



**Count on it.**

# TORO<sup>®</sup> SENTINEL<sup>®</sup> APPLICATION NOTE

## AN02: TORO Precision-ET<sup>™</sup>



# TORO® PRECISION-ET™

## Toro Precision-ET Overview

Toro Precision-ET is a Web-based ET source for Sentinel. It provides ET data similar to a weather station based on a user input Latitude and Longitude location. This Web-based system has resolution down to the square kilometer for the continental United States, Hawaii, and a portion of Southern Canada and Northern Mexico.

Toro Precision-ET service is provided as part of the two years of Toro NSN® Support that comes with the purchase of a Sentinel Central package. In order to enable Toro Precision-ET within Sentinel as a weather source, the user will need to enter an “Activation Keycode” and a Precision-ET User ID provided by Toro NSN®.

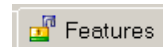
Once setup, the Sentinel Central Computer (at a daily time provided by the user) will request from the Precision-ET servers the previous 24-hours of ET. This data is provided to the previous top of the hour.

## Precision-ET Activation

1. Verify that Sentinel WMS is properly installed on your computer.
2. Double Click on the Sentinel WMS Icon (identified as a Red Clock) on your desktop to **open the Sentinel WMS interface**.

**Note:** Be patient, Sentinel opens slowly. If you double again, you will open a second application – check your taskbar to insure only one Sentinel application (red clock icon) is running.

3. Left Click on **SETUP** in the left hand side of the upper tool bar.
4. In the Software Setup Window that opens, click on the **Features Tab**.



Sentinel WMS full version features & activation key

|                                     |   |  |
|-------------------------------------|---|--|
| <input checked="" type="checkbox"/> | Scheduler / Optimizer                       |  |
| <input checked="" type="checkbox"/> | Weather Sources                             |  |
| <input checked="" type="checkbox"/> | System (group) Operations                   |  |
| <input checked="" type="checkbox"/> | Watcher (unattended) Operations             |  |
| <input checked="" type="checkbox"/> | Notifications (email)                       |  |
| <input checked="" type="checkbox"/> | Logging                                     |  |
| <input checked="" type="checkbox"/> | Mapping                                     |  |
| <input checked="" type="checkbox"/> | Profiles (backup / multi-site management)   |  |
| <input checked="" type="checkbox"/> | All communication options (vs. serial only) |  |

Full features activation key: **B4-FF-DD-3D**

Select All

Optional features & activation keys entry

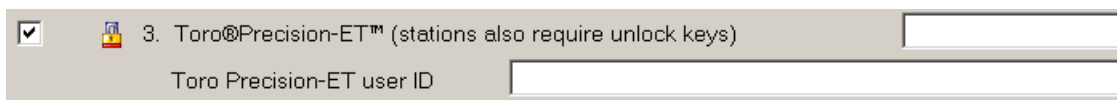
|                                     |   |                    |
|-------------------------------------|---|--------------------|
| <input checked="" type="checkbox"/> | 1. Include Turf Guard (moisture sensing)                  | <b>89-C8-BD-E2</b> |
| <input checked="" type="checkbox"/> | 2. Allow setting station types above station 96           | <b>88-BA-C4-12</b> |
| <input type="checkbox"/>            | 3. Toro@Precision-ET™ (stations also require unlock keys) |                    |
|                                     | Toro Precision-ET user ID                                 |                    |
| <input checked="" type="checkbox"/> | 4. CIMIS  | <b>1F-AF-0B-6C</b> |

In the Features Tab, you will see that Activation Keys are broken into two groups: 1) Sentinel WMS Full Features, and 2) Optional Features. The Full Features enables all standard Sentinel WMS Functionality. Optional Features are advanced or “for fee” features including:

- **Turf Guard®:** For systems utilizing Turf Guard Soil Monitoring.
- **Stations Above 96:** For systems utilizing station types other than Two-Wire for controller station counts greater than 96 (e.g. MapTo or Wireless Output Board). These systems require radio communication considerations and should not be set up without first consulting Toro.
- **Toro Precision-ET™:** Web-based ET-data based on latitude/longitude position for customers in the continental U.S., Hawaii, and lower Canada. Resolution to 1 sq. km. Two years of service provided in conjunction with Toro NSN® Support with Sentinel purchase
- **CIMIS:** A California-only Web-based Et Source (Government Run – No Fee).

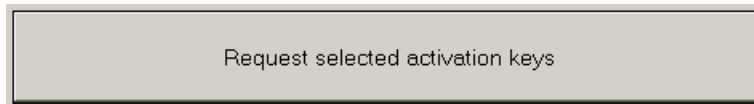
Continuing Steps:

5. Click on Toro Precision-ET under Optional Features:

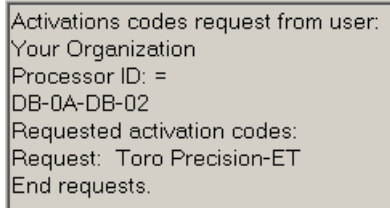


A screenshot of a web interface. On the left, there is a checked checkbox. To its right is the text '3. Toro@Precision-ET™ (stations also require unlock keys)'. Further right is an empty input field. Below this, the text 'Toro Precision-ET user ID' is followed by another empty input field.

