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PrismVend User Guide

2023/05/22

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Synopsis:	This document provides the guidance on commissioning the STS vending solutions provided by Prism (TSM250 & TSM500i-NSS)

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1 Audience

PrismVend users that are running Windows 7/8/10 as their PC operating system.

2 Getting Started

2.1 Driver Installation

The STS vending application operates by interacting with a STS6 security module.

Supported TSM Hardware:

- A TSM250, which has a USB interface that presents itself as a COM port. This requires a Windows PC, as well as the TSM250 hardware driver and the PrismVend Software.
    - For instructions on how to install the TSM250 driver refer to the TSM250 Installation and User Guide (PR-D2-0988 Rev 1.1)
- A TSM500-NSS which is an all in one rackmount solution.
    - Refer to the TSM500i and TsmWeb User Guide (PCI HSM v3) (PR-D2-1037 Rev 1.4)

For setup instructions please refer to the "PrismToken User Guide (PR-D2-1095)"

2.2 PrismVend Software Installation

This section describes the steps involved when performing the following actions:

- New installation of the PrismVend Software (New Customer TSM250 STS6).
- Upgrading from the legacy TsmWeb-STS v4.56.2 or older
- Migrating from PrismToken (TSM250 STS6) TsmWeb v4.60 or older
- Migrating from PrismToken (TSM500-NSS STS6) TsmWeb v4.60 or older.

2.2.1 New installation of PrismVend (TSM250 STS6)

Simply launch the TsmWeb-STS installer and follow the prompts to install the software. Ensure the checkbox is ticked to immediately start the service after installation.

The default installation path is (C:\Program Files (x86)\Prism\TsmWeb-STS)

2.2.2 Upgrading the legacy TsmWeb-STS software

Perform a backup of the database and configuration files before attempting the upgrade of the software

Refer to Section 8.2 Backup for details. Once the backup has been performed the upgrade can be done by simply following the steps in Section 2.2.1 New installation of PrismVend (TSM250 STS6)

2.2.3 Migrating from PrismToken (TSM500i-NSS STS6)

2.2.3.1 Backup existing data

Refer to Section 4.81 of the "TSM500i and TsmWeb User Guide (PCI HSM v3) (PR-D2-1037 Rev 1.4)". Take note of the special requirements and considerations described in this section.

2.2.3.2 Upgrade the TSM500i-NSS software

Refer to Section 4.13 of the "TSM500i and TsmWeb User Guide (PCI HSM v3) (PR-D2-1037 Rev 1.4)"

2.2.3.3 Finalizing the migration

Refer to Section 2.2.4.5 Finalizing the migration

2.2.4 Migrating from PrismToken (TSM250 STS6)

2.2.4.1 Backup existing data

Perform a backup of the database and configuration files before attempting the upgrade of the software

Refer to Section 8.2 Backup for details.

The default PrismToken installation path is (C:\Program Files (x86)\Prism\TsmWeb). Backing up the database and configuration files are MANDATORY as the installation path for PrismVend is (C:\Program Files (x86)\Prism\TsmWeb-STS)

2.2.4.2 Uninstall the PrismToken software

Once the backup has been done, uninstall the PrismToken software via Control Panel → Uninstall a Program.

This step is vital as the PrismToken service is called "TsmWeb" whereas the PrismVend service is called "TsmWeb-STS".

After uninstalling the PrismToken software reboot the PC

2.2.4.3 Install the PrismVend software

Launch the installation file for PrismVend (TsmWeb-STS v4.7+).

Do not tick the start TsmWeb Service after installation checkbox as the database and configuration files need to be restored first.

2.2.4.4 Restore the backup

Refer to Section 8.3 Restore for details on how to restore the backup.

Note: The restore path will be C:\Program Files (x86)\Prism\TsmWeb-STS and is essentially a manual copy of the .db and .conf files.

Once the backup has been restored the TsmWeb-STS service can either be manually started or by rebooting the PC.

2.2.4.5 Finalizing the migration

- Launch PrismVend and login using the user account that has been restored from the backup. Refer to Section 1 .
- Apply the PrismVend license received from Prism Support Staff. Refer to section 1.1.1
- If the restoration was successful, the only warning on the PrismToken Dashboard should be regarding the KMC PUBKEY no longer being present. This is easily fixed by re-uploading the KMC PUBKEY. Refer to Section 5.5 of the PrismToken User Guide (PR-D2-1095)

3 TsmWeb Initial Setup

3.1 Launch the PrismVend Web UI

The STS vending applications User Interface is provided by a web server running on the local PC and is accessed via a web browser. To access the web interface, a shortcut link has been provided on the Start menu:

Navigate from the Start menu to All Programs\Prism\PrismVend and click on the "TsmWeb" link. Click this shortcut to open your default web browser with the correct address (http://127.0.0.1) for accessing the web service's user interface.

Internet Explorer version 6 is **not** supported, all current versions of the popular web browsers are supported, Firefox and Google Chrome are the preferred browsers for **PrismVend**

The application will not work if the **Prism TsmWeb** service is not started. Refer to Starting the service (Section 6.1).

Refer to section 2.7.3 in the **TSM500 and TSMWEB User Guide** (Document Number PR-D2-0854) about an SSL/TLS certification issue that might be experienced.

Remember to first login as Local to set different Users and their passwords. After completing the user set up, remember to disable the permissions for the Local user, failing to do so will result in anyone accessing the system.

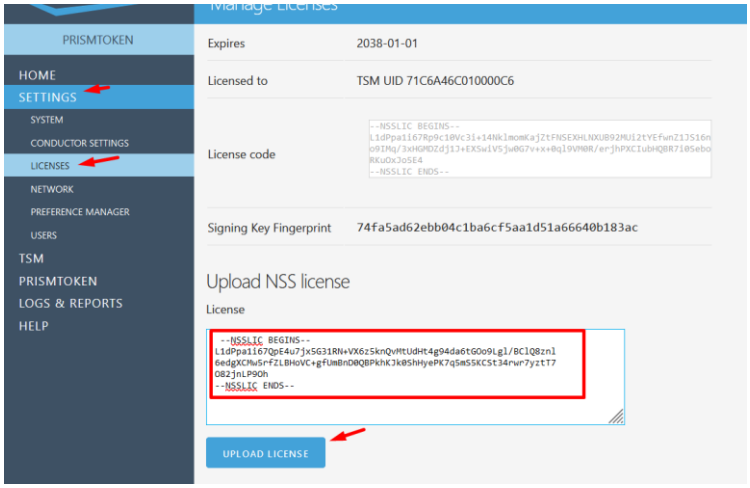
3.2 Select the TSM

- Make sure the TSM is plugged in.
- From the **PrismVend** home page, navigate to the **System Management** page by clicking on **System** in the menu on the left.
- Click on **Select TSM** to bring up a list of available TSMs and select the Vending TSM from the list.
- Click on **Change TSM** to change the module that PrismVend interacts with.
- If TSM module cannot be found, unplug and re-plug the USB cable to TSM module.

3.3 Upload PrismToken License Certificate

Log into TsmWeb as a user with the 'admin' role (for example, the 'admin' user)

Navigate to the ***Settings > Licenses*** page.



Copy the PrismToken license certificate (supplied via email by Prism) and paste it into the "License" field above the "UPLOAD LICENSE" button. Include the BEGIN/END lines.

Navigate to the ***Settings > System*** page. Click on "REBOOT NSS" for the license to take effect. Click on "YES, REBOOT NOW"

After the reboot, log into TsmWeb as a user with the 'admin' role and confirm that **PrismToken** is visible on the navigation bar on the left

Or ⚠ he PrismToken license is active, all communication to the HSM is done via the thrift API over a secure TLS connection on port 9443

3.4 Setup TsmWeb Users

3.4.1 Create users

Each TsmWeb user account should uniquely identify one user. No account should be usable by more than one individual.

To create a new user account, go to the ***Settings > Users*** page and click on the New User link. Enter all the new user's details. The user should then enter their password in the "New password" and "Confirm new password" fields.

⚠ **Warning Note if the Account expires field is left blank then the default expiry is 1 year from the day the account is created**. The format for this field is YYYY-MM-DD.

Once the user account expires the user will no longer be able to login to TsmWeb.

Set the account expiry to a suitable future value greater than 1 year from the account creation date

3.4.2 Configuring Account and Password Policy

TsmWeb account and password policy is configured in the *Preference Manager* which is accessed by navigating to the ***Settings > Preference Manager*** page. This will load a page listing the preferences that can be managed by a user with an **admin** role. The preferences are listed in alphabetical order. To find out more about a particular preference move the mouse cursor over the preference name and additional information will be displayed.

Review the values of all preferences starting with "account." and those starting with "password." to ensure they meet your requirements for your organisation and/or PCI-DSS compliance (if applicable).

To change a preference, click on the Edit link, edit the Current Value and click the **Set** button.

By default each user account create expires 1 year form the day it is created. This also applies to the default admin account when its initial password is set.

By default passwords expire 365 days from when they are set. **Change this if necessary to comply with your organisation's password policy.**

3.4.3 Change Auto-Logoff Timeouts

Session/Auto-logoff timeouts are configured in the *Preferences Manager* which is accessed by navigating to the ***Settings > Preference Manager*** page.

Set the following preferences to meet your requirements:

- session.timeout.absolute – The number of seconds that a user can be logged in to TsmWeb for at a time.
- session.timeout.idle – The number of seconds that a user can be idle in TsmWeb for, before being logged out.

3.4.4 Disable the default admin account

Prism recommends that once the user accounts have been created, the default TsmWeb *admin* account should be disabled by setting the role for the *admin* account to 'none'.

To do this, create a TsmWeb user account that has the admin role. Login to TsmWeb with this account and change the role of the *admin* user to 'none'.

3.5 Setup PrismToken Users

It is possible to add roles to existing users or create new users and assign roles to those newly created users.

Log into TsmWeb as a user with the 'admin' role (for example, the 'admin' user) and navigate to ***Settings > Users*** page.

You will require the following users:-

3.5.1 A new or existing user account with the 'ptoken-admin' role. Users with this role can administer and operator PrismToken. Administration includes setting preferences, and associating PrismToken with one or more KMCs.

3.5.2 For each individual who will operate PrismToken, should have their own user account with the 'ptoken-operator' role. Operation includes getting keys from the KMC and managing Vending Keys.

a. For each user account the rights should be suitably limited.

b. For technical operators, the user account permissions should be limited to generation of key change tokens and engineering tokens.

3.5.3 Separate user account(s) for testing can be used during development and integration testing. These accounts should be disabled when your PrismToken system is deployed in a live environment.

3.6 Preferences

PrismToken preferences can be found in the ***Settings > Preference Manager*** page that can be accessed from the left navigation bar.

PrismToken preferences contain a “ptoken” prefix.

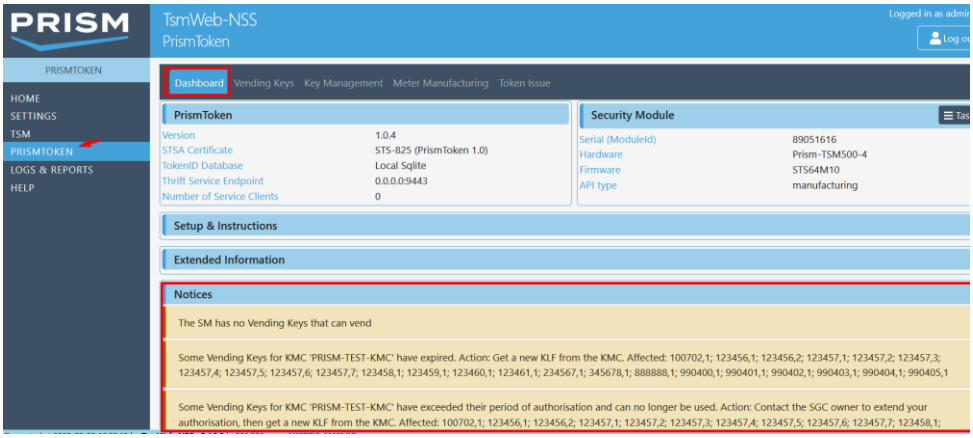
The default preferences should be suitable for vending.

To issue proprietary engineering tokens (class=2, subclass=11-15) you must set preference 'ptoken.allowIssueProprietaryTokens' to ‘true’. The default is ‘false’, and the user account must have role 'ptoken-issue-any' or both 'ptoken-issue-eng' + 'ptoken-issue-proprietary'.

3.7 PrismToken Dashboard

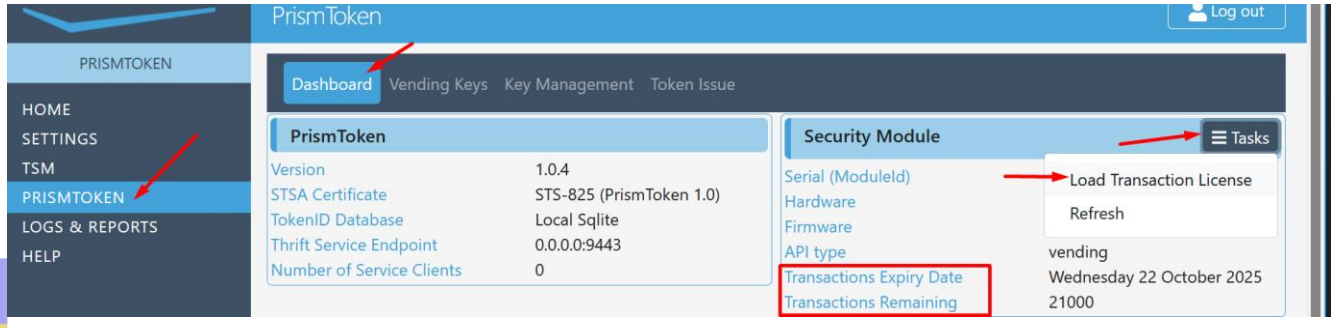
To access the PrismToken dashboard you will need to be logged in as a PrismToken administrator and click on the “PRISMTOKEN” tab in the left navigation bar.

