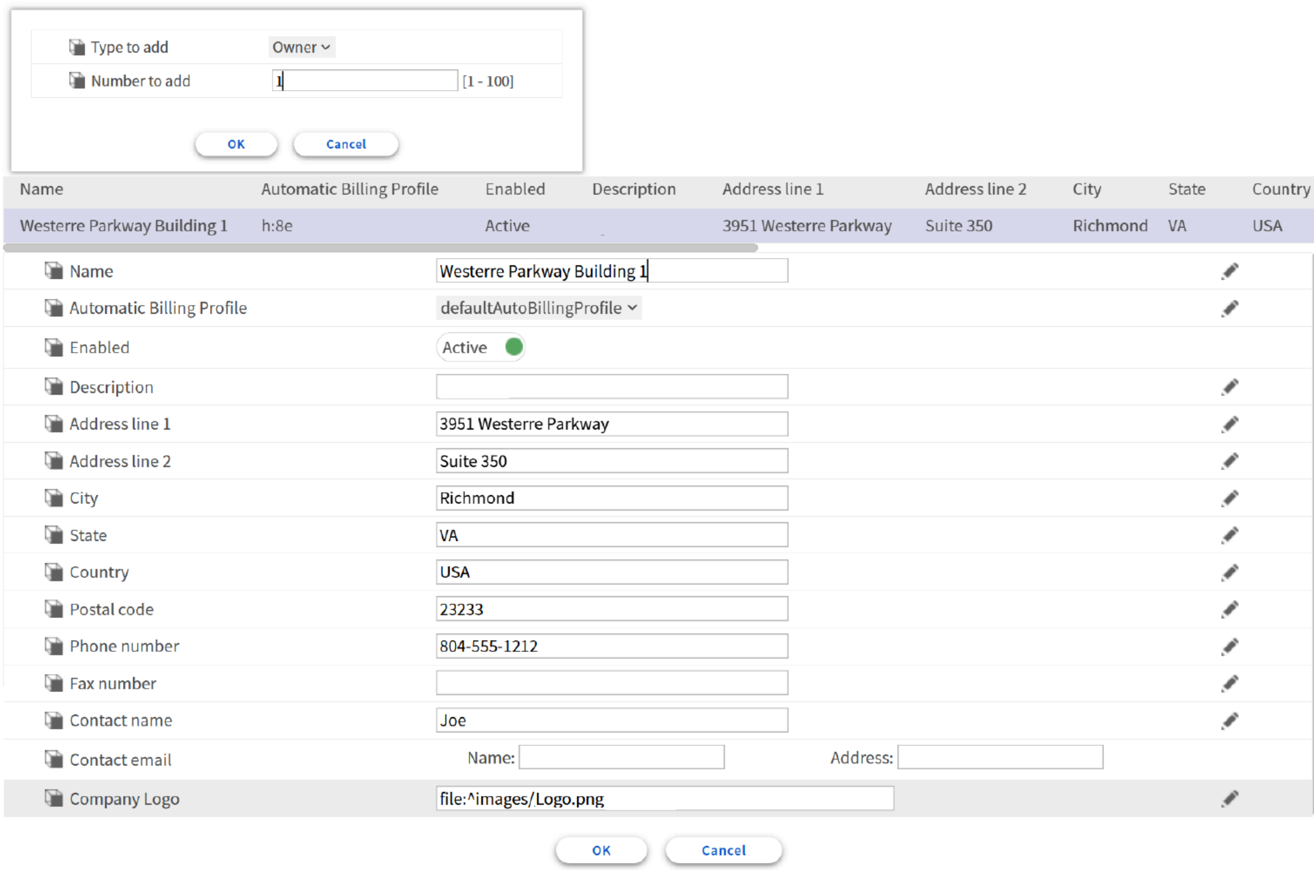
Windows create and edit database records or collect information when accessing a component. You access them by dragging a component from a palette into a station or by clicking a button.

Windows do not support **On View (F1)** and **Guide on Target** help. To learn about the information each contains, search the help system for key words.

New and Edit Owners

You use the **New** windows to add Owners. The **Edit** window provides access to Owner details for editing purposes.

Figure 28. Owner New windows



To open this window, expand **Config** > **Services** > **Tenant Billing**, double-click **Owners**. Click **New** or select a row and click **Edit** in the **Owner Manager** view.

Type	Value	Description
Status	read-only	Reports the condition of the entity or process at last polling.

