



MEGA FLEX MINI FLEX and RURA FLEX



- Peak
- Standard
- Off-Peak



## COURSE 120

**Accountant Role:**  
*Configuring Tariffs,  
Time-of-Use Calendars  
and Meter Accounts*



PNPSCADA

# The NEXT Generation AMR

Gives you the power to configure your own  
AMR, via an easy to use Web interface



**Plug and Play**  
SCADA

At SDG Technologies we believe in empowering the customer.

This extends to the Tariffs:

Plug and Play Scada encapsulates a powerful Tariff Engine that allows the customer to set up any tariff that he needs to, from water, gas to electricity, including Time of Use, Demand, Block Tariffs, and many more.

Plug and Play Scada also supports multiple currencies, Time Zones and Daylight saving modes concurrently on the same server, depending on the customer's situation.

Once you are done with this Course, you should be able to:

- Add and Configure a Tariff Entity on Plug and Play Scada
- Add and Configure a Time-of-Use Calendar Entity on Plug and Play Scada
- Create a Meter Account Entity on Plug and Play Scada



# MODULE 1: Adding an Simple Tariff

## Step 1: Login



- To start adding Entities on the system, the first step is to log in:
- Go to the log in page at:  
set.pnpscada.com (our training server)
- If you do not already have an account, press the link at the top where it says:  
» [New users: Click here to sign up for your free](#)



# MODULE 3:

## Adding an Generic Active GPRS Modem to Plug and Play Scada

### Step 1: Plug and Play Scada setup

- Log in to Plug and Play Scada.
- Add a Modem entity:
- Choose Generic Active GPRS Modem.
- Select the SIM card to use, or Push the Add New button to add a new SIM card if it has not been added yet, and press Next.
- The Generic Active GPRS Modems are identified by the port number they connect to on the server.
- Enter a unique Port number for this Modem (the same port you'll set up on the modem itself).
- Enter a human readable Name that you can use later to identify the modem.
- Push the Finish Button to add the modem.
- As long as a GPRS modem can be set up to provide the following, it can be added on Plug and Play Scada as a Generic Active GPRS Modem:
  - an automatically connected TCP connection to a configured remote IP - at a configured remote TCP/IP Port.
  - TCP Link maintenance: re-establishing the TCP connection automatically in case the link goes down.
  - an exact pass through connection from its Serial Port to the TCP connection. This means that all it sends and receives on the TCP connection must be directly received and sent through the Serial Port.



# MODULE 1: Adding an Simple Tariff

## Step 2: Add New



- The basic building blocks in Plug and Play Scada are called Entities.
- An Entity can be anything from a Meter to a Login account, a Role, an Organization, a Tariff, a Time Of Use calendar, a Meter Account, etc.
- To add any kind of Entity on the system, click the Add New button at the bottom of the overview screen.
- Alternatively, go to the File menu (next to Home), and click on New.



PNPSCADA

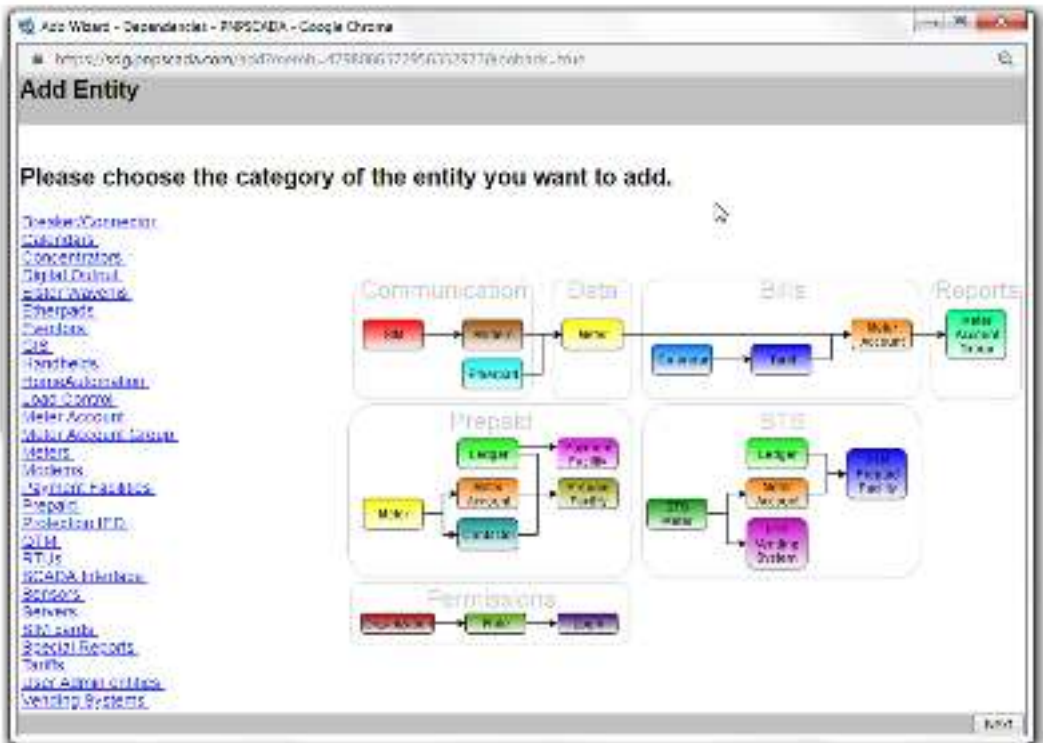
# MODULE 3: Adding an Generic Active GPRS Modem to Plug and Play Scada