On the dashboard you will find a “Notices” window. You will need to attend to all of the notices that you may have.



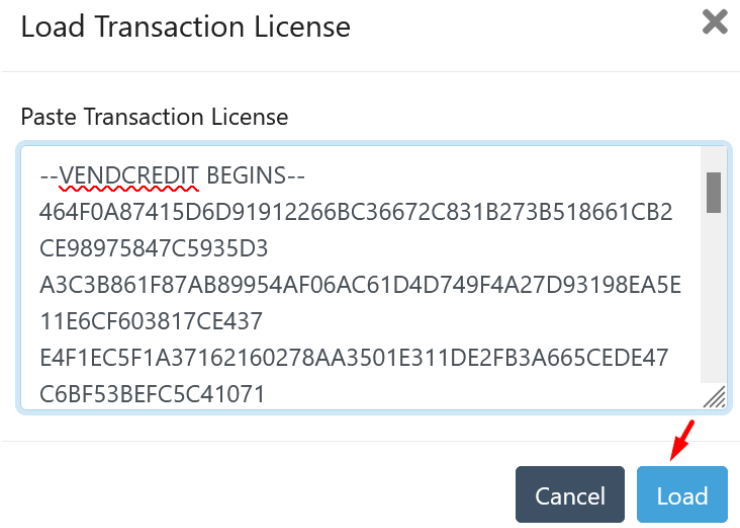
3.8 Upload Transaction License

If “Transactions Left” is 0 or the “Inhibit Vend Date” is in the past’ then you will need to load a Transaction License. Contact your vendor to obtain the Transaction License if required. To load the license on the PrismToken Dashboard, in the “Security Module” box, click the “Tasks” menu and select “Load Transaction License”. Follow the on-screen instructions. Please note that the TX license is applicable to STS64Vxx firmware only (STS6 vending HSMs).

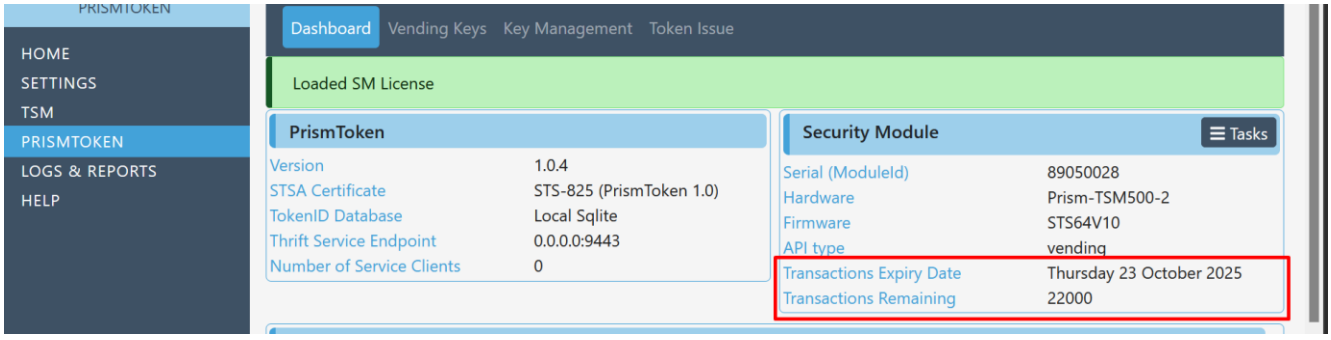


Copy the transaction license certificate (supplied via email by Prism). Include the BEGIN/END lines. Paste it into the “Paste Transaction License” text box below and click the “Load” button.

In this example a transaction license of 1000 with inhibit vend date of 23 October 2025 is applied.



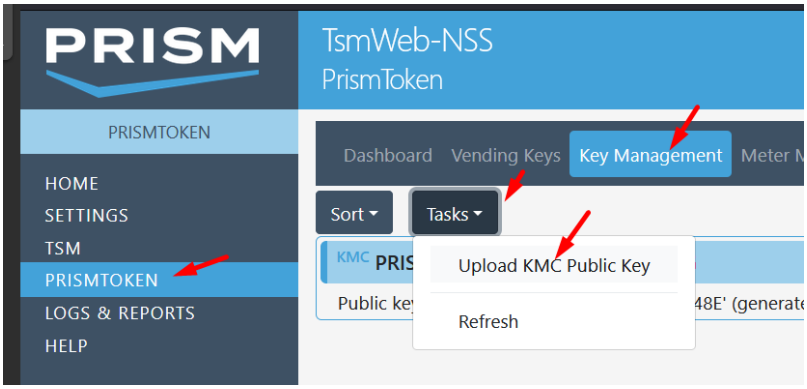
In this example the “Transactions Remaining” increases by 1000 and “Transactions Remaining” changes to 23 October 2025

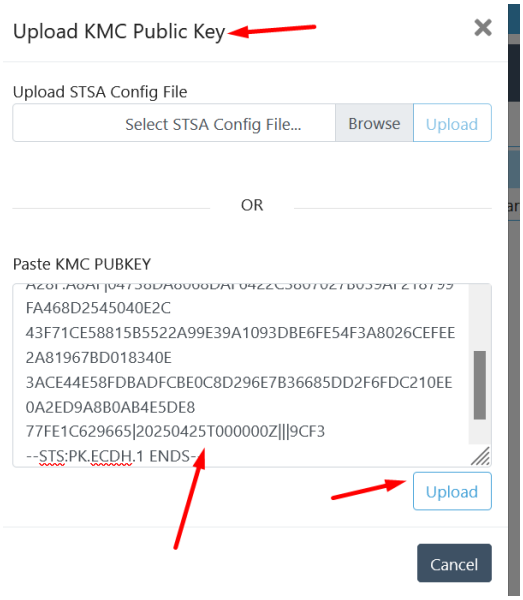


3.9 Upload KMC Public Key

You may need to load one or more KMC PUBKEYs. These keys are required before PrismToken can obtain Vending Keys from the KMC. You must request the KMC PUBKEY from your STS Key Management Centre. For testing purposes you can find the KMC PUBKEY for Prism’s test KMC under the “Documentation” link in TsmWeb’s menu.

- Log in to TsmWeb as a PrismToken administrator. Note that a PrismToken administrator will have the role of 'ptoken-admin'.
- Navigate to the ***PrismToken*** page and click on "Key Management” tab
- Click the "Tasks" dropdown at the top of the tab and select "Upload public key".



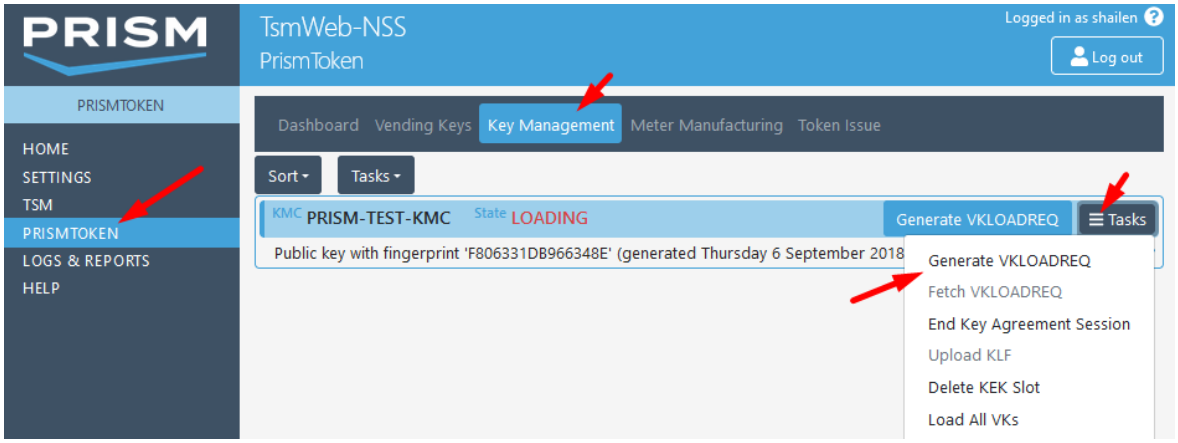


- Open/view the PUBLIC KEY (plain text file) in a text editor then highlight and copy the entire contents. Include the BEGIN/END lines.
- In the "Upload KMC Public Key" popup, paste the contents in the box labelled "Paste KMC PUBKEY", then click "Upload".

3.10 Vending Keys

3.10.1 Generate VKLOADREQ

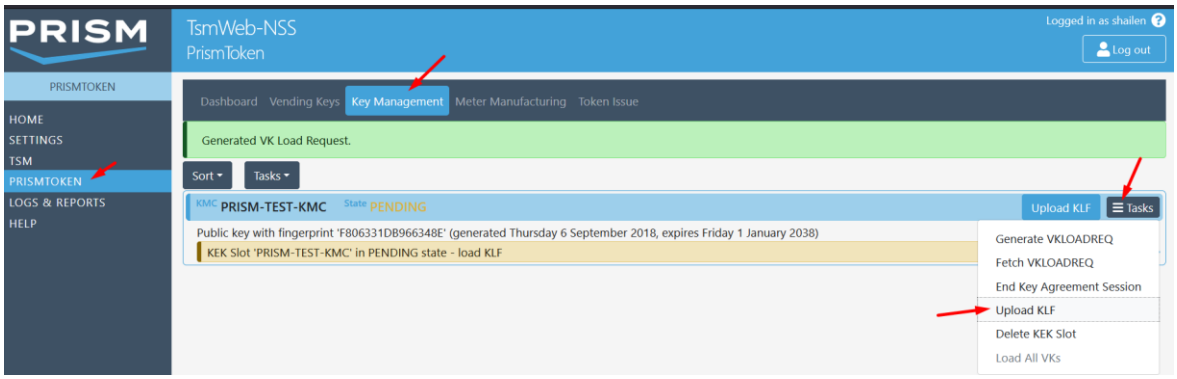
In PrismToken, on the Key Management tab you should see a list of known Key Management Centres, if you don't you must load the KMC PUBKEY as explained in the previous step. Choose the KMC from which you need to obtain Vending Keys, click that KMC's "Tasks" menu and choose "Generate VKLOADREQ". Follow the on-screen instructions. You will need to copy & paste the VKLOAREQ into an e-mail and send it to the KMS via email (KMS Operator) for processing.

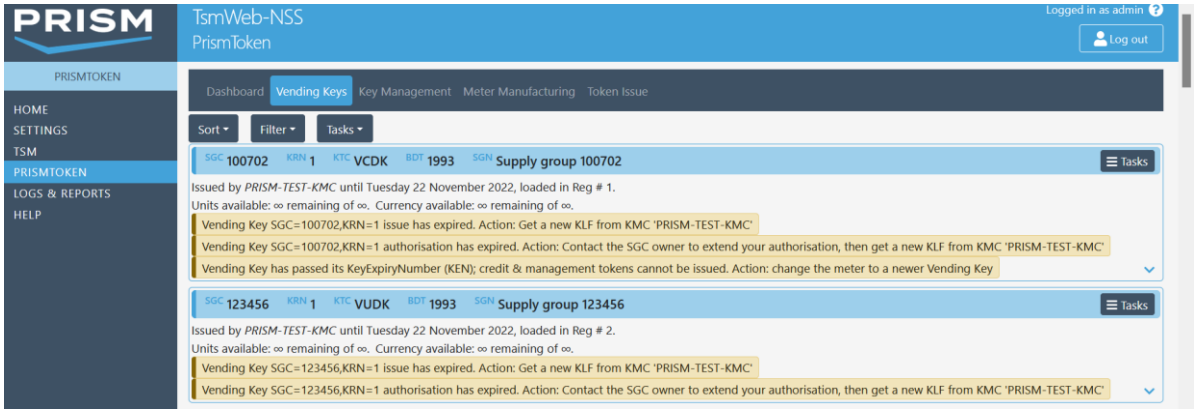


Send the most recent VKLOAD.REQ.1 record to the KMC (not an earlier one). The SM stores the timestamp of the last VKLOADREQ and will not accept a VKLOADRSPKMC unless it matches that timestamp.

3.10.2 Upload KLF into PrismToken

The KMC will reply with an e-mail that has a Key Load File attached. To upload the Key Load File go to PrismToken, click on "Key Management" tab, the KMC's "Tasks" menu, and choose "Upload KLF". You can then navigate to PrismToken's "Vending Keys" tab where you will see your vending keys. **At this point the vending keys are uploaded into PrismToken and have not been loaded in the security module as yet.**



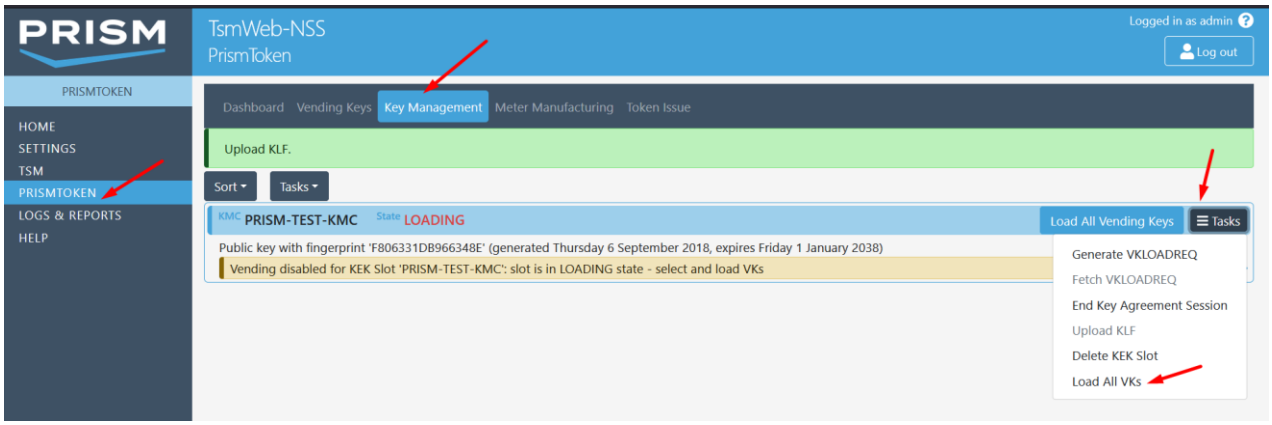


The security module stores the timestamp of the last VKLOADREQ and will not accept a VKLOADRSP$_{KMC}$ unless it matches that timestamp. NOTE: Sometimes users commit the mistake of

generating another VKLOADREQ after submitting a current VKLOADREQ to the KMC! In such a scenario the following error will be returned by the SM for an SM?KR request: SM!KREEPSM.3B.8: Bad VKLOADRESP: wrong timestamp (TVP) in VKLOADRESP_KMC; possible expired or out-of-order response~AF0A.