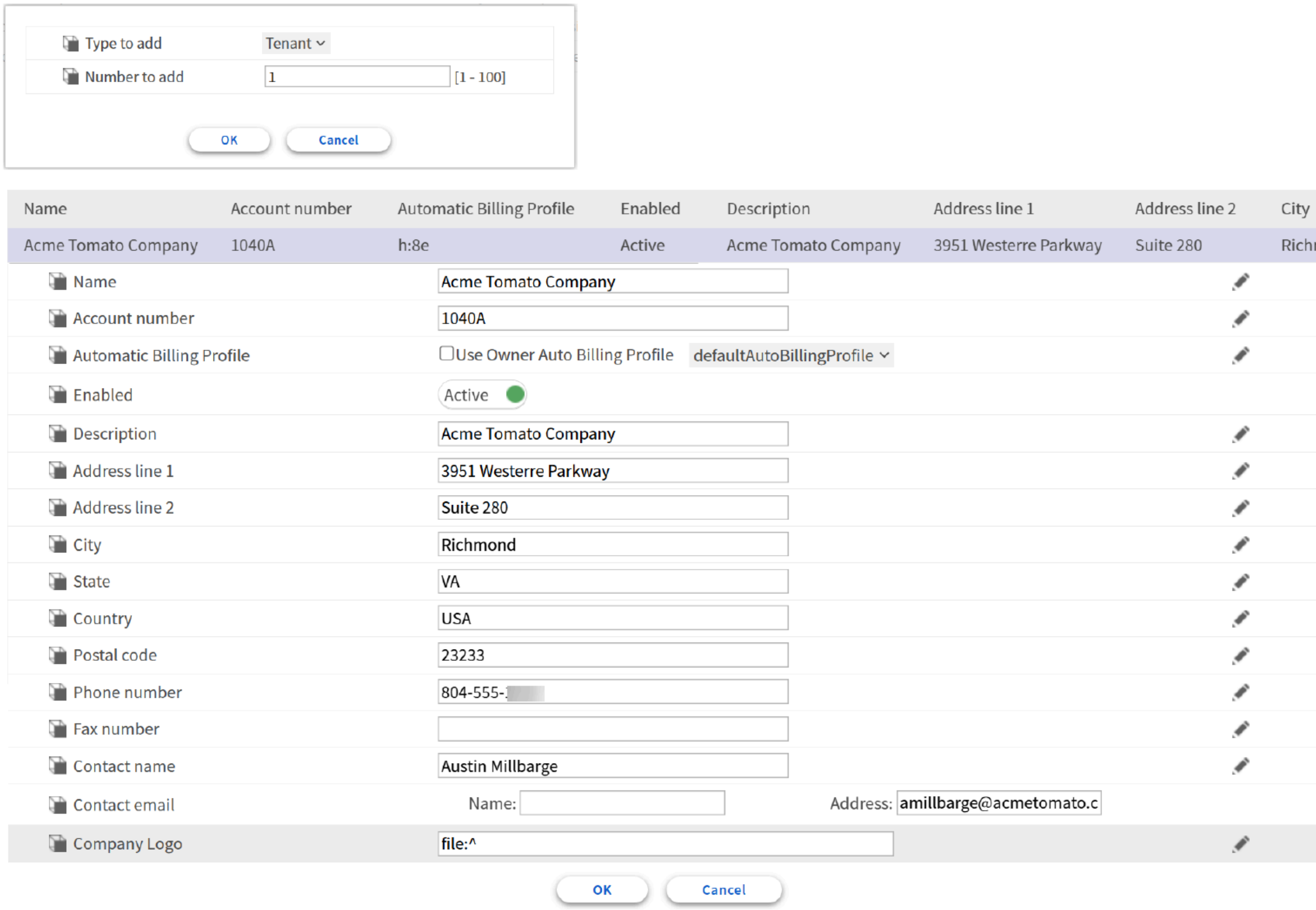
Type	Value	Description
		`{ok}` indicates that the component is licensed and polling successfully. `{down}` indicates that the last check was unsuccessful, perhaps because of an incorrect property, or possibly loss of network connection. `{disabled}` indicates that the **`Enable`** property is set to `false`. `{fault}` indicates another problem. Refer to **`Fault Cause`** for more information.
Enabled	`true` or `false`	Activates (`true`) and deactivates (`false`) use of the object (network, device, point, component, table, schedule, descriptor, etc.).
Description	text	Provides important information that may not fit into other predefined fields. This can include notes, explanations, or additional details that are relevant to owner.
Address line1	owner address	Provides the primary address information for the location.
Address line 2	owner address	Provides additional space for relevant information related to the primary location address.
City	text	Represents the name of the city.
State	text	Represents the name of the state.
Country	text	Represents the name of the country.
Postal Code	Number	Indicates a specific region of the location.
Phone Number	Number	Defines the owner telephone phone number.
Contact name	text	Indicates name of the owner
Contact email	email address	Indicates the owner's name and email address for communication

Type	Value	Description
		purposes.
Company Logo	file chooser	Allows users to upload or display the logo of the company that owns the property which is used for branding purposes and can appear in invoices, reports or other documents. Click the ✎ to select the logo from the file chooser.
Automatic Billing Profile	drop-down list	Automates the billing process based on the configured profile, reducing manual effort and ensuring accuracy and consistency in billing. Click the drop-down to select the billing profile to generate bills automatically.

New and Edit Tenant

You use the **New** windows to add Tenants. The **Edit** window provides access to Tenant details for editing purposes.

Figure 29. New and Edit Tenant



To open this window, expand **Config** > **Services** > **Tenant Billing** > **Owners**, double-click Owner. Click **New** or select a row and click **Edit** in the **Tenant Manager** view.