6. Click on the **Request Selected Activation Keys** Button to the Right

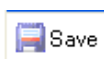


7. This Generates a message in the window under the button and also copies this message into your computers clipboard for pasting in an e-mail message:

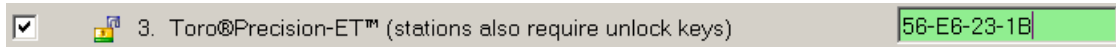


```
Activations codes request from user:
Your Organization
Processor ID: =
DB-0A-DB-02
Requested activation codes:
Request: Toro Precision-ET
End requests.
```

8. Contact Toro NSN® Support at 1-800-ASK-TORO (275-8676). Please have your customer name provided to Toro by your Distributor when your Sentinel Central package was purchased, as well as your computer-specific processor ID from the message to receive your Activation Codes. In the message above, this ID is “C3-12-7C-3C.” This code is unique to every computer and is tied to your Activation Keys.
9. Toro NSN will provide you your unique Activation Key(s) for Precision-ET. The User ID will be provided as part of weather station setup.
10. Enter the provided Activation Key in the appropriate slot on the Features Tab.
11. Click **Save**



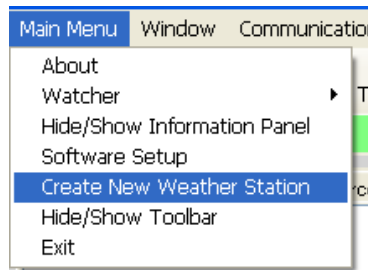
12. If correct, your Activation Key slots should turn green, indicating unlocked features.



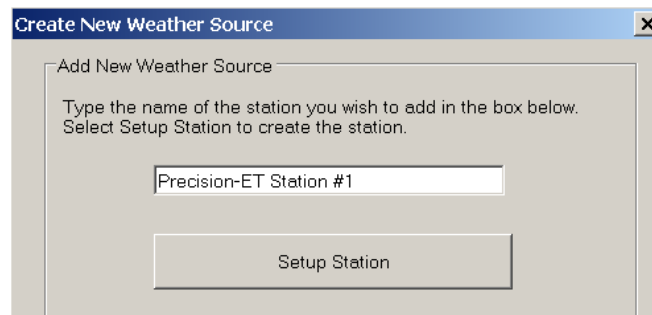
**Important:** It is recommended that you stay on the line with Toro NSN for weather station setup process. Toro NSN can help provide the Latitude and Longitude for any address you provide.

### ***Precision-ET Weather Station Setup***

1. Select **Main Menu** in Upper Left of Sentinel Main Screen
2. Select **Create New Weather Station**

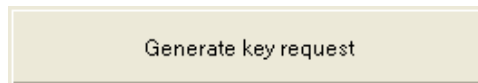


3. Enter Name for New Weather Station
4. Click **Setup Station** button

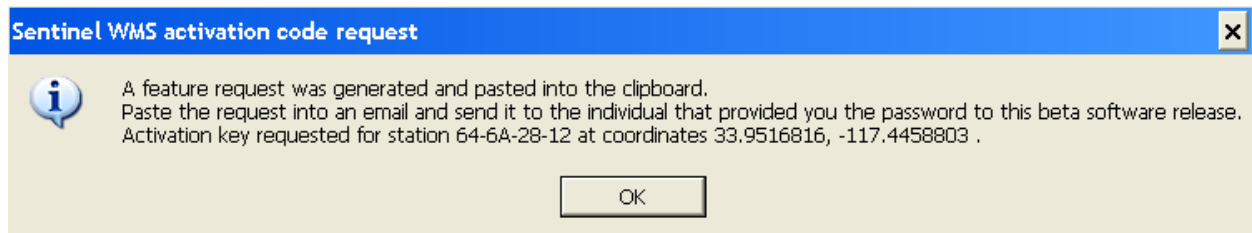


5. Select **Station Type** Tab
6. Choose Toro Precision-ET Weather Station Model
7. Set Units (English)
8. Enter Latitude & Longitude of desired Weather Station Location. Toro NSN can provide.

9. Click Generate Key request button



13. This Generates a message in a popup window button and also copies this message into your computers clipboard for pasting in an e-mail message: "Activation key requested for station 64-6A-28-12 at coordinates 33.9516816, -117.4458803"



14. Provide NSN with the unique Station ID (64-6A-28-12 in above example).
15. Toro NSN Support will provide you your Activation Key / User ID tied to your station and Precision-ET Subscription.
16. Enter Activation Key and click **Save**.
17. Select **ET & Rain Polling** tab
18. Check (select) **Enable Polling**
19. Set Polling Time (before first irrigation start)
20. Check (select) to **Obtain Rain & Obtain ET** in Weather data to retrieve
21. Select **Target System** (previously setup)
22. Check (select) to Recalculate Runtimes of ET based Programs
23. Click **Save** to save changes

Create Station - Precision-ET Station #1

Delete Save Weather Monitors Close

ET & Rain Polling | Communication Settings | Station Type | Notifications | Weather Monitor Settings | Scheduler / Optimizer

Enable polling for this station

Time to retrieve weather data

Poll at global polling time (set in software config.)

Poll at time specified: 4:15 PM

Weather data to retrieve

Obtain Rain  Obtain ET

Target System

Toro Riverside

After polling, recalculate runtimes of ET based programs in database to match next day's values in the Sentinel satellite.

After polling, run Scheduler / Optimizer.

After completing Scheduler / Optimizer send changed programs

24. You have completed Toro Precision-ET Setup. **Close** Station Properties