3.10.3 Load All Vending Keys

Uploading the KLF loads the information from the KLF into PrismToken and it passes the VKLOADRSP to the security module. PrismToken does not load any of the keys from the KLF into the security module. When the security module processes the VKLOADRSP the vending keys for that KEK slot are erased from the security module.



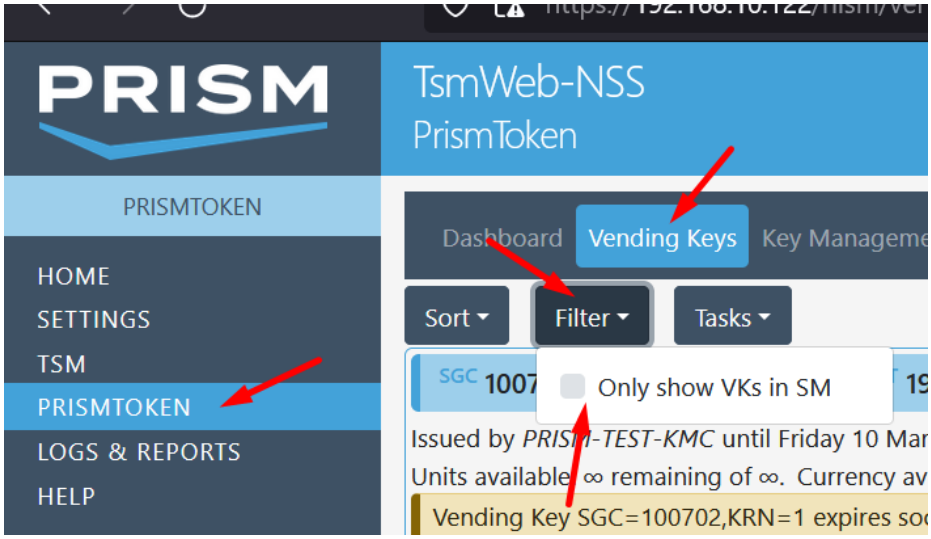
To load the keys from the KLF you will need to select the "Load All VKs" option from the "Tasks" menu. Take note that if the key agreement session is ended before loading all the vending keys then it will not be possible to load vending keys from the same KLF file into the security module. A new VKLOADREQ will need to be generated and sent to the KMS via email (KMS Operator) for processing. The KLF returned from the KMS needs to be uploaded and then you will need to select the "Load All VKs" option from the "Tasks" menu. Refer to Section 3.10.4 if "Load All VKs" returns the following error Failed to load all VKs: STS API error VK_REG_NOT_FOUND_ERROR (code 28)

3.10.4 Load Individual Vending Keys

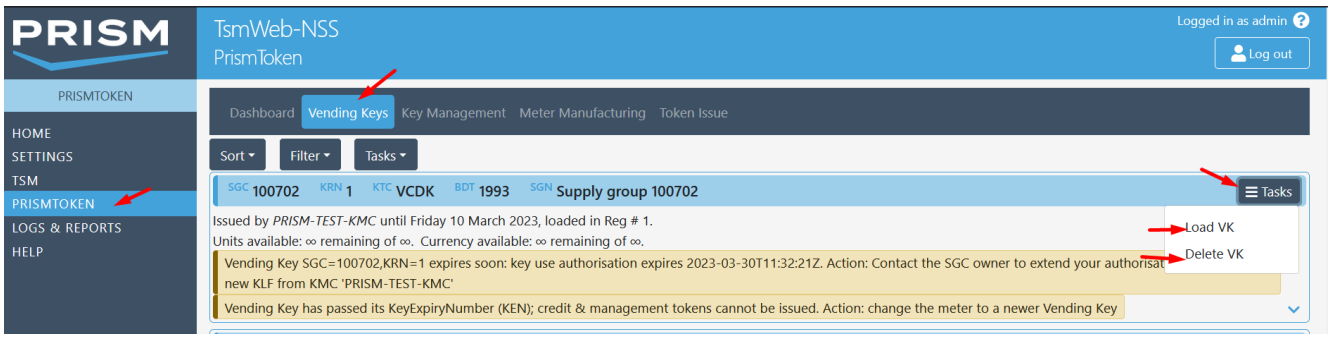
There may be circumstances where the number of vending keys within a security module's KLF exceeds the maximum number of vending key registers available in the security module. This is a hardware limit based on the TSM family. A TSM250 has a limit of 25 key registers/slots whereas the TSM500i supports up to 999. Exceeding this limit is often due to TSM250 customers requesting far too many of the manufacturer default SGC's. In practical terms, very few of these default SGC's are required. The STSA have introduced two universal default Supply Group Codes (SGC) which are available to anyone:

- 1993 Base Date Universal Default 991993
- 2014 Base Date Universal Default 999014

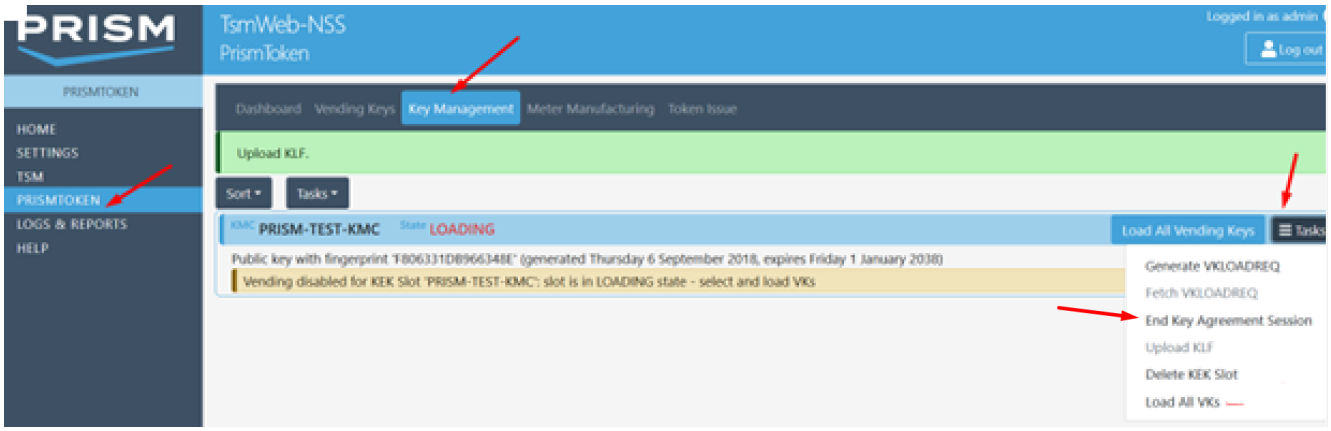
After uploading the KLF on the Key Management tab, instead of using the "Load all Vending Keys" button, navigate to the Vending Keys tab and change the "Filter" to show all vending keys and not just those in the security module.



There is a task button per vending key, where there are two options. You can load or delete the vending key from the security module.



With vending firmware when the KEK Slot is in “Loading” state it is not possible to use the STS Vending commands. The key agreement session must be closed by selecting End Key Agreement Session which results in the KEK slot moving to the “Active” state which allows the STS Vending commands to be used.



3.10.5 Configure STS related Preferences

The preference manager allows the fine tuning of various settings for PrismVend. To open the preference manager, click on Settings -> **Preference Manager** in the menu on the left. A table of preferences will be

displayed, along with the current value of each. To change a preference, click on the **Edit** link in the row of the preference. Not all preferences can be changed; some are only shown for informative purposes. Preferences that can't be changed will not have an **Edit** link.

The preferences relating to PrismToken are described in Section 5.3 PrismToken User Guide (PR-D2-1095)

The most important preference is

- **ptoken.allowUnapprovedKmcPubkeys** which must be set to **True**.
    - This should already have been done in Section 1.1.1
    - Section 5.5 PrismToken User Guide (PR-D2-1095)

The preferences relating specifically to STS vending are:

- **sts.alert.lowVendsWatermark:** When the number of vends remaining drops below this value, an alert will appear.
- **sts.currencySymbol:** The currency symbol to use for STS vending.
- **sts.transactionFee.prism:** The transaction fee for Prism for each vend.
- **sts.transactionFee.vendor:** The transaction fee for the vendor for each vend.
- **sts.vendLimit.highValueMax:** The maximum currency amount (after fee deduction) that can be vended by users with the **stsVendingHigh** role. Refer to (section 1.1.1).
- **sts.vendLimit.lowValueMax:** The maximum currency amount (after fee deduction) that can be vended by users with the **stsVendingLow** role. Refer to (section 1.1.1).
- **sts.vendorDisplayName:** Vendor name that is printed on tokens. Requires a customize license to be loaded. Speak to Prism about generating a customize license for your HSM
- **sts.tariff.roundingRule**: Selects the rounding mode that applies to tariff computations (section 3.10.7).

3.10.6 Setting Tariffs

The information below needs be captured in a tariff before a vend can be performed – the information is used for the vend. One or more tariffs may be added, but only the currently active tariff for a given SGC,TI,Subclass combination will be used.

- **Supply Group Code** is code of the relevant supply group (E.g. 008199)
- **Tariff Index** (E.g. 01, 02, 03 etc.) The tariff index the meter is using.
- **Sub class** (00 = electricity, 01 = water, 02 = gas, 03 = time)
- **Activation date** is the date from which the tariff is active/usable.
- **Tariff per unit** is the currency amount charged per kilowatt hour, up to 4 decimal places (e.g. $1.50)

To add a tariff, follow the steps below:

- From the PrismVend homepage click on **STS** in the menu on the left.
- Go to the section titled **Tariffs**
- Enter tariff data for the new tariff. (See the above descriptions for each field)
- Select **Submit Tariff Record**

- If the data was entered correctly, this new record will display in the table. Note: the table will only display the tariffs that are currently active as well as any future tariffs for a given SGC/TI/Subclass combination.

3.10.7 Rounding modes

Tariff computations are subject to rounding. Consider for example if a consumer purchases ZAR 50.00 of Electricity at ZAR1.45/kWh: this should equal 34.483 kWh, but STS electricity unit tokens have a precision of 0.1 kWh, so the system must issue a token for 34.4 kWh or 34.5 kWh. The rounding mode (preference `sts.tariff.roundingRule` introduced in v5.15) determines the quantity of units to be issued.

We explain the rounding modes using a worked example of two successive sales of ZAR 50.00 at a tariff rate of ZAR1.47/kWh and a Channel Fee of ZAR 0.25:

Mode	roundUpNoCarry	roundUpCarryDebt	roundDownCarryChange
Description	Rounds resource units up, writes off the price difference as a discount. This is the default mode, and the only mode in versions older than v5.15.	Rounds resource units up, carries the price difference as a debt owned by the consumer that is recovered from the next sale.	Rounds resource units down, carries the price difference (change owed to consumer) and adds it into the next sale.
1st sale	Payment 50.00 Channel fee -0.2500 Credit:Electricity 33.9 kWh @ 1.47000 -49.8330 Rounding (discount) 0.0830 LEAVES Balance out 0.0000	Payment 50.00 Channel fee -0.2500 Credit:Electricity 33.9 kWh @ 1.47000 -49.8330 LEAVES Balance out -0.0830	Payment 50.00 Channel fee -0.2500 Credit:Electricity 33.8 kWh @ 1.47000 -49.6860 LEAVES Balance out 0.0640
2nd sale	Payment 50.00 Balance In 0.0000 Channel fee -0.2500 Credit:Electricity 33.9 kWh @ 1.47000 -49.8330 Rounding (discount) 0.0830 LEAVES Balance out 0.0000	Payment 50.00 Balance In -0.0830 Channel fee -0.2500 Credit:Electricity 33.8 kWh @ 1.47000 -49.6860 LEAVES Balance out -0.0190	Payment 50.00 Balance In 0.0640 Channel fee -0.2500 Credit:Electricity 33.8 kWh @ 1.47000 -49.6860 LEAVES Balance out 0.1280
Comments	*The "balance out" is always 0.*	*The "balance out" is zero or negative (owed by the consumer), and is recovered on the next sale.*	*The "balance out" is zero or positive (change owed to the consumer), and is added into the next sale.*
	The "rounding (discount)" or "Balance out" is generally less than the tariff price of 1 unit, but it can exceed this for larger tokens (over 1638 kWh or 1638 kL), and may be up to 0.62% of the value of a currency token.		