Type	Value	Description
Status	read-only	Reports the condition of the entity or process at last polling. `{ok}` indicates that the component is licensed and polling successfully. `{down}` indicates that the last check was unsuccessful, perhaps because of an incorrect property, or possibly loss of network connection. `{disabled}` indicates that the **`Enable`** property is set to `false`.

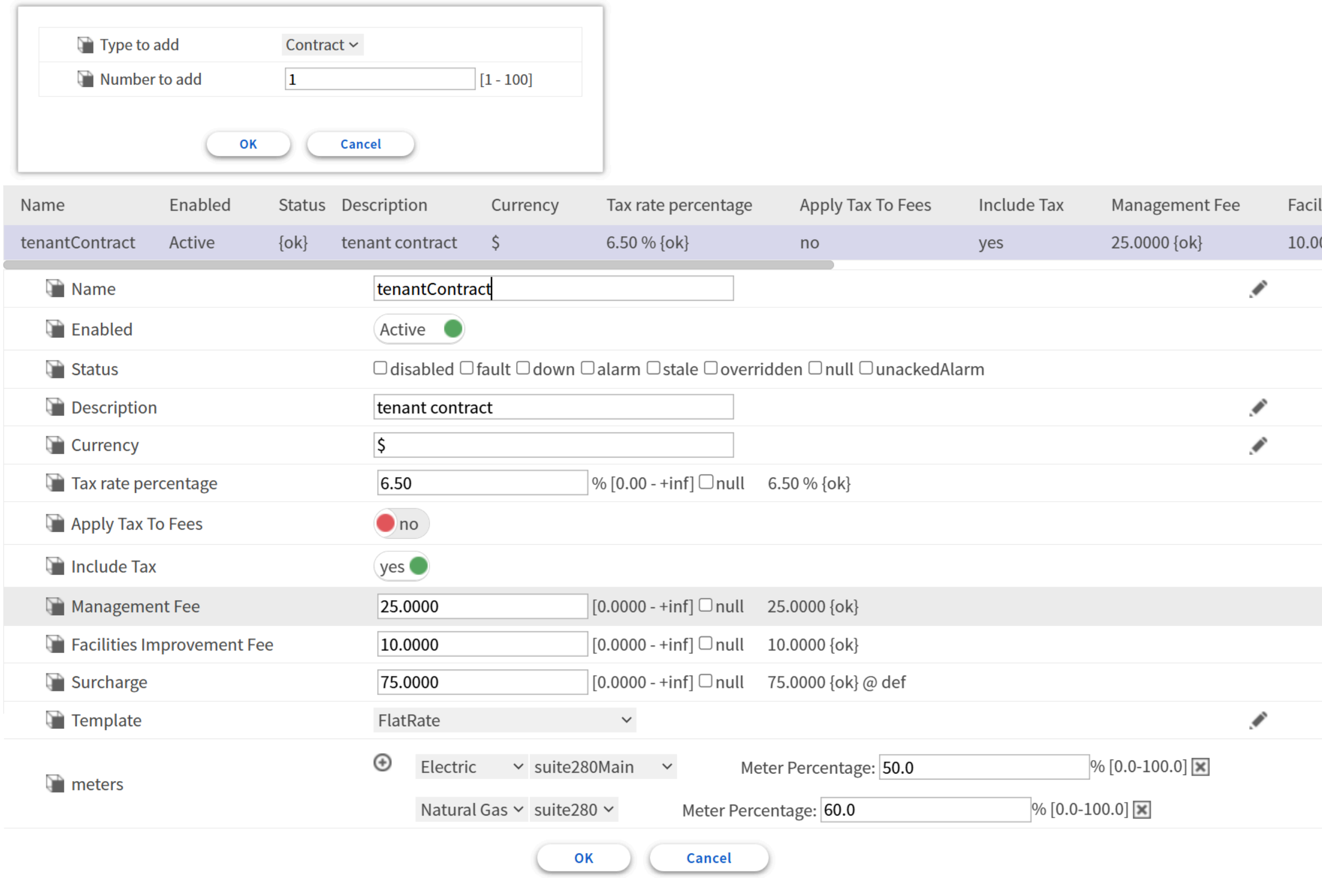
Type	Value	Description
		`{fault}` indicates another problem. Refer to **`Fault Cause`** for more information.
Enabled	`true` or `false`	Activates (`true`) and deactivates (`false`) use of the object (network, device, point, component, table, schedule, descriptor, etc.).
Description	text	Provides important information that may not fit into other predefined fields. This can include notes, explanations, or additional details that are relevant to tenant.
Address line1	tenant address	Provides the primary address information for the location.
Address line 2	tenant address	Provides additional space for relevant information related to the primary location address.
City	text	Represents the name of the city.
State	text	Represents the name of the state.
Country	text	Represents the name of the country.
Postal code	number	Indicates a specific region of the location.
Phone number	number	Defines the tenant telephone phone number.
Fax number	number	Represents the fax number used for communication purposes related to billing, such as sending invoices and receiving documents.
Contact name	text	Indicates name of the tenant
Contact email		Indicates the tenant's name and email address for communication purposes.
Company Logo	file chooser	Allows users to upload or display the logo of the company that owns the property which is used for branding purposes and can appear in invoices, reports or other documents. Click the to select thxe logo from the file chooser.