Step 2: Active GPRS Modem setup  
A. The Fargo Maestro modem

# GET PICTURE

# MODULE 1: Adding an Simple Tariff

## Step 3: Category



The screenshot shows the 'Add Entity' page in the PNPSCADA web interface. The page title is 'Add Entity' and the instruction is 'Please choose the category of the entity you want to add.' On the left, there is a list of categories: Device/Connector, Metering, Concentrator, Signal Point, Metering, Energy, Control, RTU, Handheld, Data Substation, Add Control, Meter Account, Meter Account Group, Meter, Worked, System Function, Report, Protection IED, CIM, RTU, SCADA Interface, Sensors, SIM cards, Special Reports, Tariffs, User Agent Interface, and Working Systems. On the right, there are several diagrams representing different entity categories: Communication, Data, Bills, Reports, Prepaid, STS, and Tariffs. The 'Tariffs' diagram shows a flow from 'Tariff' to 'Meter Account' and then to 'Meter Account Group'.

- Select the Category of the Entity you want to add:
- In our case it would be Tariffs.
- Push Next.



# MODULE 1: Adding an Simple Tariff

## Step 4: Select a Template and Adding the Tariff



- Select the Template of the tariff closest to this one that is available to you on the system under 'use template'
- Enter the Tariff Name next to name', for Example 'Business Rate'.
- Click Finish to add the Tariff.





# MODULE 1: Adding an Simple Tariff

## Step 5: Select the Tariff under Overview



- Select the new Tariff on Overview.
- If you open the Edit menu, you will see a number of Bold options.
- These are the options that should be used, typically in order from top to bottom, to define your tariff further.
  - The options are:
  - Tariff Line Items
  - Tariff Line Item Dependencies
  - Tariff Periods
  - Tariff Rates
  - Tariff Details
- Go to Tariff Line Items first:

# MODULE 1:

## Adding an Simple Tariff

### Step 6: Tariff Line Items



The screenshot shows a web browser window displaying the Plug and Play SCADA interface. The page title is "Tariff Items, tariff: 1000044 Training2019". Below the title is a table with the following columns: Description, Utility, Tariff Line Type, Units, Time of Day, and Credit/Color. The table contains one row with the following data: Description: Consumption, Utility: Electricity, Tariff Line Type: Time of Day Tariff, Units: kWh, Time of Day: All, and Credit/Color: Add New or Edit. There are also links for "Add New" and "Edit" next to the row.

