

# Instruction Sheet

## *Thermo Scientific Orion Star T900 Series Titrator Computer Software*

Thermo Scientific™ Orion Star™ T900 series computer software is designed to work with Orion Star T910 pH, T920 redox, T930 ion and T940 all-in-one titrators. The computer software facilitates the transfer of method, titration, standardization, calibration and direct measure data from your Orion Star T900 series titrator to a computer for data viewing, data backup and report generation.

For comprehensive information on titrator setup, operation and advanced features, refer to the titrator user manual on [www.thermofisher.com/T900titratorseries](http://www.thermofisher.com/T900titratorseries).

<b>IS-T900PCSW-E Revision A</b>
<b>Revision Date: March 1, 2019</b>

## System Requirements

- The titrator must have software revision V3.1.0 or higher installed to communicate with the computer software
- Microsoft® Windows® 7 and higher computer operating systems are supported
- The computer should have the latest Windows updates installed
- The operator must have administrative computer access to use the computer software

## Connecting Your Titrator to a Computer

The titrator connects to a computer via a virtual Ethernet over USB connection.

1. Ensure the titrator has the latest software revision and then power on the titrator.
2. Using the computer cable included with the titrator, connect the type B (square) end of the USB cable to the USB B connector on your titrator. Then connect the type A (rectangular) end to any available USB type A connector on your computer.



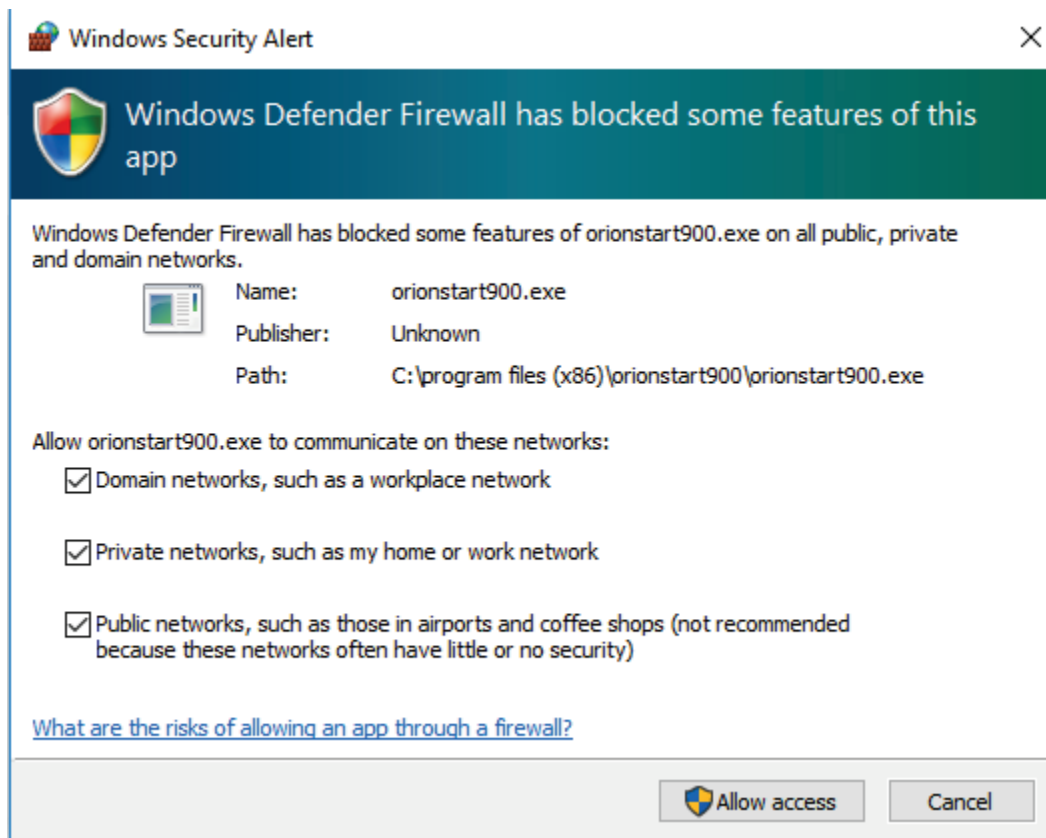
3. Windows should automatically detect the titrator and install the required driver, which may take a few minutes when you connect a titrator for the first time. You do not need to manually download or install any drivers, as the required RNDIS driver is included with Windows operating systems.