Type	Value	Description
Automatic Billing Profile	drop-down list	Automates the billing process based on the configured profile, reducing manual effort and ensuring accuracy and consistency in billing. Click the drop-down to select the billing profile to generate bills automatically.
Account number	number	Indicates the account number of the tenant.
Id	read-only	Indicates a unique identifier assigned to each tenant in the database. For example T1 represents Tenant1, T2 represents Tenant 2 and so on.

New and Edit Contract

You use the **New** windows to add Contracts. The **Edit** window provides access to Contract details for editing purposes.

Figure 30. New and edit Contract



To access these properties, expand **Config** > **Services** > **Tenant Billing** > **Owners** > **Owner**, double-click **Tenant** and click **New** or select a row and click **Edit** in the **Tenant Manager** view.

Type	Value	Description
Status	read-only	Reports the condition of the entity or process at last polling. `{ok}` indicates that the component is licensed and polling successfully. `{down}` indicates that the last check was unsuccessful, perhaps because of an incorrect property, or possibly loss of network connection. `{disabled}` indicates that the **`Enable`** property is set to `false`.

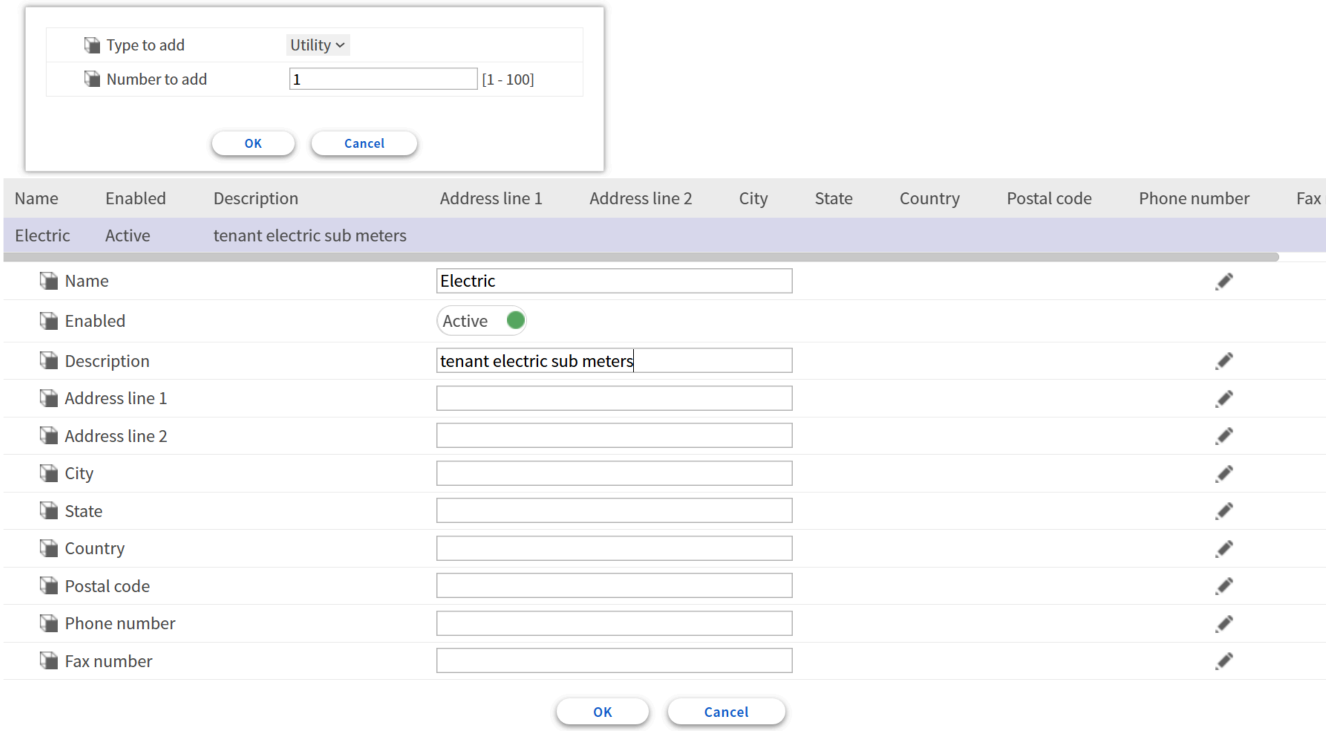
Type	Value	Description
		`{fault}` indicates another problem. Refer to **`Fault Cause`** for more information.
Enabled	`true` or `false`	Activates (`true`) and deactivates (`false`) use of the object (network, device, point, component, table, schedule, descriptor, etc.).
Last Ok Time	read-only	Displays the date and time of last successful transaction.
Last Failure Time	read-only	Displays the date and time of last failure transaction.
Last Failure Cause	read-only	Displays the reason or cause of last failure transaction.
Description	read-only	Provides additional information of the contract.
Currency	text	Specifies the currency for the financial transaction.
Include Tax	drop-down	Specify whether the contracts include or exclude a taxes. Click drop-down to select the taxes. • If it set to `Yes` implies that the contract includes a taxes. • If it set to `No` implies that the contract doesn't have any taxes.
Tax rate percentage	number	Allows users to set the percentage of the tax that is applied to the specific contracts.
Apply Tax To Fees	drop-down	Determine whether taxes are applied to additional fees specified in the contract. • If it set to `Yes` implies that the contract includes additional fees. • If it set to `No` implies that the contract doesn't have any additional fees.
Management Fee	number	Refers to a specified fee or charge associated with the management of