Description	Utility	Tariff Line Type	Units	Time of Day	Credit/Color
Consumption	Electricity	Time of Day Tariff	kWh	All	Add New or Edit

- On this screen you see a list of all the chargeable items on your bill.
- Typical line items include Consumption, Basic Charge, Maximum Demand and Surcharge.
- A line item is every item that is part of a tariff that has its own rate, including percentages.
- To add a new line item, click add new
- To edit or delete an existing line item, click the edit or delete link next to it on the right.
- add new and edit both goes to the next screen, which is the Tariff Line Item Edit screen:



# MODULE 1: Adding an Simple Tariff

## Step 7: Tariff Line Item Edit



- The most important fields in this screen are the three on top:
  - the Description, which is what the item will be called on the Bill;
  - the Utility, which should be Electricity, Water or Gas (the same for all lines);
  - and the Tariff Type, which identifies the Billing Algorithm used for calculating the quantity of this Tariff Line Item.



# MODULE 1:

## Adding an Simple Tariff

### Step 8: Tariff Line Item Dependencies



- To set the dependencies for a particular line item, select it on the drop down list, and check the boxes of the line items it depends on.
- If the ordering of your line items is important to you, make items lower on the list dependent on line items higher on the list.
- Additionally, Surcharges and Discounts are normally calculated on some line items, excluding other line items, for example, the Voltage Surcharge is typically only levied on Energy related line items, and not on the Basic Charge:  
A Surcharge should be set up to only have dependencies on the line item according to which the percentage is calculated.
- Press the Set button to commit your settings.



# MODULE 1: Adding an Simple Tariff

## Step 9: Tariff Periods



- You have to add at least one Tariff Period for a Tariff to work.
- Plug and Play Scada allows the historical rates for previous years to be kept on the system.
- Every year when the new Tariff Booklet comes out, you should create a new Tariff Period on this screen, and leave the existing (old) Tariff Periods alone.



# MODULE 1:

## Adding an Simple Tariff

### Step 10: Tariff Rates



The screenshot shows a web browser window titled "Tariff Rates - PNPSCADA". The address bar shows the URL "https://bdq.pnp-scada.com/tariffRates/insertRate.js". The page header features the "Plug and Play SCADA" logo and navigation links: Home, File, Edit, View, Reports, Tools. The main content area displays the following form fields:

Tariff Item	2019 07 01
to	2019 07 01
Consumption	1.00

At the bottom of the form is a "Set" button.

- This is where you define how much things cost:
- On the Tariff Rates screen you set up Price per Unit for each Tariff Line Item for each Tariff Period.
- The price will be in your Tariff currency, for example ZAR (Rands).
- Please be careful for tariffs that are defined in your Tariff Book in cents. Remember that the Rates field on Plug and Play Scada takes Rands, so you have to divide the cent price by 100 to get the Rands price.
- Surcharge and Discount 'rates' are defined as percentages.
- Press the Set button to commit your settings.
- Almost done. Lets move to Tariff Details:



# MODULE 1:

## Adding an Simple Tariff

### Step 11: Tariff Details



The screenshot shows a web browser window with the URL <https://m3scriptureduwmy1181ffGroup/next/...>. The page header features the PNPSCADA logo and the text "Plug and Play SCADA". Below the header, there is a navigation bar with links for "Home", "My", "Log", "View", "Events", and "Tools". The main content area displays the "Tariff 1000044 Training2019" details. The form includes the following fields and options:

- Tariff Name:** Training2019
- Tariff Category:** Billing
- Tariff Authority (optional):** (empty field)
- Prefer for Automatic accounts:**  (Created if you have a Profile Graph from the Meter Validation screen when a Meter Account does not yet exist on a meter)
- Year Comparable setting:**  Do Not Hide Meters/Data  Hide Meters/Data Not Comparable To Last Year  Hide Meters/Data Not Comparable To next Year
- Internationalization Settings:**
  - Currency Symbol:** \$
  - Currency Decimals:** 2
  - Currency Symbol Alignment:**  Preceded by Amount  Appended to Amount
  - Tax Type:** %


At the bottom of the form, there is a "Go Back" button and a footer with the text "© 2011-2013 Technology & Analytics Solutions, Inc."

- On this page you can change your Tariff name.
- And also change your Internationalization Settings:
- You can set your Currency Symbol. Special Characters like the English Pound sign ( £ ) or the Japanese Yen is also supported.
- Does the currency symbol precede or follow the mount?
- Specify your tax percentage, and abbreviation.
- All that remains now, is for the Tariff to be checked:  
next go to Tools-> Check Tariff Validity:

# MODULE 1:

## Adding an Simple Tariff

### Step 12: Check Tariff Validity



Check - Tariff - PNPSCADA

https://tdq.pnpocada.com/tariffCheck.jsp?member...