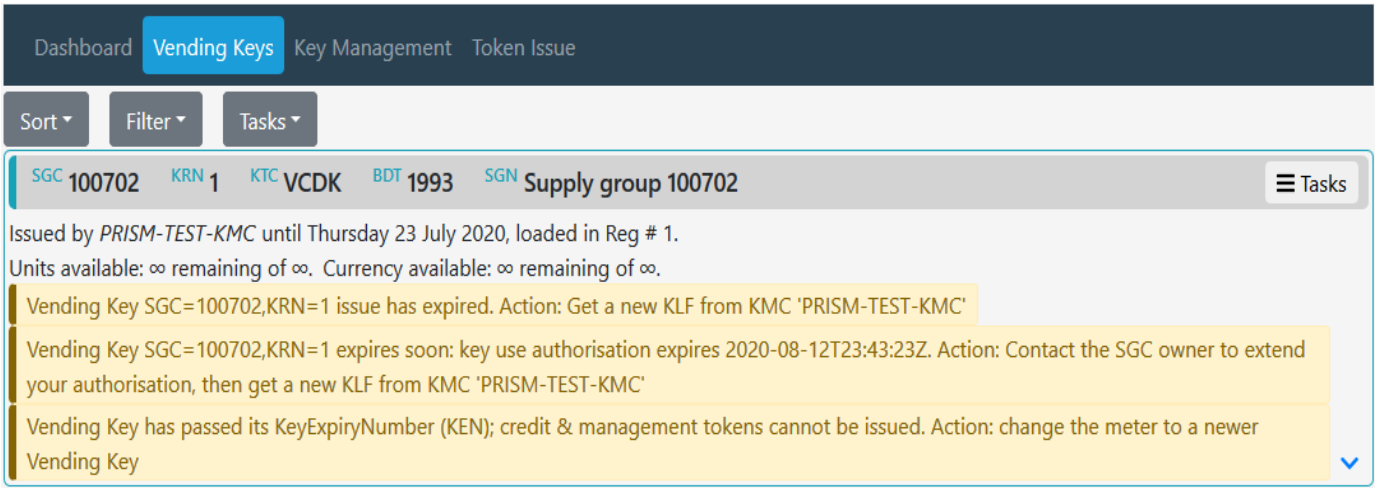
The precision of STS unit tokens is defined (by the STS standard[1]) as follows:

Resource	STS subclass	Precision
Electricity	0	0.1 kWh (100Wh)
Water	1	0.1 kL (100L)
Gas	2	0.1 m^3
Time	3	0.1 minutes

3.10.8
3.10.8

3.10.8 How to check the refresh period of a vending key

The refresh period of a particular vending key can be checked by entering the PRISMTOKEN submenu and clicking on “Vending Keys”.



Using the image above as an example we can see when the vending key expires, and a warning is displayed on the dashboard.

4 PrismVend Function

4.1 STS Administration

4.1.1 Create Tariffs

This section describes how to create a tariff.

- From the **PrismVend** homepage click **STS**, and then click on **STS Administration**.
- On the STS Administration page click the **Tariffs** tab, Tariffs page is displayed.
- Enter tariff information:
    - **Supply Group Code** = use to specify supply group code. a 6-digit number, e.g. 123456
    - **Tariff Index** = use to specify Tariff Index of the meter. e.g. 01.
    - **Subclass** = use to specify the type of token to generated e.g. Electricity, water, gas etc.
    - **Active Date** = use to specify the date the tariff will be active.
    - **Tariff per Unit** = use to set tariff cost per unit, the field takes up to 4 decimal places, e.g. 1.0000.
- Click the **Submit Tariff Record** to save the tariff details.

If the add tariff procedure was executed successfully, the application will redirect to the Tariff tabs and a success message will be displayed on a green message bar above the option tabs. If the display bar is red in colour an error would have occurred, please see Appendix A section 6.2 for further interpretation of the error.

4.1.2 Fees and Preferences

This procedure describes how to set Fees and Preferences.

- From the **PrismVend** homepage click **STS**, and then click on **STS Administration**.
- On the STS Administration page click the **Fees and Preferences** tab, Fees and Preferences page is displayed.
- Enter Fees and Preferences:
    - **Transaction Fee** = use to set transaction fee.
    - **Vendor Transaction Fee** = use to set the vendor transaction fee.
    - **Vend Threshold (High limit)** = use to set the max number of transactions assigned to users who have a high vend threshold e.g. high competent users.
    - **Vend Threshold (Low limit)** = use to set the max number of transactions assigned to users who have a low vend threshold e.g. new users.
    - **Transaction Counter Warning Threshold** = use to set the number of transactions to be reached before a low number of transactions warming appears.
- Click **SET** button to set Fees and Preferences.

If the set Fees and Preferences procedure was executed successfully, the application will redirect to the Tariff tabs and a success message will be displayed on a green message bar above the option tabs. If the display bar is red in colour an error would have occurred, please see Appendix A section 6.2 for further interpretation of the error.

4.1.3 Bulk Meter Import

This section describes how to import meters in bulk.

4.1.3.1 Create File

Bulk meter import allows the import of multiple meters at once. Meter information is stored in a Comma Separated Values (CSV) file. Prior to bulk meter import, this CSV file will need to be created, which can be done using a text editor or in Microsoft Excel (save the spreadsheet as a .csv file). The first line of the file (which indicates the columns) should be:

Meta,MeterPAN,Organisation,Name,SGC,KRN,TI,EA,TCT,restype,isregistered,result

Where:

- Meta = Empty column
- MeterPAN = Should start with a hash "#", followed by the bulk meter PAN (11 or 18 digits)
- Organisation = Name of building/block of flats/housing estate where meter resides, e.g. Kew Manors
- Name = name of meter owner/unit number e.g. John Smith, Unit 1
- SGC = Should start with a hash, followed by supply group code, a 6-digit number, e.g. 123456
- KRN = Key Revision Number, e.g. 1
- TI = Tariff Index, e.g. 01
- EA = Encryption Algorithm. Enter in "07".
- TCT = Token Technology. Enter in "02".
- restype = Resource type of the meter (Subclass)
- isregistered = Whether the meter should be registered or not, "y" if it should be or "n" if it should not be.
- result = Pass or Fail, whether generation of the token was successful or not, with an appropriate error message describing the reason if a failure occurred. Leave this empty when creating the csv file.

Meta	MeterPAN	Organisation	Name	SGC	KRN	TI	EA	TCT	restype	isregistered	result
	#62141158436	Kew Manors	J Singh	#123456	1	1	7	2	0	y	
	#62141158444	Kew Manors	N Elga	#123456	1	1	7	2	1	y	
	#62141158451	Kew Manors	V May	#123456	1	1	7	2	0	n	

An example CSV file could then be:

Meta,MeterPAN,Organisation,Name,SGC,KRN,TI,EA,TCT,restype,isregistered,result
,#62141158436,Kew Manors,J Singh,#123456,1,1,7,2,0,y,
,#62141158444,Kew Manors,N Elga,#123456,1,1,7,2,1,y,
,#62141158451,Kew Manors,V May,#123456,1,1,7,2,0,n

4.1.3.2 Perform the Import

Once the CSV file has been created, follow these steps to perform bulk meter import:

- From the **PrismVend** homepage click **STS**, and then **STS ADMINISTRATION**
- Click on the **Bulk Meter Import** tab.
- Click **Choose File** and select the CSV file.
- Click **Import Data** to start importing each meter in the file.

If done successfully, a table will be displayed showing all the meters that were imported and a CSV file containing the results can be downloaded.

Note that files with up to 10,000 records are supported. Including more records per file is not recommended and should be broken up to have 10,000 or less per file.

4.1.4 Bulk Meter Key Change

4.1.4.1 Create File

Bulk meter Key Change allows the operator to key change multiple meters at once. Meter information is stored in a Comma Separated Values (CSV) file. The CSV file will need to be created, which can be done using a

text editor or in Microsoft Excel (save the spreadsheet as a .csv file). The first line of the file (indicating the columns) should be:

Meta,MeterPan,Sgc,Krn,Ti,Ea,Tct,toSgc,toKrn,toTi,Tokens,Result

Where:

- Meta = Empty column
- MeterPan = Should start with a hash "#", followed by the meterPan
- Sgc = The source supply group code, a 6-digit number, e.g. 123456
- Krn = The source key revision number, e.g. 1
- Ti = The source tariff index, e.g. 01
- Ea = The source encryption algorithm, e.g. in most cases this will be 7
- Tct = The source token carrier technology, e.g. in most cases this will be 2
- toSgc = The destination supply group code, a 6-digit number, e.g. 123456
- toKrn = The destination key revision number, e.g. 1
- toTi = The destination tariff index, e.g. 01
- Tokens = The computed tokens will be stored in this column
- Result = Pass or Fail, whether generation of the token was successful or not

Meta	MeterPan	Sgc	Krn	Ti	Ea	Tct	toSgc	toKrn	toTi	Tokens	Result
	#62141158436	123456	1	1	7	2	654321	1	2		
	#62141158444	123456	1	1	7	2	654321	1	2		
	#62141158451	123456	1	1	7	2	654321	1	2		

An example CSV file would then be:

Meta,MeterPan,Sgc,Krn,Ti,Ea,Tct,toSgc,toKrn,toTi,Tokens,Result
,#62141158451,123456,1,1,7,2,654321,1,2,,
,#62141158444,123456,1,1,7,2,654321,1,2,,
,#62141158451,123456,1,1,7,2, 654321,1,2,,

4.1.4.2 *Perform Bulk Meter Key Change*

This section describes how to change meter keys in bulk.

- From the **PrismVend** homepage click **STS**, and then click on **STS Administration**.
- On the STS Administration Page click the **Bulk Meter Key Change** tab, Bulk Meter Key Change page is displayed.
- Click **Choose File** and navigate to where your file is located and select it.
- Click **Go**, to change meter keys in bulk.

4.1.5 Bulk Engineering Tokens

4.1.5.1 *Create File*

Bulk engineering tokens allows the operator to generate engineering tokens for multiple meters at once. Meter information is stored in a Comma Separated Values (CSV) file. The CSV file will need to be created,

which can be done using a text editor or in Microsoft Excel (save the spreadsheet as a .csv file). The first line of the file (indicating the columns) should be:

#HDR:meta,meterpan,sgc,krn,ti,ea,tct,maxPowerLimitToken,clearCreditToken,clearTamperToken,maxPhaseLimitInputToken,result

Where:

- Meta = Empty column
- MeterPan = Should start with a hash "#", followed by the meterPan
- Sgc = The source supply group code, a 6-digit number, e.g. 123456
- Krn = The source key revision number, e.g. 1
- Ti = The source tariff index, e.g. 01
- Ea = The source encryption algorithm, e.g. in most cases this will be 7
- Tct = The source token carrier technology, e.g. in most cases this will be 2
- maxPowerLimitToken = The computed token will be stored in this column
- clearCreditToken = The computed token will be stored in this column
- clearTamperToken = The computed token will be stored in this column
- maxPhaseLimitInputToken = The computed token will be stored in this column
- Result = Success or Fail, whether generation of the tokens was successful or not

Meta	MeterPan	Sgc	Krn	Ti	Ea	Tct	maxPowerLimitToken	clearCreditToken	clearTamperToken	maxPhaseLimitInputToken	Result
	#62141158436	123456	1	1	7	2					
	#62141158444	123456	1	1	7	2					
	#62141158451	123456	1	1	7	2					

An example CSV file would then be:

```
#HDR:meta,meterpan,sgc,krn,ti,ea,tct,maxPowerLimitToken,clearCreditToken,clearTamperToken,maxPhaseLimitInputToken,result
,#62141158436,123456,1,1,7,2,,,,,
,#62141158444,123456,1,1,7,2,,,,,
,#62141158451,123456,1,1,7,2,,,,,
```

4.1.5.2 *Perform Bulk Engineering Token Generation*

This section describes how to generate engineering tokens in bulk.

- From the **PrismVend** homepage click **STS**, and then click on **STS Administration**.
- On the STS Administration Page click the **Bulk Engineering Tokens** tab, Bulk Engineering Tokens page is displayed.
- Select which engineering tokens you wish to generate
- Click **Choose File** and navigate to where your file is located and select it.
- Click **Go**, to change meter keys in bulk.
- Alternatively, you can click **Download Template** to download an example .csv file

4.1.6 Non MSE

This section describes how to generate a **NON MSE** (Non-Meter Specific Engineering token).

- From the **PrismVend** homepage click **STS**, and then click on **STS Administration**.
- On the STS Administration Page click the **Non MSE** tab, Non MSE page is displayed.
- Click relevant option from list of options below:

Please note that the system supports the 11 and 13-digit meter numbers.

- Generate InitMeterTest token for 11-digit PAN = use to test an 11-digit PAN.
- Generate InitMeterTest token for 13-digit PAN = use to test a 13-digit PAN
- Advanced options (use this option to perform specific test on a meter):
  - **Pretest** = use to select a specific test to be done a meter.
  - **Subclass** = use to set the type of token to be generated, e.g. electricity, water etc.
  - **MfrCode** = use to set manufacture meter code (Please note that this value also changes when Pretest is selected).
  - **Control (Hex)** = use to specify hex version of the type of pretest (Please note that this value also changes when Pretest is selected).

- Click **Vend** and the Non-Meter Specific Engineering Token is generated.

4.2 STS SM Status

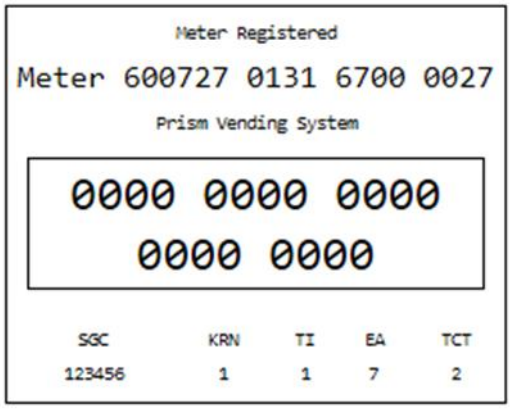
To get detailed information regarding TSM (e.g. Number of Remaining Transactions) refer to the PrismToken Dashboard. See Section 5.4 of the "PrismToken User Guide (PR-D2-1095)"

4.3 STS Vending

4.3.1 How to register a meter

This section describes the procedure for registering a meter. Note that meter registration is required before a user can utilize the "Simple" vending UI as that UI does not have the ability to blind vend.