Type	Value	Description
		the contract.
Facilities Improvement Fee	number	Refers to a specified fee or charge associated with enhancements to the facilities or amenities provided to tenants.
Surcharge	number	Refers to an additional fee or charge that is added to a tenant's bill for specific reasons.
Template	drop-down	Defines the type of templates to be used to generate invoice. Click drop-down to select the templates.
Meters	drop-down	Refers to different types of meter devices that allow the measurement and tracking of resource usage, such as electricity, water, and gas. Click the drop-down to select the utilities, choose the meter, and user can configure the meter percentage according to the meter. Click the plus symbol to add more utilities.

New and Edit Utilities

You use the **New** windows to add Utilities. The **Edit** window provides access to edit the Utilities used by the tenant.

Figure 31. New and Edit Utilities



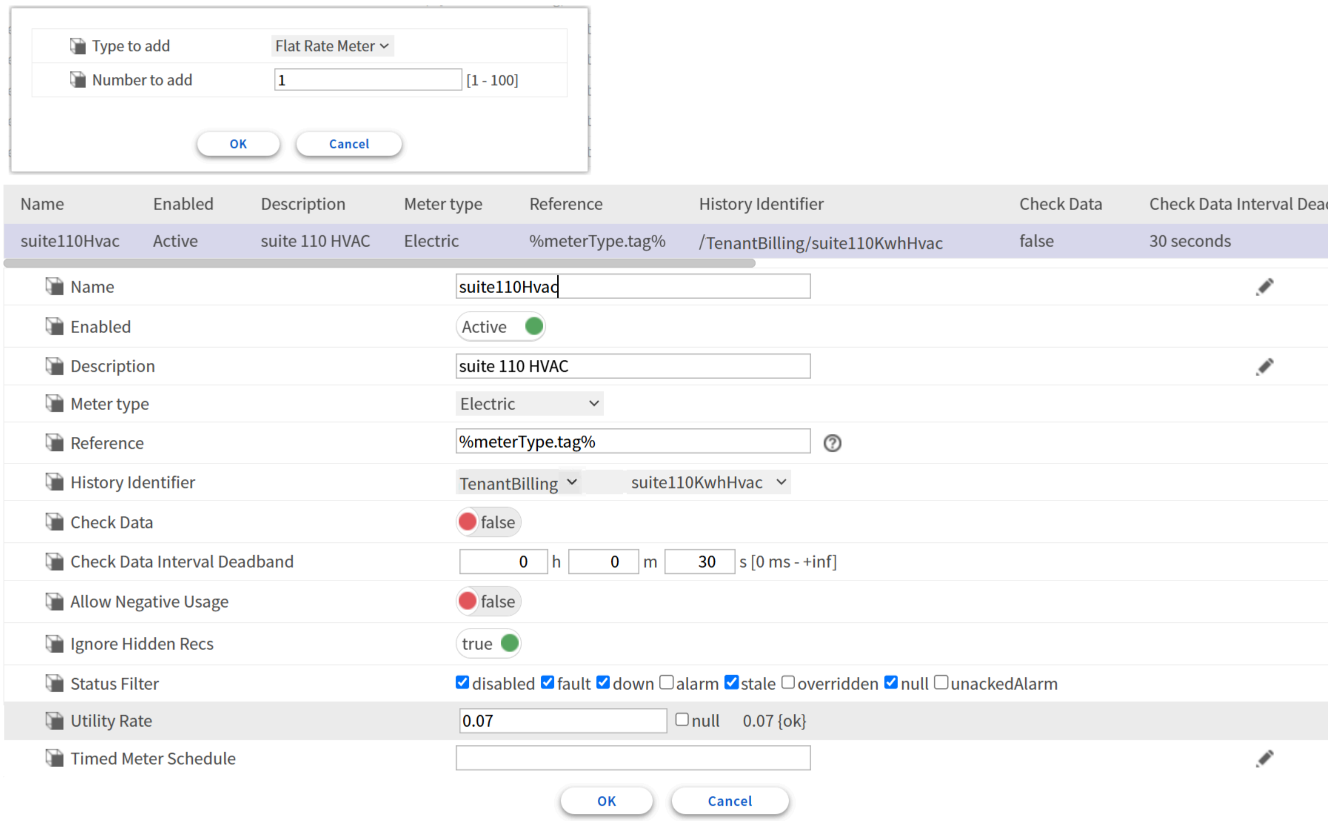
Type	Value	Description
Status	read-only	Reports the condition of the entity or process at last polling. `{ok}` indicates that the component is licensed and polling successfully. `{down}` indicates that the last check was unsuccessful, perhaps because of an incorrect property, or possibly loss of network connection. `{disabled}` indicates that the **Enable** property is set to `false`. `{fault}` indicates another problem. Refer to **Fault Cause** for more information.
Enabled	`true` or `false`	Activates (`true`) and deactivates (`false`) use of the object (network, device, point, component, table, schedule,