Plug and Play SCADA

Home The List View Security Tools Tariff:1000044:Training2019 Info Update Check Validity View Log Training2019

**Check Validity, tariff: 1000044 Training2019**

This configuration has not been checked!

[Back to Validity Tariffs](#)



Check - Tariff - PNPSCADA

https://tdq.pnpocada.com/tariffCheck.jsp?member...

Plug and Play SCADA

Home The List View Security Tools Tariff:1000044:Training2019 Info Update Check Validity View Log Training2019

**Check Validity, tariff: 1000044 Training2019**

This configuration has been checked!

by admin@tdq.com (admin@tdq.com)  
on 2019-04-09 02:10:39Z  
for time period 2019-07-01 00:00:00.000 to 2019-07-31 00:00:00.000

[Back to Validity Tariffs](#)

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# MODULE 1: Adding an Simple Tariff

## Step 12: Check Tariff Validity

- If you believe you're done with the Tariff Setup, come to this page and press the Check button.
- If the System detect any fault with your Tariff setup, it will fail the Check, and report where the problem lies. Go and fix it, and then come back and try to Check again.
- If your Tariff is not checked, various functionalities throughout the Billing system may give warnings or work incorrectly.
- Always Check your Tariffs when you're done, until no errors are reported.
- Once the tariff is checked, your name and the date when you Checked the Tariff will be recorded.
- This enables you to re-assure clients that you know where the problem is and that you addressed it, in the (un)likely event that some inconsistency crept into the configuration of the tariff! In South Africa, where we have some of the world's most complex tariffs, this happens more than one would care to admit. It also often happens that a utility actually charges slightly differently than what their tariff booklet stipulates.
- Recording a Name and a Date next to the Tariff Check allows your organization to stay in control and to stay accountable.
- If anything is changed in the Tariff setup after being Checked, it will automatically be invalidated again, and it will have to be re-Checked.



# MODULE 1: Adding a Simple Tariff

## EXERCISE

### Assignment:

Add the most basic tariff in your Tariff Book to your account in Plug and Play Scada.

If you have Seasonal differences in charges, first complete Module 2's Exercise (where you set up a Calendar), and then come back to this Exercise.

Call the Lecturer if you have any questions, and when you're done.



# MODULE 2: Adding a Time-of-Use Calendar

## Step 1: Adding the Calendar

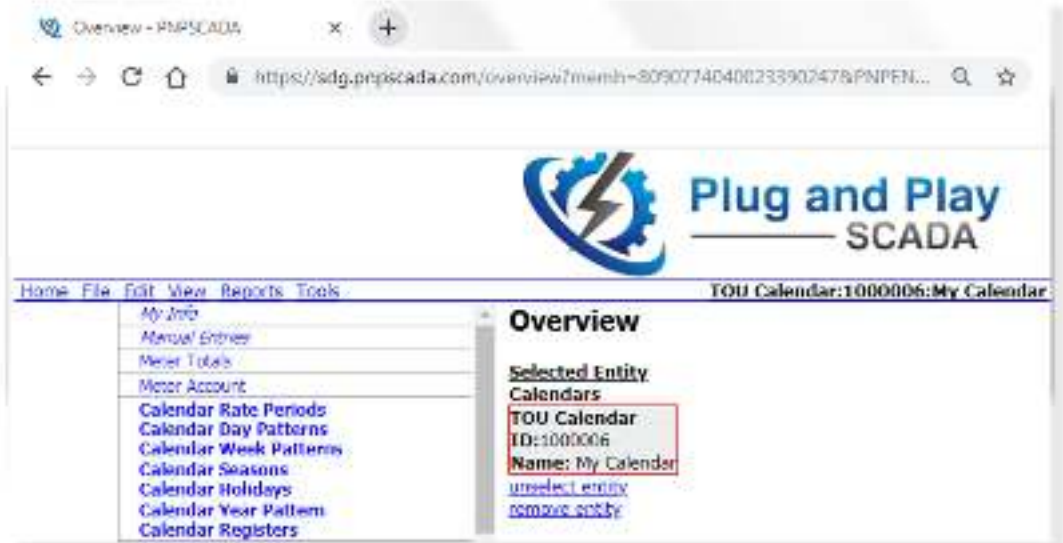


- Log in to Plug and Play Scada.
- Add a Calendars entity:
- Add a Tariff Calendar, and give it a nice name.
- Choose the closest Calendar available to what you want under 'use template'.
- Push the Finish button to add the Calendar.