- From the PrismVend homepage click **STS Vending**.
- Enter in the 11-digit Meter Number and click on the **Go** button.
- Enter in the Meter Information:
  - **SGC** = Supply Group Code, a 6-digit number, e.g. 123456
  - **TI**=Tariff Index of the meter. e.g. 01
  - **KRN** = Key Revision Number. e.g.1
  - **TCT**= Token Technology. Enter the number 2
  - **EA**=Encryption Algorithm. Enter the number 7
  - **Resource Type =** The resource type (subclass) of a meter
  - Check the **Registered** checkbox.
- Click **UPDATE.**
- A Meter registration receipt will be issued which looks similar to the one below

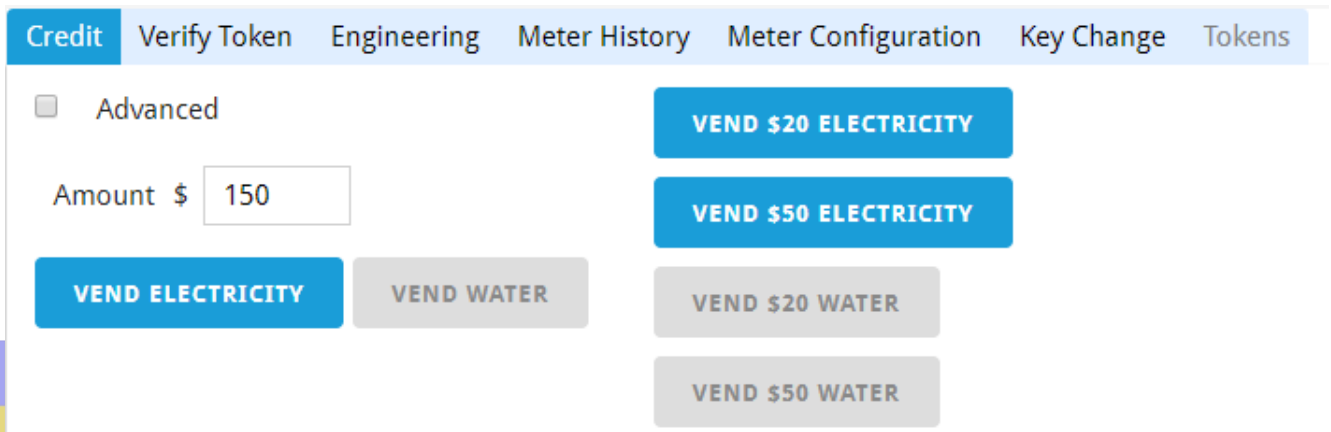


4.3.2 Generate Credit Token

This section describes the procedure to generate a credit token.

- From the **PrismVend** homepage click **STS**, and then click on **STS Vending**.
- On the STS Vending page click **Credit** tab.
- On the amount text box type in the rand value amount or number of units depending on the credit type of the credit token (see advanced steps below on how to set the credit type).
- Click the relevant button to generate the credit token (The enabled and disabled buttons are dependent on the type of resource selected. See advanced steps below on setting Resource Type).
- For advanced settings on the **Credit** tab check the advanced check box. The below options are displayed.
    - **Resource Type** = use to set the type of resource the credit token will be. (E.g. electricity, water, gas etc.).
    - **Vend Type** = use to set the type of vend the credit token will use. (Either prepayment of free issue).
    - **Credit** = use to set the credit type of the credit token. (Either units or currency).
    - **Number of tokens** = use to set the number of credit tokens to be generated.
    - **Value (per token)** = use to set the value of the credit token. (Number of Units if credit type is units and value amount if credit type is currency).
- Click **Vend** button to generate a credit token.

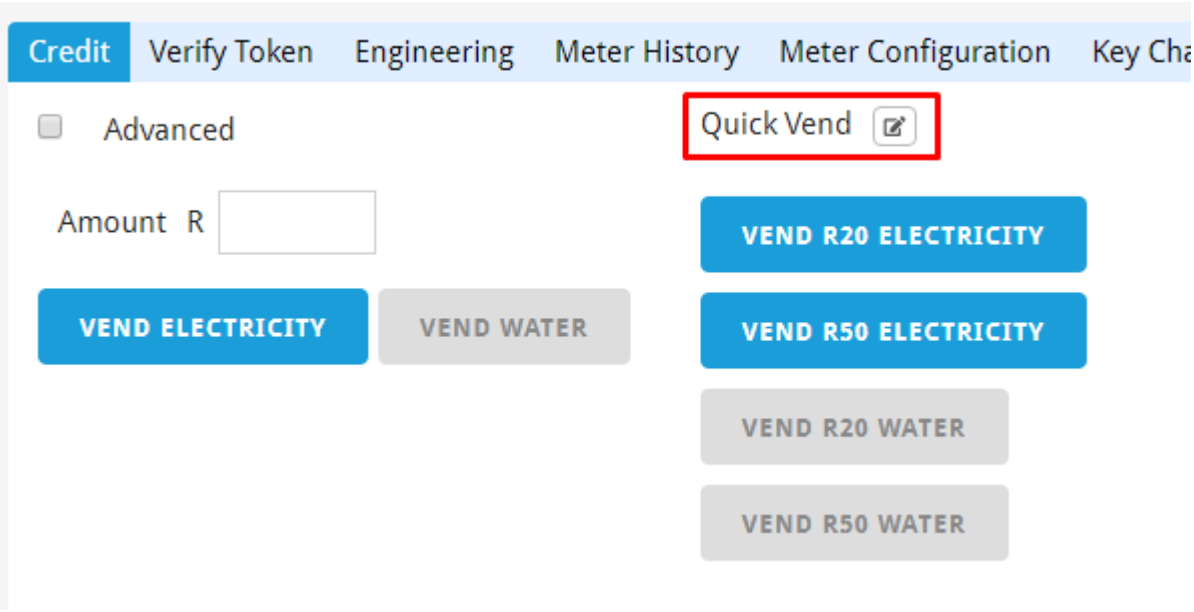
If a credit token was generated successfully, will redirect to the Tokens tab and a success message will be displayed on a green message bar. If the display bar is red in colour an error would have occurred, please see Appendix A section 6.2 for further interpretation of the error displayed.

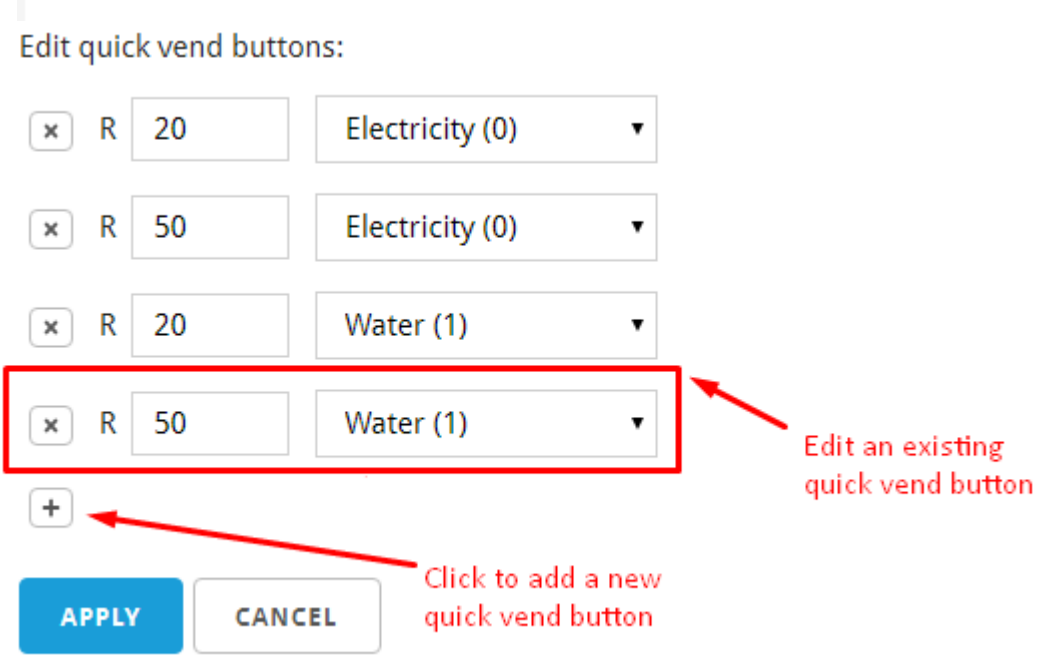


4.3.2.1 Quick Vend Customisation

Please note that the **Vend $20 Electricity** and **Vend $50 Electricity** or **Vend $20 Water** and **Vend $50 Water** are used as the default quick vends as those vend amounts are frequently used. These amounts can be changed, or new amounts can be added for all subclass values.

- From the **PrismVend** homepage click **STS**, and then click on **STS Vending**.
- Enter the desired meter number
- Click on the **Quick Vend** edit button



- 

- Click **Apply** to save the changes

4.3.3 Verify Token

This section describes the how to verify a token.

- From the **PrismVend** homepage click **STS**, and then click on **STS Vending**.
- On the STS Vending page click the **Verify Token** tab, Verify Token page is displayed.
- On the Token textbox type in the token voucher number.
- Click **Verify** to verify the token.

If the verification of a token was successful, the application will redirect to the Tokens tab and a success message will be displayed on a green message bar below the option tabs. If the display bar is red in colour an error would have occurred, please see Appendix A section 6.2 for further interpretation of the error displayed.

4.3.4 Engineering

This section describes the how to perform various engineering feature on meter.

- From the **PrismVend** homepage click **STS**, and then click on **STS Vending**.
- On the STS Vending page click the **Engineering** tab, engineering page is displayed.
- Select the relevant check box or check boxes on the list of option displayed:
    - **Set Max. Power limit** = use to set Max power. e.g. 6000
    - **Clear Credit** = use to clear Credit.
    - **Clear Tamper** = use to clear tamper.
    - **Set Max. Phase Power Unbalance Limit** = use to set maximum power. e.g. 6000
- Click **Vend MSE Tokens** button.

If the verification process was successful, the application will redirect to the Tokens tab and a success message will be displayed on a green message bar below the option tabs. If the display bar is red in colour an error would have occurred, please see Appendix A section 6.2 for further interpretation of the error displayed.

4.3.5 Meter History

This section describes how to view a specified number of transactions on meter.

- From the **PrismVend** homepage click **STS**, and then click on **STS Vending**.
- On the STS Vending page click the **Meter History** tab, Meter History page is displayed.
- In the **Show Last** textbox type in the desired number of transactions to be displayed, the page will refresh and display the specified number of transactions on a specific meter.

Please note that the default number of transactions is 20.

4.3.6 Meter Configuration

This section describes how to configure meter settings.

- From the **PrismVend** homepage click **STS**, and then click on **STS Vending**.
- On the STS Vending page click the **Meter Configuration** tab, Meter Configuration page is displayed.
- Type in the relevant information, see below for description of each field:
    - **Organization** = use to set the name of your organization.
    - **Name** = use to set the name of the user setting up the meter configurations.
    - **Supply Group Code (SGC)** = use to set supply group code. e.g. 123456
    - **Key Revision Number (KRN)** = use to set Key Revision number. e.g. 1
    - **Tariff Index (TI)** = use to set tariff index. e.g. 1
    - **Encryption Algorithm** = use to set Encryption Algorithm. e.g.

- **Token Carrier Type (TCT)** = use to set Token Carrier Type.
- **Resource Type** = use to set Resource Type. e.g. Electricity, water, gas etc.
- **Registered** = use to set if the meter is registered on the systems database.

- Check the **Registered** check box.
- Click **Save** to save the meter configuration.

If the meter was configured successfully the application will redirect to the Tokens tab and a success message will be displayed on a green message bar below the option tabs. If the display bar is red in colour an error would have occurred, please see Appendix A section 6.2 for further interpretation of the error.

4.3.7 Key Change

This section describes how to perform a key change on a meter.

- From the **PrismVend** homepage click **STS**, and then click on **STS Vending**.
- On the STS Vending page click the **Key Change** tab, Key Change page is displayed.
- Type in the relevant information, see below for description of each field:
  - **Supply Group Code (SGC)** = use to specify supply group code. a 6-digit number, e.g. 123456
  - **Key Revision Number (KRN)** = use to specify Key Revision Number. e.g. 01.
  - **Tariff Index (TI)** = use to specify Tariff Index of the meter. e.g. 01.
  - **Registered** = use to specify if the meter is registered on the system database.
- Check the **Registered**.
- Click **Issue Key Change** button.

If the key change procedure was executed successfully, the application will redirect to the Tokens tab and a success message will be displayed on a green message bar below the option tabs. If the display bar is red in colour an error would have occurred, please see Appendix A section 6.2 for further interpretation of the error.

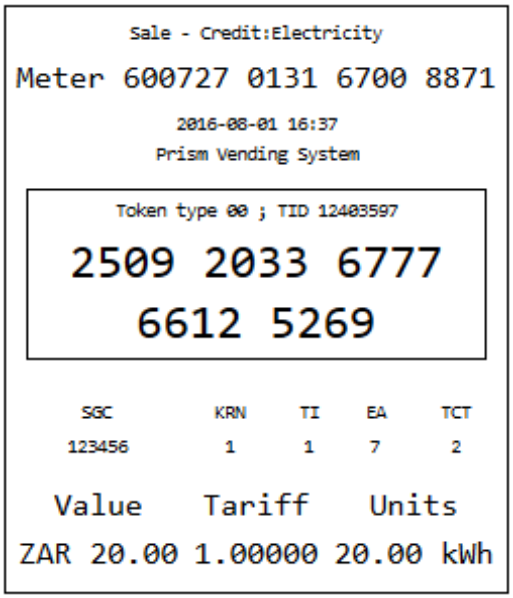
4.3.8 Tokens

The Tokens tab displays the history of the current session.

4.4 How to issue a Credit Update Token

This section describes the procedure for issuing a credit update token.