Type	Value	Description
		descriptor, etc.).
Description	text	Provides important information that may not fit into other predefined fields. This can include notes, explanations, or additional details that are relevant to utility used by the tenant.
Address line1	owner address	Provides the primary address information for the location.
Address line 2	owner address	Provides additional space for relevant information related to the primary location address.
City	text	Represents the name of the city.
State	text	Represents the name of the state.
Country	text	Represents the name of the country.
Postal Code	number	Indicates a specific region of the location.
Phone Number	number	Indicates the tenant telephone phone number.
Fax number	number	Represents the fax number used for communication purposes related to billing, such as sending invoices and receiving documents.

New and Edit Meter

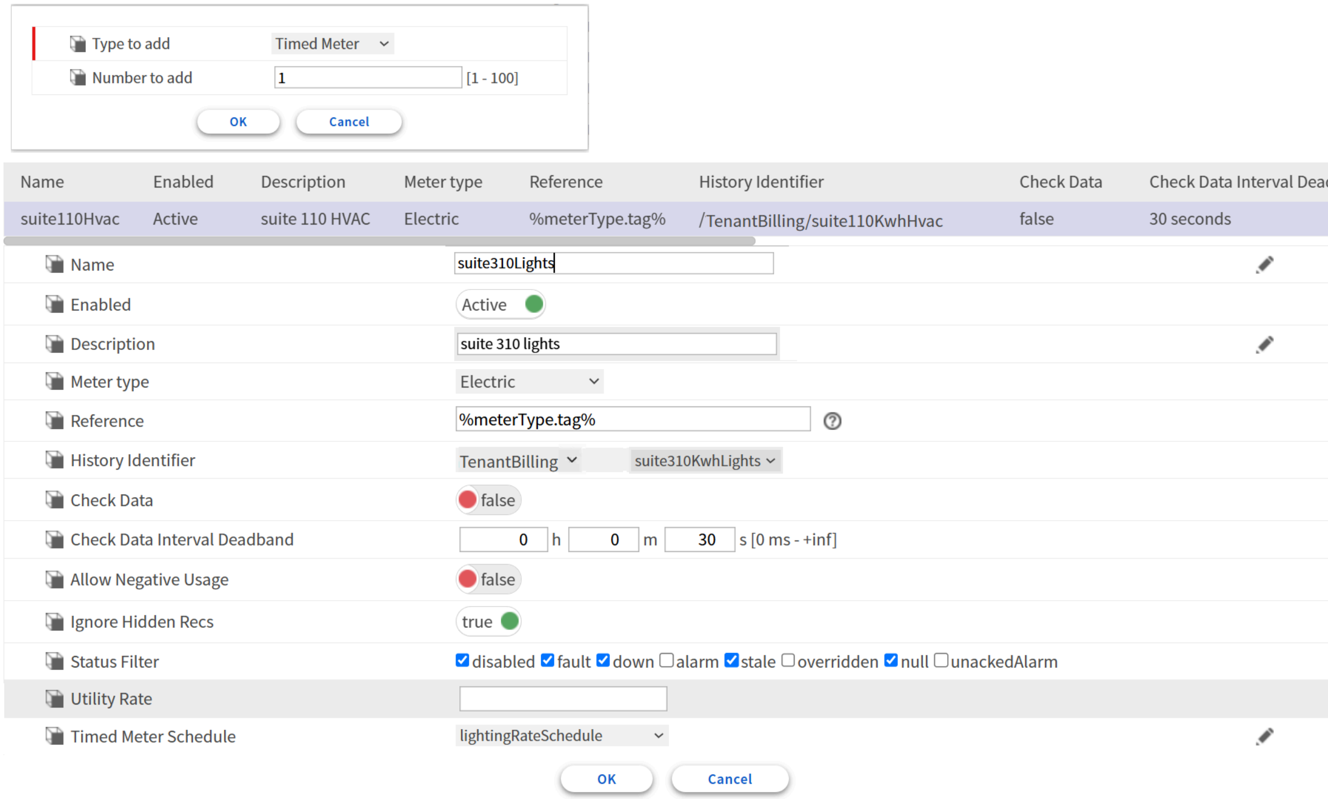
You use the **New** windows to add Meters. The **Edit** window provides access to Meter details for editing purposes.