# MODULE 2: Adding a Time-of-Use Calendar

## Step 2: Select the TOU Calendar under Overview



- Select the new TOU Calendar on Overview.
- If you open the Edit menu, you will see a number of Bold options.
- These are the options that should be used, typically in order from top to bottom, to define your TOU Calendar further.
- The options are:
  - Calendar Rate Periods • Calendar Day Patterns • Calendar Week Patterns
  - Calendar Seasons • Calendar Holidays • Calendar Year Pattern
- Go to Calendar Rate Periods first:



# MODULE 2: Adding a Time-of-Use Calendar

## Step 3: Calendar Rate Periods

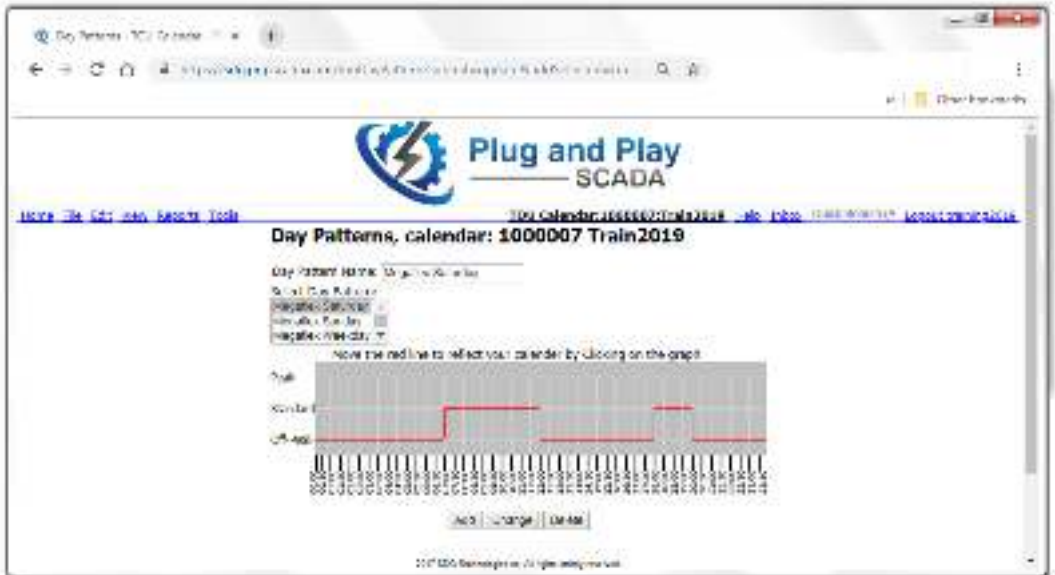


- Over here, specify the Rate Period Names that applies to your tariff, for example Peak, Standard, Off-Peak; or MD on, MD off.
- If you want to add new Rate Periods, add them here without deleting the old Rate Periods: the current Rate Periods possibly have dependencies in the other Calendar Edit screens that has to be removed first.
- Once you have the Rate Periods you want, go to Calendar Day Patterns:



# MODULE 2: Adding a Time-of-Use Calendar

## Step 4: Calendar Day Patterns



- Define the different Day patterns you have in your TOU Calendar.
- For instance, in the TOU Rose for the Megaflex Calendar at the beginning of this Course, you can see it has three weekrelated tiers: Sunday, Saturday and Week Days.
- To specify which hours on the various days are which Rate Periods, select the Day Pattern Name.
- A Grey field with a red line will be displayed. Drag the red line to the different Rate Period levels for the different times of day with your mouse.