- From the **PrismVend** homepage click **STS** and then **STS Vending**.
- Complete the meter registration described in **Error! Reference source not found.** (section **Error! Reference source not found.**), if it has not been done so already.
- Enter in the Meter Number and click **Go**.
- Select the **Credit** tab if it is not already selected.
- Enter in the Currency Value.
- Click **Vend Electricity** or **Vend Water** depending on the resource type you want to vend (other resource types are available if the **Advanced** checkbox is checked).



Alternatively, you can use the advanced interface by clicking the **Advanced** checkbox. In this mode you can specify Resource Type, Vend Type (Prepayment or Free Issue), Credit Type (Units or Currency), the number of tokens to vend, and the amount (units depending on Resource Type or Credit Type).

5 PrismVend Web API

The PrismVend application software includes a built-in web service which allows various vending requests to be issued over the HTTP interface. Refer to the document PR-D2-1112 PrismVend Web Vending API for further information.

6 Appendix A

6.1 Starting the service

The PrismVend browser application only runs when the service is started. To check the status of the PrismVend service, or to stop or start the service, follow these instructions:

- Start the Windows Services Control Panel applet by clicking on:

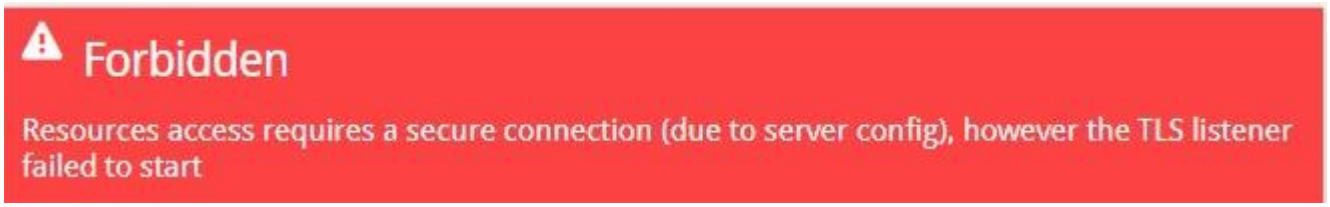
  Start -> Control Panel -> Administrative Tools -> Services

- In the right-hand pane of the services window locate the **Prism TsmWeb** service

- Control of the service can be performed by right clicking on “Prism TsmWeb”. Select “Start” to start the service or “Stop” to stop the service

6.2 Changing the TLS port

If PrismVend is running on a windows computer running a server operating system, there may be a conflict between IIS (Internet Information Services) and PrismVend. If IIS is running on the computer port 443 will already be in use and the following error will be displayed when trying to launch PrismVend



To change the port that PrismVend uses for secure HTTPS connections, perform the following actions:

1. Stop the Service. Refer to section 6.1 Starting the service and stop the TsmWeb service.
2. Using windows explorer navigate to c:\Program Files (x86)\Prism\TsmWeb-STS
3. Using notepad edit tsmweb.prop and add the following entry to the bottom of the file:
   a. tls.port=4443
4. Save the tsmweb.prop file and restart the service.

6.3 Configuring Remote Access – Best Practices

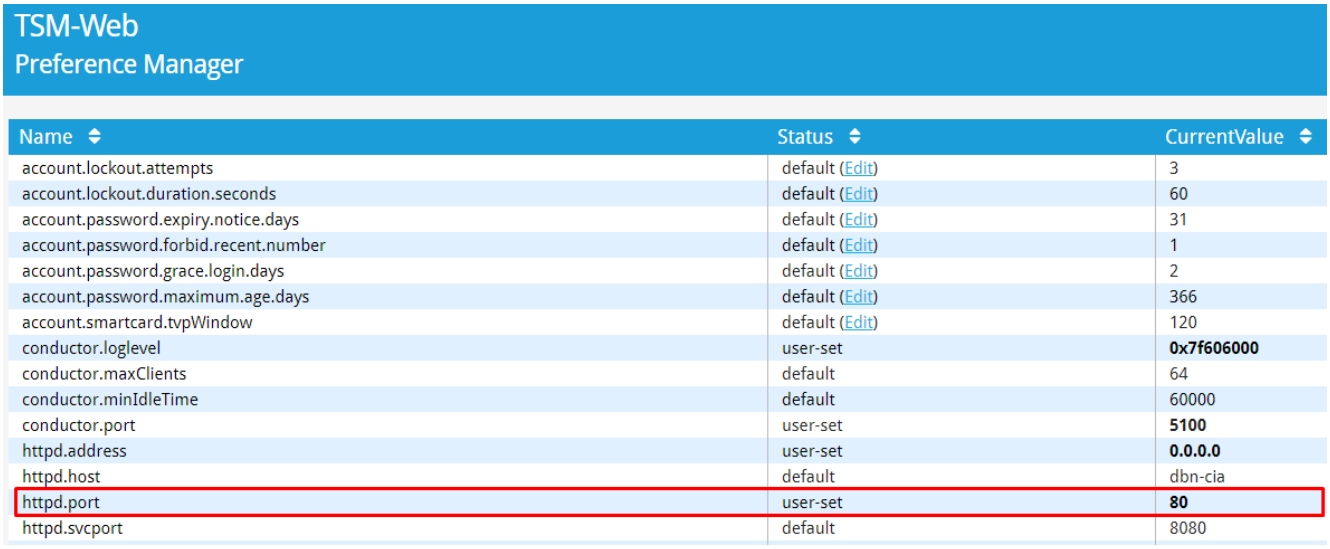
There may be a need to access PrismVend remotely, this could just be on the local area network (LAN) or on the internet. This section gives a high-level overview of what is required and things to be aware of. The actual configuration would need to be done by an I.T professional with physical access to the hardware required.

The first step would be to configure and confirm access to PrismVend over the LAN. Once LAN access is working, remote internet access can be configured.

6.3.1 Local Area Network (LAN) Access

From the PC running PrismVend perform the following actions:

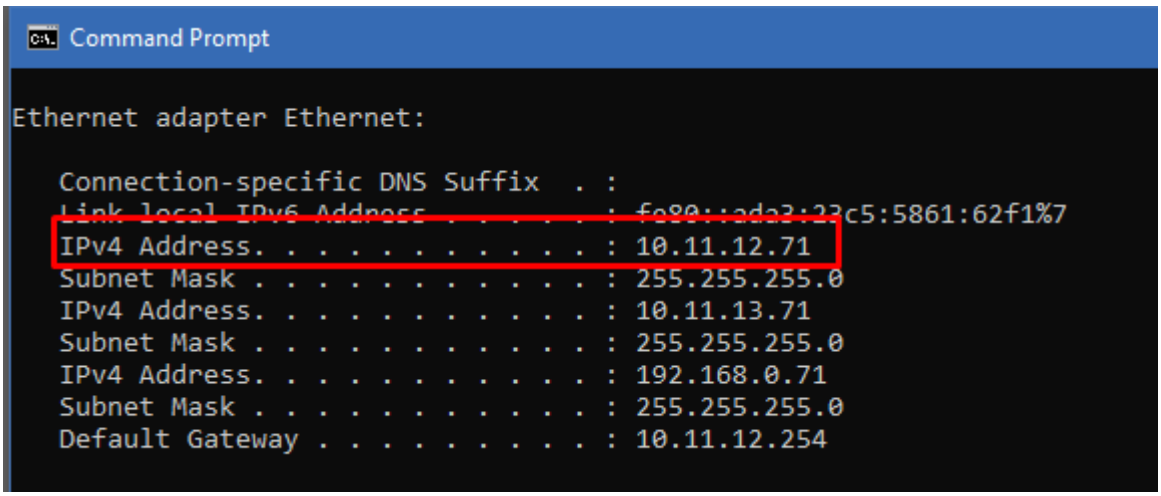
- Launch TsmWeb in your web-browser and click on Preferences Manager
- Take note of the **httpd.port** value (default is 80)



TSM-Web
Preference Manager

Name	Status	CurrentValue
account.lockout.attempts	default (Edit)	3
account.lockout.duration.seconds	default (Edit)	60
account.password.expiry.notice.days	default (Edit)	31
account.password.forbid.recent.number	default (Edit)	1
account.password.grace.login.days	default (Edit)	2
account.password.maximum.age.days	default (Edit)	366
account.smartcard.tvpWindow	default (Edit)	120
conductor.loglevel	user-set	**0x7f606000**
conductor.maxClients	default	64
conductor.minIdleTime	default	60000
conductor.port	user-set	**5100**
httpd.address	user-set	**0.0.0.0**
httpd.host	default	dbn-cia
httpd.port	user-set	**80**
httpd.svcport	default	8080

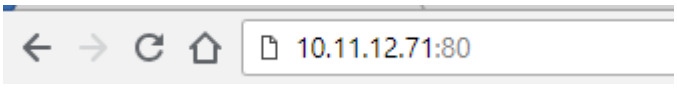
- **httpd.address** should be set to 0.0.0.0
- Open a windows command prompt window and run the command **ipconfig.exe**
- Take note of the IPv4 address

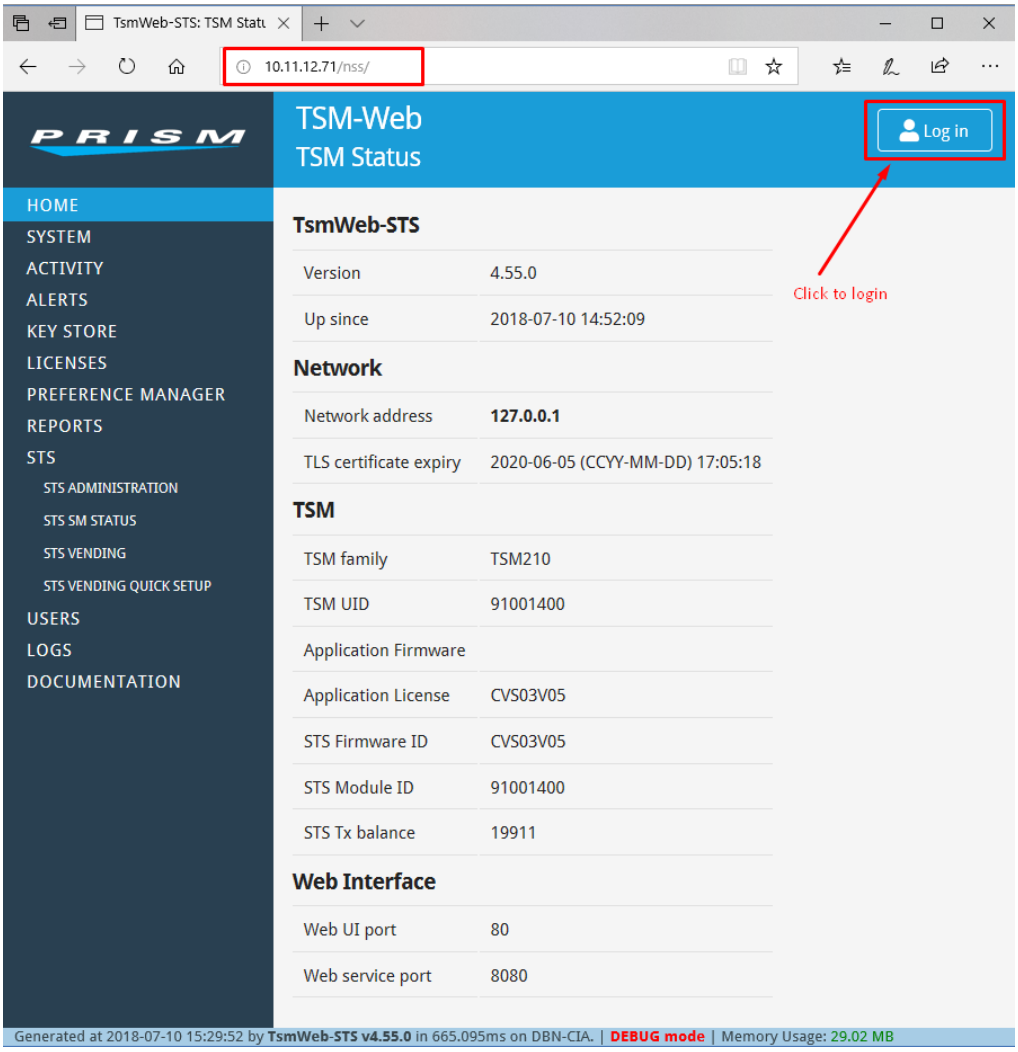


- From the client pc on the same network open a windows command prompt window and run the following command:
    - **ping <ip address>** where <ip address> is the IPv4 Address from the previous step
    - *e.g. ping 10.11.12.71*
    - The ping command should return successfully.