Figure 32. New and Edit Flat Rate Meter Window



For `Flat Rate Meter` the rate of the utility remains constant throughout the billing period. No need to define any schedule in the **`Timed Meter.Schedule`**.

Figure 33. New and Edit Timed Meter Window



For `Timed Meter` the rate of utility values varies over time. Before using a `Timed Meter`, you first need to configure the Timed Meter and define the cost schedule. Then, you need to add the configured schedule to the **`Timed Meter.Schedule`** (For more details, how to configure schedules, refer to Configure timed meter schedules).

To open this window, expand **Config** > **Services** > **Tenant Billing** > **Utilities**, double-click **Utility**. Click **New** or select a row and click **Edit** in the **Meter Manager** view.

Type	Value	Description
Name	text	Defines the name of the meter.
Enabled		Activates (`true`) and deactivates (`false`) use of the object (network, device, point, component, table, schedule, descriptor, etc.).
Description	text	Provides important information that may not fit into other predefined fields. This can include notes, explanations, or additional details that are relevant to meters.
Meter Type	drop-down	Refers to the classification or

Type	Value	Description
		category of the meter being used to measure resource consumption. Click drop-down to select the type of utility meter.
Reference	read-only	Represents a unique identifier for the meter, helping to distinguish it from other meters in the system such as its location, installation date, or specifications.
History Identifier	drop-down	Defines the history associated with the meter. Click the drop-down to select the history of the meter.
Check Data	`true` or `false`	Verifies the history data collected for invalid values from the meter. • If it set to `true`, the history data is evaluated for invalid values. The invoice will not be generated if invalid values are present within the billing period. • If it set to `false`, the history data is not evaluated for invalid values. The invoice will be generated if invalid values are present within the billing period.
Check Data Interval Deadband	hours minutes seconds (defaults to 30 seconds)	Provides a way to monitor and validate data readings, maintaining data quality and reliability, and may generate an alert if the difference between consecutive readings exceeds the deadband threshold.
Allow Negative Usage	`true` or `false`	Determines whether the system permits negative usage values. • If it set to `true`, negative values of the meter allowed in the report. • If it set to `false`, negative values of the meter are not allowed in the report.
Ignore Hidden Recs	`true` or `false`	Provides information about the hidden records to include or excluded in the hsitory. • If it set to `true`, any records that are marked or flagged as hidden are ignored in the history.

Type	Value	Description
		• If it set to `false`, any records that are marked or flagged as hidden are included in the history.
Status Filter	check box	Selects the values that are to be ignored in the history.
Utility Rate Precision	number	Refers the level of accuracy used when specifying the utility rate for the meter. For example, a utility rate with a precision of two decimal places (e.g., $0.10) would allow for rates such as $0.10, $0.20, $0.30, and so on
Utility Rate	number	Defines the unit rate of the utility. The rate of the utility remains constant throughout the billing period.
Check Data	`true` or `false`	Verifies the history data collected for invalid values from the meter. • If it set to `true`, the history data is evaluated for invalid values. The invoice will not be generated if invalid values are present within the billing period. • If it set to `false`, the history data is not evaluated for invalid values. The invoice will be generated if invalid values are present within the billing period.
Check Data Interval Deadband	hours minutes seconds (defaults to 30 seconds)	Provides a way to monitor and validate data readings, maintaining data quality and reliability, and may generate an alert if the difference between consecutive readings exceeds the deadband threshold.
Allow Negative Usage	`true` or `false`	Determines whether the system permits negative usage values. • If it set to `true`, negative values of the meter allowed in the report. • If it set to `false`, negative values of the meter are not allowed in the report.