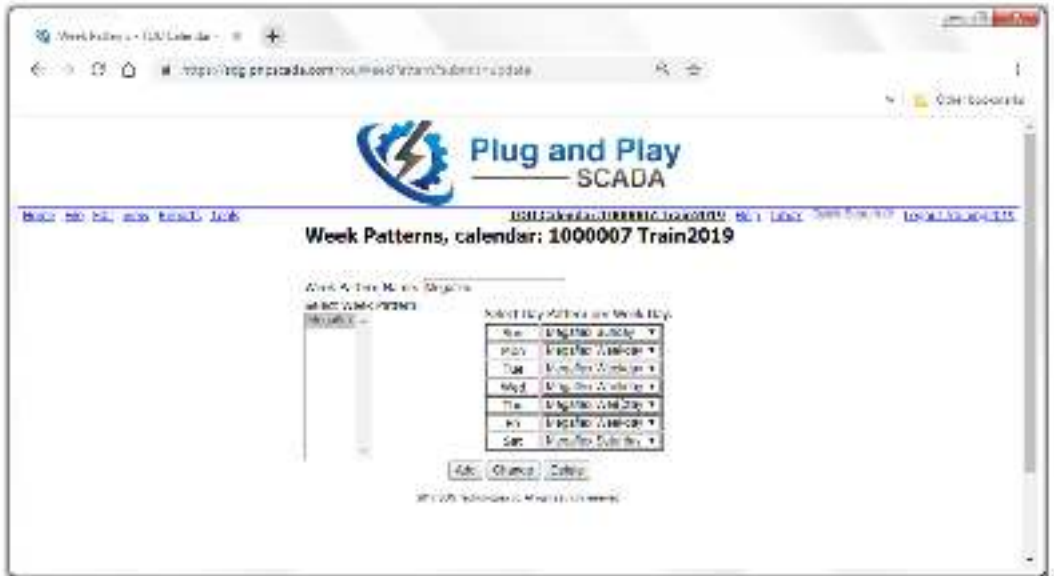






# MODULE 2: Adding a Time-of-Use Calendar

## Step 5: Calendar Week Patterns



- Define the different Week patterns you may have in your TOU Calendar.
- For instance, Megaflex has only one. However, some countries have different Time of Use patterns during summer and winter.
- Remember to select the Week pattern on the left if you want to view or change a week pattern.
- The next screen is Calendar Seasons:



# MODULE 2: Adding a Time-of-Use Calendar

## Step 6: Calendar Seasons



- Over here, specify the seasons you have per year in your Time of Use Calendar.
- Megaflex, for instance, has a High Season and a Low Season.
- Your TOU Calendar must have at least one Season to function correctly.
- Once again, do not delete a Season yet, since there might be a dependency on it in your Year Pattern. Come back at the end when the old seasons have been removed out of the Year Pattern, and delete the obsolete Seasons then.
- The next screen is: Calendar Holidays!



# MODULE 2: Adding a Time-of-Use Calendar

## Step 7: Calendar Holidays



- Here, specify the Holidays you have per year in your Time of Use Calendar. You only need to enter Holidays that have special day patterns defined in the Year Pattern.
- Next screen: Calendar Year Pattern (almost done)



# MODULE 2: Adding a Time-of-Use Calendar

## Step 8: Calendar Year Patterns

Year Pattern - TOU Calendar - PNPSCADA

https://sda.pnp-scada.com/you/YearPattern...

**Plug and Play SCADA**

Home File Edit View Database Tools **TOU Calendar: 1000007: Train 2019** New Import Quick Search Layout Items 4238

Name: Train2019

Time Zone: (America/New\_York)

Ignore Daylight Savings:  Default - Wrap Around (MM-DD)  Absolute (YYYY-MM-DD)

Season Mode:  Default - Wrap Around (MM-DD)  Absolute (YYYY-MM-DD)

Season Sequence:

Date	Season	Week Pattern	
06-01	High Season	Weekday	Delete
09-01	Low Season	Weekday	Delete
	High Season	Weekday	Add

Exception Days:

Date	Holiday	Day Pattern	
2020-01-01	New Year's Day	Weekday	Delete
2020-03-21	Human Rights Day	Weekday	Delete
2020-03-25	Good Friday	Weekday	Delete
2020-03-26	Family Day	Weekday	Delete
2020-04-27	Freedom Day	Weekday	Delete
2020-05-01	Victoria Day	Weekday	Delete
2020-05-02	Public Holiday	Weekday	Delete
2020-09-16	Youth Day	Weekday	Delete

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# MODULE 2: Adding a Time-of-Use Calendar