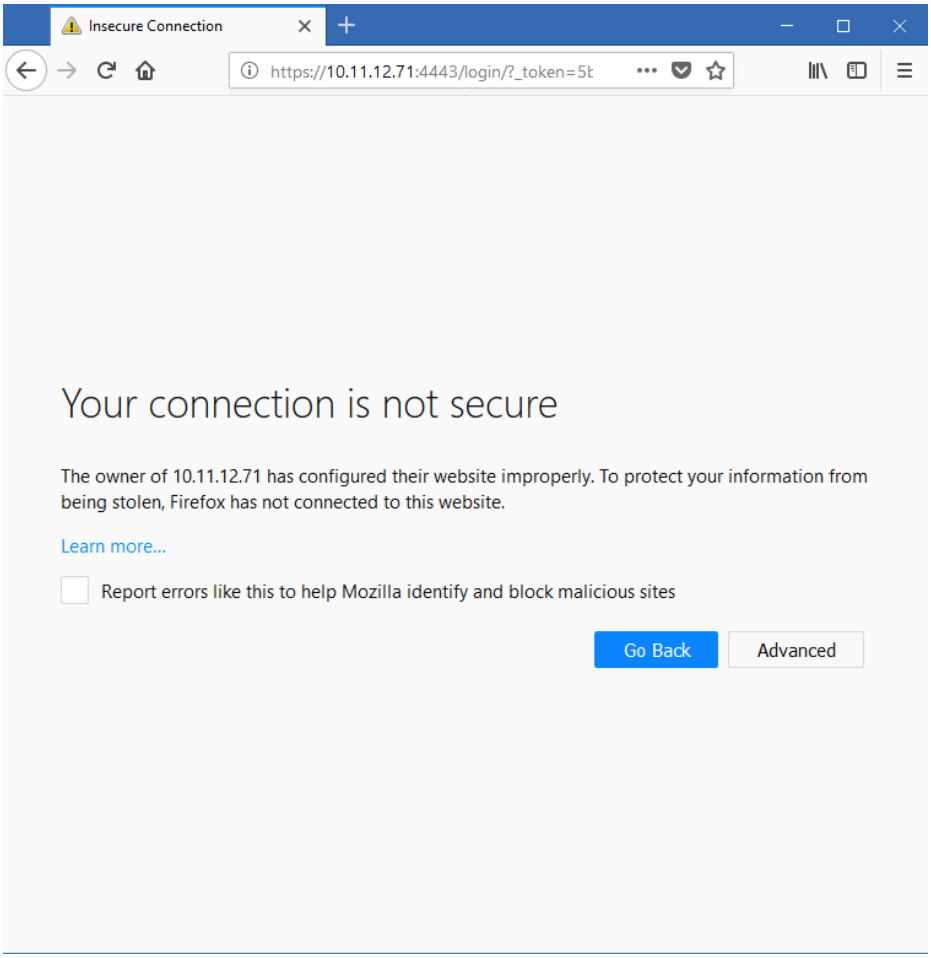
```
U:\>ping 10.11.12.71

Pinging 10.11.12.71 with 32 bytes of data:
Reply from 10.11.12.71: bytes=32 time<1ms TTL=128
Reply from 10.11.12.71: bytes=32 time<1ms TTL=128
Reply from 10.11.12.71: bytes=32 time<1ms TTL=128
Reply from 10.11.12.71: bytes=32 time<1ms TTL=128

Ping statistics for 10.11.12.71:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

- Now open the Firefox web-browser on the client computer and browse to the **IP Address** and **Port** found in the previous steps.

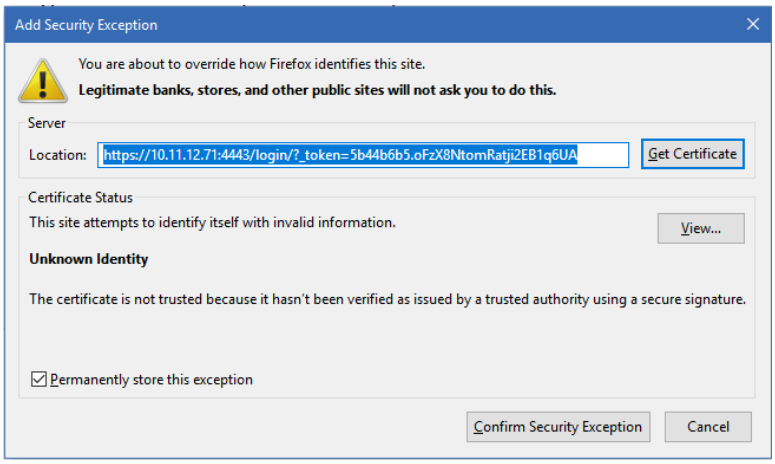




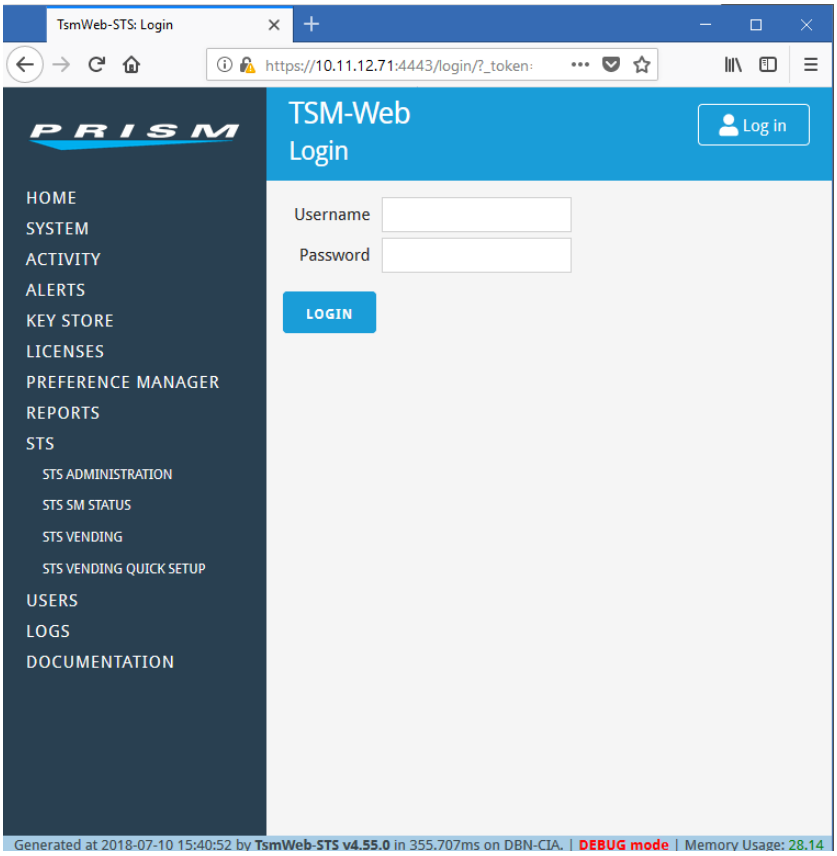
- A warning will appear indicating that the connection is not secure.



- Click **Advanced** and then click **Add Exception**



- Finally click **Confirm Security Exception**
- You will then be re-directed to the logon page



6.3.2 Internet Access

This section gives a high-level overview of the configuration required to access PrismVend remotely over the internet. First ensure that PrismVend can be accessed locally over the LAN as described in section 6.3.1 Local Area Network (LAN) Access.

We do not recommend putting the PC running PrismVend directly on the internet as this could allow unauthorised access and attacks

The best solution would be for an I.T Professional to set up VPN access for each user on the network which hosts PrismVend.

A user would need to VPN onto that network and then use their web-browser to access PrismVend

6.4 Error Messages

This section lists fatal errors and warnings you may encounter when using the STS Management with the TSM250. Some of the Errors and causes are listed below.

Forbidden: Resources access requires a secure connection (due to server config), however the TLS listener failed to start

Another service is using port 443. Refer to section 6.2 Changing the TLS port

Error while enabling vending: Serial comms error with TSM2xx: Timeout waiting for response (2000 ms)

The TSM has not been selected. Go to SYSTEM and select TSM.

Other parameters invalid for request: input 'units' is not an integer or is out of range

Fees might exceed the value of the token or there may be an invalid on non-integer value in the fee or tariff

Format of tariff is unreadable. Please use the format x.xxxx, e.g. 3.35 for $3.35 per unit

Use correct format as indicated in the GUI

Tariff record not available for SGC '400029, TI '1' and Subclass '1'

The Tariff record and meter data do not correspond.

Check the meter Configuration data against the Tariff data and ensure there is a valid Tariff for the meter e.g. SGC, TI, KRN

Invalid meter ID: STS Data Not Valid: invalid PAN (wrong length)

The meter PAN is not a valid STS number. Use an 11 or 13-digit STS PAN

Vending Key not found for sgc='xxxxxx' krn='n'

The key revision number for the selected SGC is not available in the key file.

SGC xxxxxx not found in database

The requested SGC is not available in the PrismVend database. Check that the correct key load file has been uploaded.

Invalid sts token representation "1234555", should be 20D

When verifying a token, an invalid STS token was presented, it should be 20 digits

Token failed to verify

Failed to verify a token

The token may have been generated on another system

The key file may have changed since the token was generated

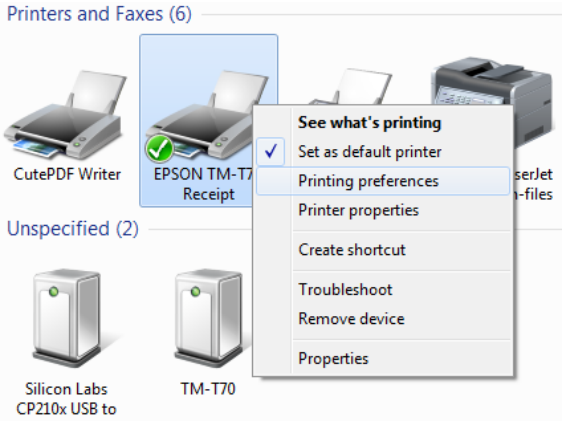
View the report 'Vend History' to see if the token can be located

6.5 Optional (Configuring the Epson TM-T70 POS Printer)

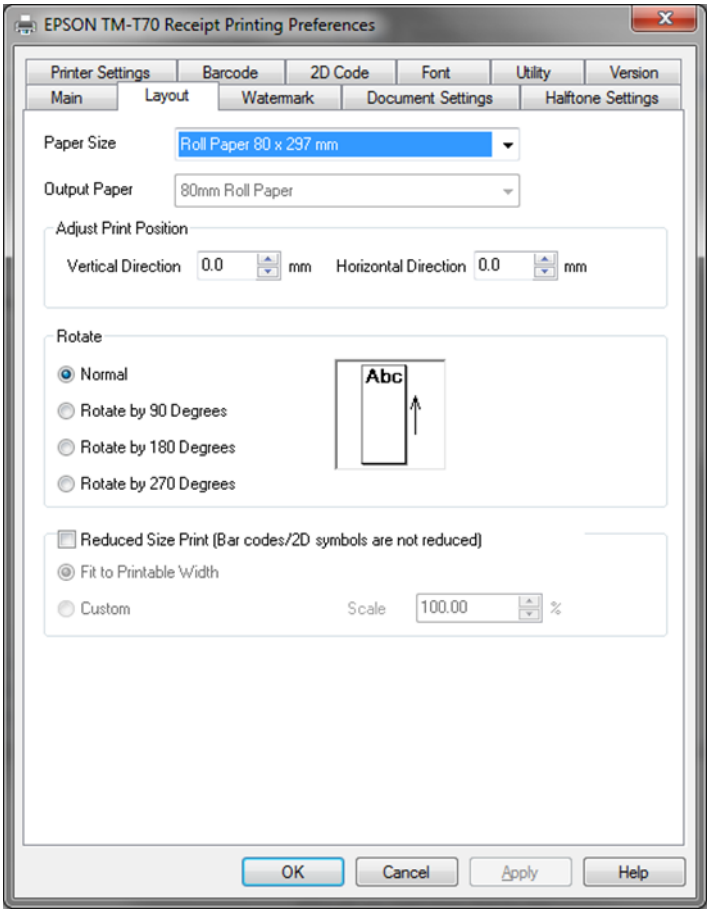
This section describes the process for configuring the EPSON TM-T70 point of sale printer. **Although this guide applies specifically to that model printer, it can be used as a guideline for other POS printers.**

6.5.1 Configure the printer

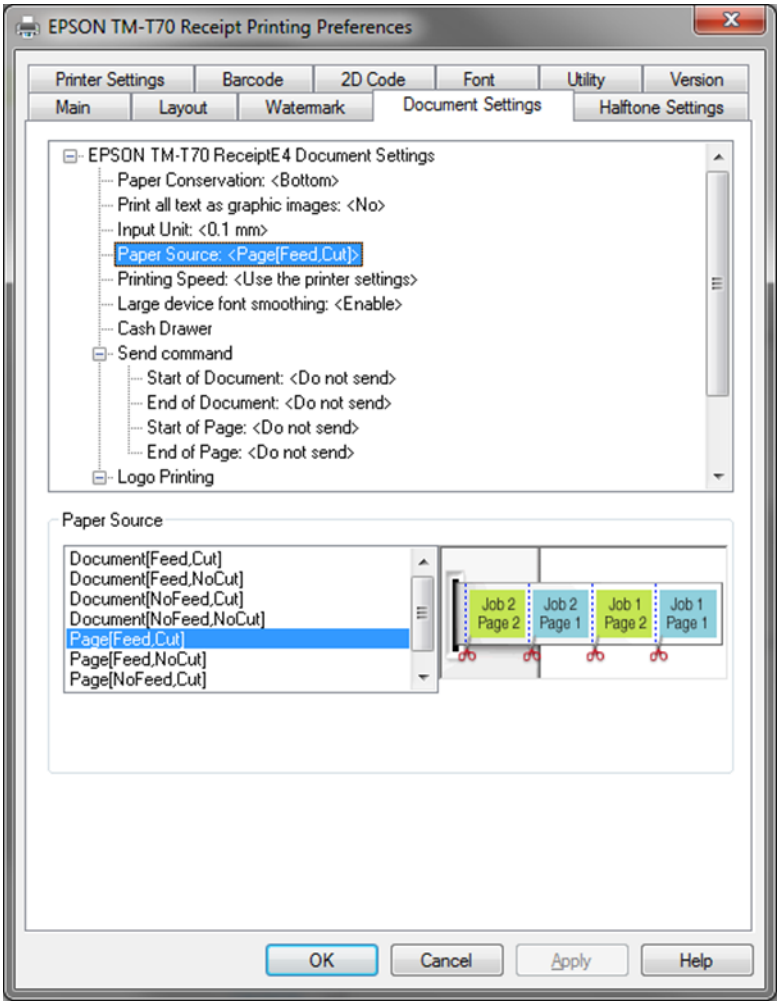
- Install the EPSON TM-T70 drivers using the supplied installation media. Refer to the hardware installation manual supplied with the printer.
- Once the printer has been installed:
- Browse to **Devices and Printers**
- Right click on the EPSON TM-T70 printer. Click **Printing preferences**



- Click **Layout**. Select **Roll Paper 80 x 297 mm** as the **Paper Size**

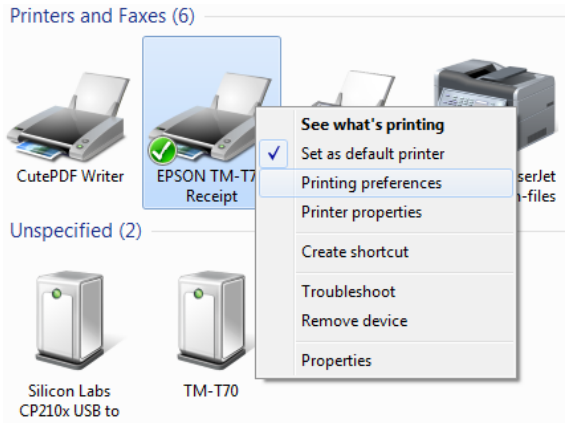


- Click **Document Settings**
- Change **Paper Source** to **<Page[Feed,Cut]>**



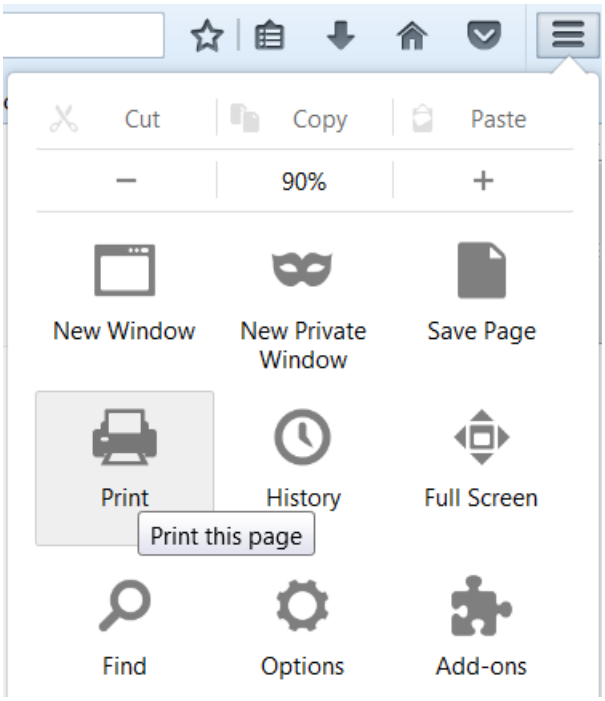
6.5.2 Set the printer as the default printer

- Browse to **Devices and Printers**
- Right click on the EPSON TM-T70 printer. Click **Set as default printer**

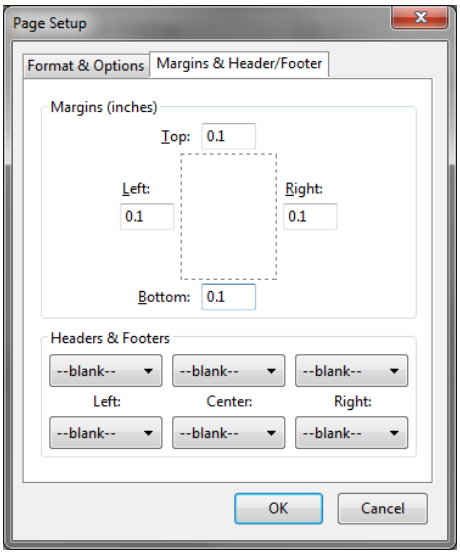


6.5.3 Configure Firefox to print

- In Firefox, click on the options button and click **Print.**



- In the menu at the top, click **Page Setup.**
- In that window, click on the **Margins & Header/Footer** tab.
- Set the margins to 0.1 on all sides and set all headers & footers to **–blank--**.



- Click **OK**

7 Reports

The Reporting page is the starting point for accessing reports on the various operations of TsmWeb. The page displays a list of modules for which reports can be generated. The page can be accessed via the “Reports” link in the menu on the left.

Modules and reports that are relevant to STS operations are:

- **(STS Administration) Transaction Count Control:** Report of updates to the transaction counter (stored on the TSM) done via TsmWeb.
- **(STS Administration) Password Reset Control:** Report of password reset requests (for the password stored on the TSM) done via TsmWeb.
- **(CDU.Report.stsVending) Meter History:** Reports past activities performed via TsmWeb involving a specified meter.
- **(CDU.Report.stsVending) Vending History:** Report of all vending operations.
- **(CDU.Report.stsVending) Vending History of a user:** Report of all vending operations by a particular user.
- **(CDU.Report.stsVending) Vending History of Web API:** Report of all vending operations by the Web API
- **(CDU.Report.stsVending) Vend Credit History:** Report of all Vend Credit tokens generated via TsmWeb.
- **(CDU.Report.stsVending) Vend Credit History of a user:** Report of all Vend Credit tokens generated via TsmWeb by a particular user.
- **(CDU.Report.stsVending) Vend Credit History of Web API:** Report of all Vend Credit tokens generated via TsmWeb by the Web API.
- **(CDU.Report.stsVending) Meters:** A list of all meters.
- Reports can be saved in CSV format by clicking the **Download as CSV** link at the bottom of a report.

8 Maintenance

8.1 IT hygiene

Persons having physical access to the PC hosting PrismVend should take care to exercise good hygiene in handling USB-connected peripherals (including hard drives & flash drives) and removable media. These devices & media form a communication channel with the server and can introduce malware.

We recommend the following:

- The PC hosting PrismVend should have anti-virus software installed with up-to-date definition files. The anti-virus should be configured to scan USB drives on access.
- Keep USB drives used for backup separate from other USB drives (for example those used to transfer setup files). Do not use backup drives for any other purpose.
- Use a client PC rather than accessing the PC hosting the PrismVend user interface from the console.
- Users can read the following articles to better understand the threat:
    - USB Hygiene (https://blog.kaspersky.com/usb-hygiene/2471/)
    - Why the Security of USB Is Fundamentally Broken (http://www.wired.com/2014/07/usb-security/)

8.2 Backup

This section describes how to set up automated backups. It does not describe how to make manual backups; however, a manual backup can be made by running the scheduled task created in section 8.2.4.2.