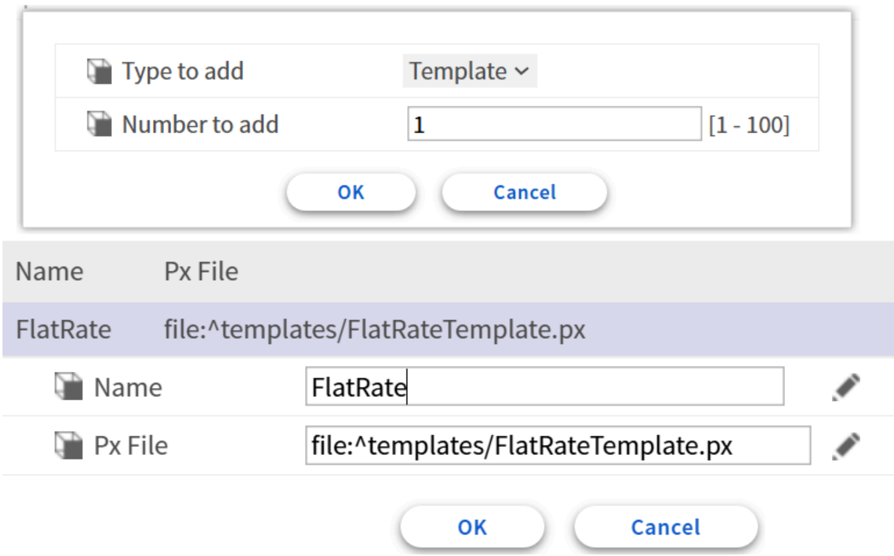
Type	Value	Description
Ignore Hidden Recs	`true` or `false`	Provides information about the hidden records to include or excluded in the hsitory. • If it set to `true`, any records that are marked or flagged as hidden are ignored in the history. • If it set to `false`, any records that are marked or flagged as hidden are included in the history.
Status Filter	check box	Selects the values that are to be ignored in the history.
Utility Rate Precision	number	Refers the level of accuracy used when specifying the utility rate for the meter. For example, a utility rate with a precision of two decimal places (e.g., $0.10) would allow for rates such as $0.10, $0.20, $0.30, and so on
Utility Rate	number	Defines the unit rate of the utility. The rate of the utility remains constant throughout the billing period.
Check Data	`true` or `false`	Verifies the history data collected for invalid values from the meter. • If it set to `true`, the history data is evaluated for invalid values. The invoice will not be generated if invalid values are present within the billing period. • If it set to `false`, the history data is not evaluated for invalid values. The invoice will be generated if invalid values are present within the billing period.
Check Data Interval Deadband	hours minutes seconds (defaults to 30 seconds)	Provides a way to monitor and validate data readings, maintaining data quality and reliability, and may generate an alert if the difference between consecutive readings exceeds the deadband threshold.
Allow Negative Usage	`true` or `false`	Determines whether the system permits negative usage values. • If it set to `true`, negative

Type	Value	Description
		values of the meter allowed in the report. • If it set to `false`, negative values of the meter are not allowed in the report.
Ignore Hidden Recs	`true` or `false`	Provides information about the hidden records to include or excluded in the hsitory. • If it set to `true`, any records that are marked or flagged as hidden are ignored in the history. • If it set to `false`, any records that are marked or flagged as hidden are included in the history.
Status Filter	check box	Selects the values that are to be ignored in the history.
Utility Rate	number	Defines the unit rate of the utility. The rate of the utility remains constant throughout the billing period.

New and Edit Templates

This window allows you to create and edit various types of templates. Px files can be used to store these templates, and they are used to design the layout of the invoice for billing purposes.

Figure 34. New and Edit Template



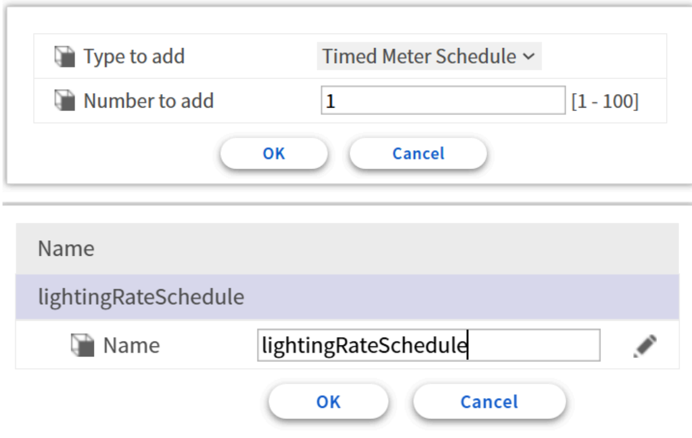
To open this window, expand **Config** > **Services** > **Tenant Billing**, double-click **Templates**. Click **New** or select a row and click **Edit** in the **Template Manager** view.

Type	Value	Description
Name	text	Defines the name of the template.
Px file	file chooser	Displays the location of the Px file. Click the folder icon to select the file from the file chooser or the arrow next to the folder icon, select the options to locate the file.

New and Edit Timed Meter Schedules

This window allows you to create and edit the identifier of the various schedules.

Figure 35. New and Edit Timed Meter Schedule



To open this window, expand **Config** > **Services** > **Tenant Billing** > **Utilities**, double-click **Timed Meter Schedule**. Click **New** or select a row and click **Edit** in the **Timed Meter Schedule Manager** view.

Type	Value	Description
Name	text	Displays the identifier of the schedule.

Chapter 7. Glossary

The following glossary entries relate specifically to the topics that are included as part of this document. To find more glossary terms and definitions refer to glossaries in other individual documents.

Alphabetical listing

Flat Rate Meter
A Flat Rate Meter is an device that measures electricity. The rate of the electric usage remains constant throughout the billing period.

Invoice Reference
A unique identifier number for each invoice which is used to track and identify the invoice easily.

Surcharge
Surcharge is an additional fee or charge that is added to a customer's bill based on specific reasons.

TBS
Tenant Billing Service is a platform for smart building applications, used for to monitor the building resources and billing tenants on their actual usage.

Timed Meter
Timed Meter is an device which measures electricity. Based on the schedules the rate of the electric usage varies over time.

Tenant Id
A unique identifier is assigned to each tenant in the database. For example T1 represents Tenant1, T2 represents Tenant 2 and so on