## Step 9: Certify as Valid





# MODULE 2: Adding a Time-of-Use Calendar

## Step 9: Certify as Valid (continued)

- By Certifying the Calendar, you're testifying that it is correct.
- Certifying a Calendar can take a long time: the web page will update periodically to report the progress.
- Only one Calendar can be certified per server at the same time.
- When certification is completed, the accountable Name and the Date will be remembered next to it, so that if there turns out to be a problem, at least you can tell the customer that you've found the culprit, and that the problem has been sorted out.
- If you have meters on meter accounts with shorter profile periods, you need to specify the shorter profile period in the 'Minutes in Period' field on this screen, before pushing the Certify button.
- If anything is changed in the setup of the Calendar, it is immediately invalidated again, as well as any Tariffs that use it.
- Once a TOU Calendar has been properly certified, its rate-period-season combinations will be available to be selected on the Tariff Line Item edit screen.
- Your Calendar is now ready to be used in a TOU-related Tariff Line Item.

### NOTES:

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## MODULE 2: Time of Use Calendars

# EXERCISE

### Assignment:

Add the most basic Time of Use or Season dependent tariff in your Tariff Book to your account in Plug and Play Scada, using a TOU Calendar.

Call the Lecturer if you have any questions, and when you're done.

# MODULE 3: Adding a Meter Account

## Step 1: Add New

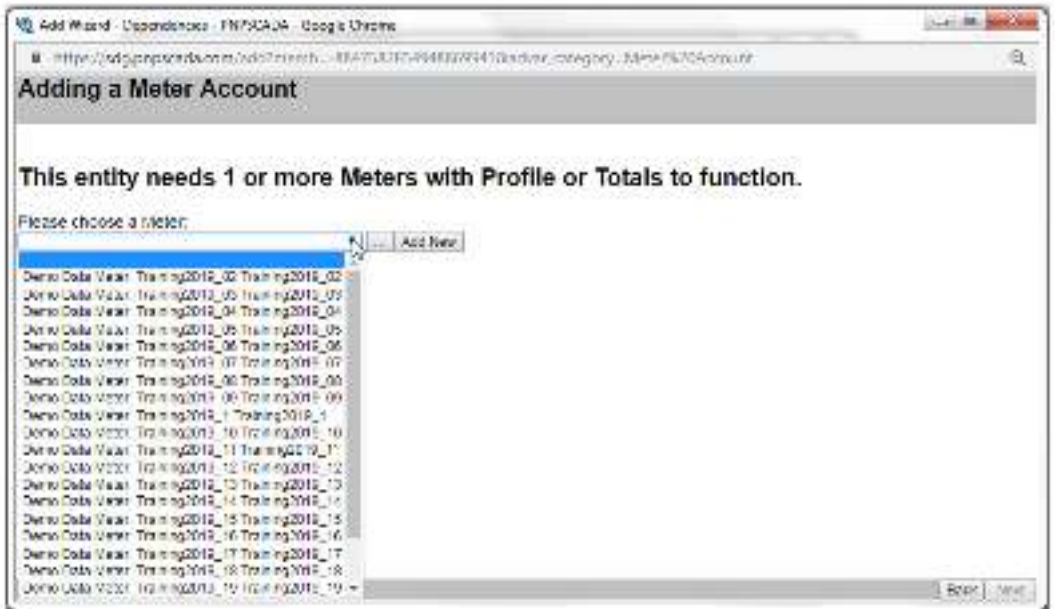
Bypass/Connector, [Collections](#), [Communication](#), [Data](#), [Digital Cables](#), [Clock Wires/MS](#), [Energizing](#), [Event/Log](#), [GIS](#), [Hardware](#), [Home Automation](#), [Local Control](#), [Meter Account](#), [Meter Account Status](#), [Meters](#), [Modems](#), [Operational Facilities](#), [Prepaid](#), [Protection I/O](#), [RTU](#), [RTU/SCADA Interface](#), [Security](#), [Servers](#), [Substations](#), [Special Reports](#), [Tactics](#), [User Administration](#), and [Vending Systems](#). The main area contains a flowchart with categories: 'Communication' (with 'New' and 'Refresh' buttons), 'Data' (with 'New' button), 'Bills' (with 'New Account' button), 'Reports' (with 'New Report Class' button), 'Prepaid' (with 'New' and 'Refresh' buttons), 'STS' (with 'New' and 'Refresh' buttons), and 'Permissions' (with 'New' button). A 'Next' button is at the bottom right." data-bbox="36 291 969 757"/>

- To Add a new Meter Account, click Add New in the Overview screen (Home), and select Meter Account as the Category of entity to add.
- Click Next.