8.2.1 Data to be backed up

All PrismVend data is contained in the following files which must be backed up periodically:

- `%TSMWEBDIR%\tsmweb.sqlite*`
- `%TSMWEBDIR%\tsmweb.prop`
- [Optional] `%TSMWEB%\logs\*`

where %TSMWEBDIR% is the folder in which the PrismVend software is installed.

default: "`C:\Program Files (x86)\Prism\TsmWeb-STS`"

We recommend that you use the backup scripts packages with the PrismVend software (and described below), but **if the PrismVend service has been stopped** then it is sufficient to copy these files to create a backup.

8.2.2 Backup frequency

We recommend backing up the PrismVend data after the end of each working day (for example using a scheduled task each night, as explained in section 8.2.4.2).

Backups should also be done **before** any PrismVend upgrades are performed.

8.2.3 Storing backups

We recommend the following:

- Backups should be saved onto a portable physical medium, not the host's hard drive. A USB-connected mass-storage device is suitable.
- The integrity and confidentiality of backups should be protected, for example by means of encryption.
- Backups should be physically or electronically transferred off-site on a regular basis and stored off-site in a manner that is both secure (against unauthorised access) and reliable.
    - Physical transfer can be accomplished by cycling through a set of USB mass-storage devices, where at any time at least one device is on-site, one or more are off-site, and at most one is in transit.
    - Electronic transfer can be accomplished via e-mail, FTP, or other access-controlled file sharing protocols.

8.2.4 Recommended backup mechanism

The backup script is executed daily using the Windows Task Scheduler, an encrypted backup is placed on a USB mass-storage device.

Follow these steps to set up automated backups using these scripts:

8.2.4.1 Select/Create a user to run the backup task

The backup task should be executed by a user account that is a member of the Administrators group. Select an appropriate user account or create one if necessary.

To create a user account in the Administrators group:

- Right click Computer → Manage; Click Local Users and Groups on the left sidebar; Double click Users on the main panel; Right click → New User
- Enter the desired username and password
- Untick User must change password at next logon; Tick password never expires; Tick user cannot change password.
- Click Create
- Right click on the user → Properties; Click Member Of; Click Add
- Type Administrators; Click Check Names. The name will be resolved.
- Click OK
- Log off

Log in using the selected backup user account. The rest of this configuration must be performed using the backup user's account.

8.2.4.2 Set up a Windows Scheduled Task

Create a new Scheduled Task:

Caution: you must be logged in using the backup user's account when you perform this step.

- Right Click Computer → Manage; Click Task Scheduler in the left side pane

- Click Import Task and select the following task template located in the following folder:
  - `%TSMWEBDIR%\backup\TsmWeb-STS_Backup.xml`
- Click Change User or Group…; type in the backup user's account name (the user you are logged in as); Click Check Names; The username will be resolved; Click OK
- Click the Actions tab; You must set up an action to run the TsmWeb_backup.bat'
  - If you have installed the PrismVend software in a non-standard location, you must change the location of the 'TsmWeb_backup.bat ' file.
  - Set the arguments for the 'TsmWeb_backup.bat' script as follows:
    - All arguments should be placed in double-quotes, e.g. `"argument"`.
    - The first argument is the folder in which to store backup files (ideally a folder on a USB mass-storage device), e.g. `"E:\TsmWeb-backups"` (including the double-quotes).

      You should dedicate a USB slot to you mass-storage backup media. If you plug the USB drive into a different USB slot its drive letter will change, and your backups will fail

    - The second argument is the product type, in this case `"sts"` (including the double-quotes).
    - Overall example arguments to backup.bat:
      `"E:\TsmWeb-backups" "sts"`
  - Click OK
- Click OK to create the task
- Test the task:
  - Click on the Task Scheduler Library; Right Click TsmWeb_Backup → Run
  - Confirm that the backups get saved onto the flash drive.

8.2.4.3 Diagnostics

The following diagnostic mechanisms are available if your backups are not working as expected:

- Application Log: Backup attempts and results are logged to the Application Log with the Source 'TSMWEB_STS'. To view the Application Log with Event Viewer:
  - Right click Computer → Manage; Click and expand Event Viewer in the left side-pane; Expand Windows Logs → Application
  - Click on the Source column to sort by source and look at the 'TSMWEB_STS' entries.
  - Each event indicates a backup start, success, or failure. Failure events include the location of the temporary backup files and logs but *be aware that these may be overwritten by subsequent backup attempts*.
- Temporary Backup Files and Logs:
  - Prism may need a copy of these logs files if asked for support in connection with a problem involving the PrismVend backups.
  - Temporary backup files and logs are located in %TEMP%\PrismTsmWebBak. To view the contents of this folder:
    - *%TEMP% is the temporary folder for the backup user's account; you must be logged in using the backup user's account to execute the following command(s).*
    - Click the Windows start Orb; Type `%TEMP%\PrismTsmWebBak` and press enter.
    - An explorer window will be presented which will list the temporary backup files and logs.
  - In some cases, a supplementary log file `%TEMP%\PrismTsmWebSts.log` may exist.

8.3 Restore

8.3.1 Extract the backed-up files

Simply extract the .7z archive to a location on the PrismVend PC.

7zip be downloaded from: http://www.7-zip.org/

[

8.3.2 Restore files to the system

- Stop the TsmWeb service
- Delete the SQLite database files from the installation directory (there will be 3: tsmweb.sqlite, tsmweb.sqlite-shm, tsmweb.sqlite-wal)
- Copy the files that were extracted in the previous section (tsmweb.sqlite, tsmweb.prop & logs folder) from the temporary folder and paste them into the PrismVend directory, %TSMWEBSTSDIR%.
- Restart the TsmWeb service.

9 Appendix B

Table 1: Roles and permissions

		admin	operator	auditor	stsVendingLow	stsVendingHigh	stsTechnical	stsManagement	stsFreeissue
HOME		✓	✓	✓	✓	✓	✓	✓	✓
SYSTEM		✓	✓	✓	X	X	X	X	X
ACTIVITY		✓	✓	✓	X	X	X	X	X
ALERTS		✓	✓	✓	X	X	X	X	X
KEY STORE		✓	✓	X	X	X	X	X	X
LICENSES		✓	X	X	X	X	X	X	X
PREFERENCE MANAGER		✓	✓	✓	X	X	X	X	X
REPORTS		✓	✓	✓	X	X	X	X	X
STS	STS ADMINISTRATION	✓	✓	X	X	X	X	X	X
	STS SM STATUS	✓	✓	X	X	X	X	X	X
	STS VENDING	X	X	X	✓	✓	✓	✓	✓
	Credit	X	X	X	✓	✓	X	X	✓
	Verify Token	X	X	X	✓	✓	X	X	✓
	Meter History	X	X	X	✓	✓	✓	✓	✓
	Meter Configuration	X	X	X	✓	✓	✓	✓	✓
	Engineering	X	X	X	X	X	✓	X	X
	Key Change	X	X	X	X	X	✓	X	X
	STS VENDING QUICK SETUP	✓	✓	✓	✓	✓	✓	✓	✓
USERS		✓	✓	✓	X	X	X	X	X
LOGS		✓	✓	✓	X	X	X	X	X
DOCUMENTATION		✓	✓	✓	X	X	X	X	X

10 Amendment History

Version	Description	Person	Date
1.0	Initial draft	CA	2020/12/11
1.1	Added sections on software upgrade/migration. As well as more detail on configuring PrismToken and periodic key refresh.	CA	2021/02/18
1.2	Updated the reports section to include the two Web API reports	CA	2021/12/21
1.3	Updated the backup and restore section references	CA	2022/02/15
1.4	Added section on tariff rounding modes	TD	2022/11/08
1.5	Updated guide to reflect UI re-ordering changes	CA	2023/05/22