# MODULE 3:

## Adding a Meter Account

### Step 2: Specify Initial Meter/s



- Select the Meter to add to the Meter Account from the drop box, or if your box is full, select the button with the three ellipses [...], and Browse for the meter you want.
- You can use the \* wildcard in the search box.
- Click Next.



# MODULE 3: Adding a Meter Account

## Step 3: Specify Initial Tariff/s



- Select the Tariff to add to the Meter Account from the drop box, or if your box is full, select the button with the three ellipses [...], and Browse for the tariff you want.
- You can use the \* wildcard in the search box.
- Click Next.

### NOTES:

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# MODULE 3:

## Adding a Meter Account

Step 5: Select the Meter Account in Overview



- Select the new Meter Account in Overview, then go File->Object Dependencies.
- Go to Edit->Meter Account to specify further options:



# MODULE 3: Adding a Meter Account

## Step 6: Edit - Meter Account

Meter Account - Edit - PNPSCADA

https://sdg.pnpscada.com/...

**Plug and Play SCADA**

Meter Account: 26802: Training 2019 : 20191111 [Help](#) [Index](#) Quick Search [Logout](#) [Training2019](#)

[Home](#) [File](#) [Edit](#) [View](#) [Reports](#) [Tools](#)

Account Name:  Account Number:   
[show extra account numbers](#)

Area of Premise:  m?  
 Calculate Portion according to Premise's Area  
 Meter Account disabled (e.g. if Premise is vacant/unused)

Meter Allocation to Account: App. use negative portions to GetDate of back metering

Meter Serial Number	Meter Point Name	Portion
<input checked="" type="checkbox"/> Training2019_02	Training2019_02	1

[Add more meters](#)

Tariffs:

	Tariff	Default	Notified Demand (kVA)	Start Date (YYYY-MM-DD)
<input checked="" type="checkbox"/> 1000044	Training2019	<input checked="" type="checkbox"/>	1.4	2019-05-02 00:00:00

[Add more tariffs](#)

[show more options](#)

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## MODULE 3: Adding a Meter Account

# EXERCISE

### Assignment:

Add a Meter Account in Plug and Play Scada, using one of your previously added Tariffs and any available Meter.

View the last week's profile by going to View->Profile Graph.

Pull a Provisional Bill for the last week's profile by going to View->Provisional Bill.

Read the start date and end date of the Provisional Bill, and the total Amount, and tell the Lecturer what they are.

Call the Lecturer if you have any questions, and when you're done.





# MODULE 3: Adding a Meter Account

## Appendix A: Calendar Registers - Setting up Meter TOU Registers for Billing

PNPSCADA Billing can generate accurate TOU bills without defining discrete TOU registers in terms of having a register per TOU period that counts on. In those cases, the Bill item description includes the main total kWh reading for the meter as a whole. However, some customers, and specifically some Billing Systems, require a separate Energy Counter per TOU register, and sometimes per season, because the billing system does its own calculation of consumption based on the differences in the register total readings.

Some examples of billing systems like that includes SAP, Samras and Sebata. In cases where that is enabled, the Bill item description includes the kWh total reading of just that one TOU register.

To enable that, you need to associate the same TOU Calendar used by the Tariff, with the Meter under Edit ► Advanced Meter Settings. That is enough to show a progressive TOU 'reading' on the PNPSCADA bill.

Furthermore, to associate the correct register descriptor of the external billing system with the correct TOU register, the TOU Calendar must have the correct Billing Register descriptor set in the Edit ► Calendar Registers screen. This is typically billing system specific.

If the register reading is further synchronized with a TOU register in the meter (optional as far as PNPSCADA is concerned, but once again, for some customers this is a requirement), then the correct meter register descriptor must also be set up in the same screen to correlate with the relevant register descriptor in the meter.