## Installing the Computer Software

1. Download the computer software at [www.thermofisher.com/orionsoftware](http://www.thermofisher.com/orionsoftware), save the file to any convenient location on the computer and unzip/extract the folder to the same location on the computer.
2. Double click the **setup.exe** file to launch the installer.
3. If you have anti-virus software installed, it may not recognize the software. If any warnings appear, click to allow the files to install.
4. Follow the on-screen instructions to finish installing the computer software.
5. Once the software is installed, an OrionStarT900 icon will appear on your desktop. Double click this icon to launch the computer software.

6. When launching the software for the first time, you may see a message from the Windows firewall regarding what types of networks to allow. It is recommended that you select all network types before clicking “allow access”. The RNDIS network over USB connection is considered a “public” network by Microsoft and **the computer software must be allowed to access public networks to function.**

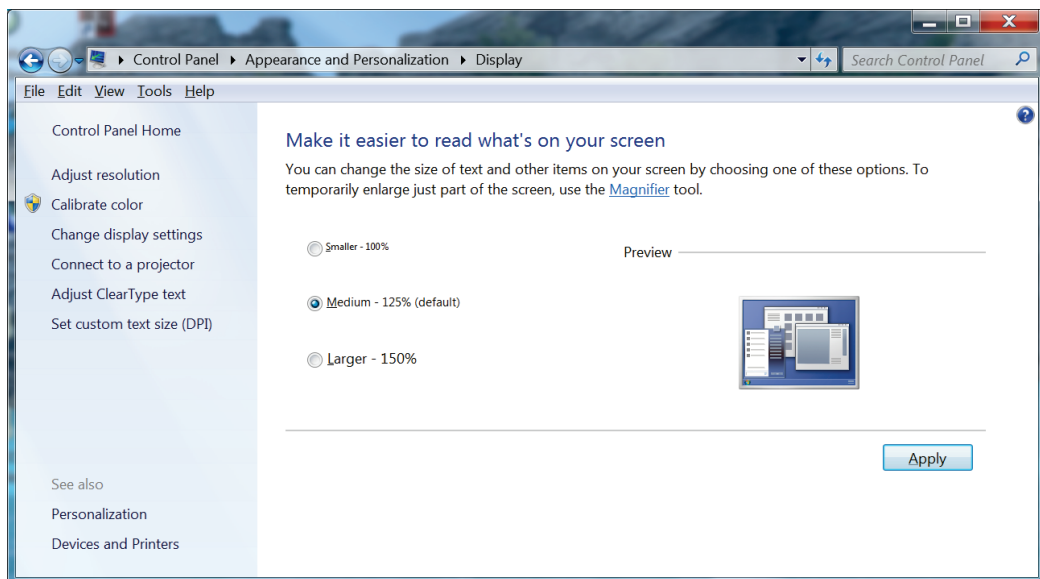
a. See the following screenshot as an example:



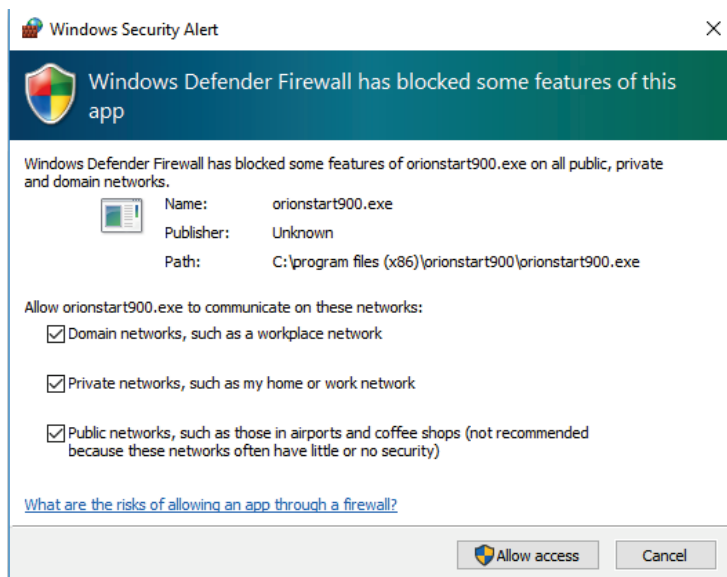
- b. If your company has 3rd party firewall software or other non-standard configuration, you may need to contact your IT department to make sure the connection is allowed. The software will not function if it cannot connect to the RNDIS network.
7. Restart your computer to ensure the Orion Star T900 series computer software is fully installed before opening the program.

## Using the Computer Software

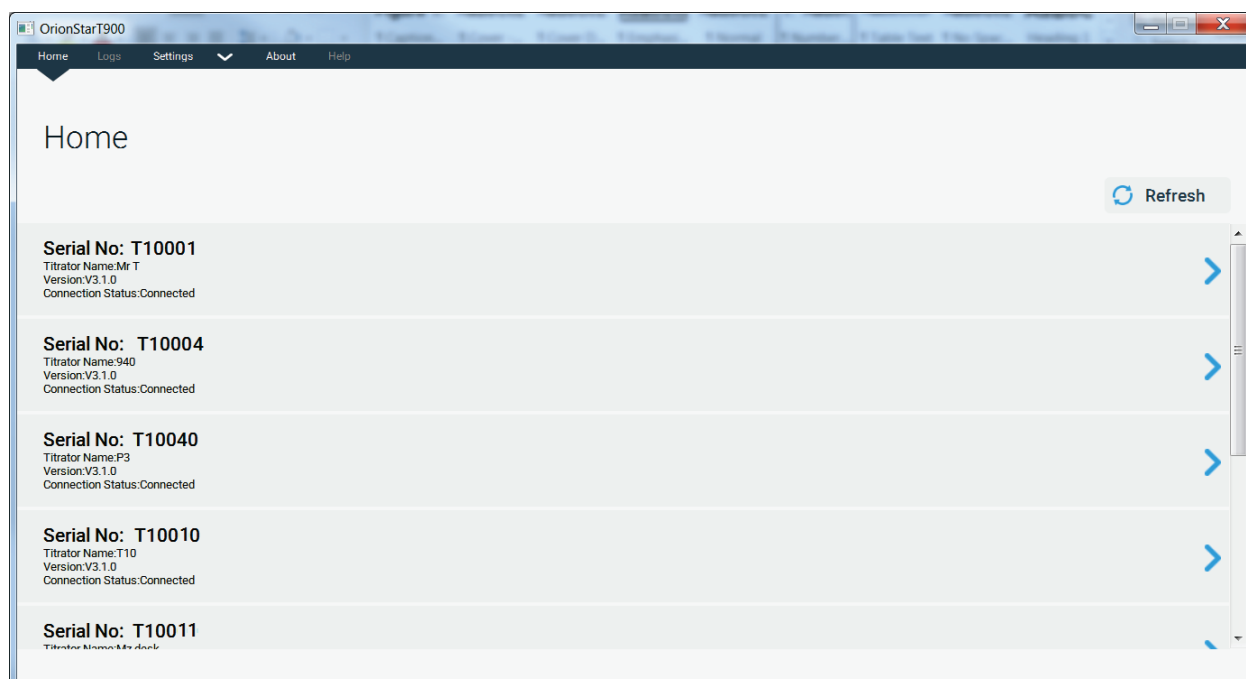
**Note:** The computer display size of text and other items on your screen must be set to the default percentage to properly view the computer software.



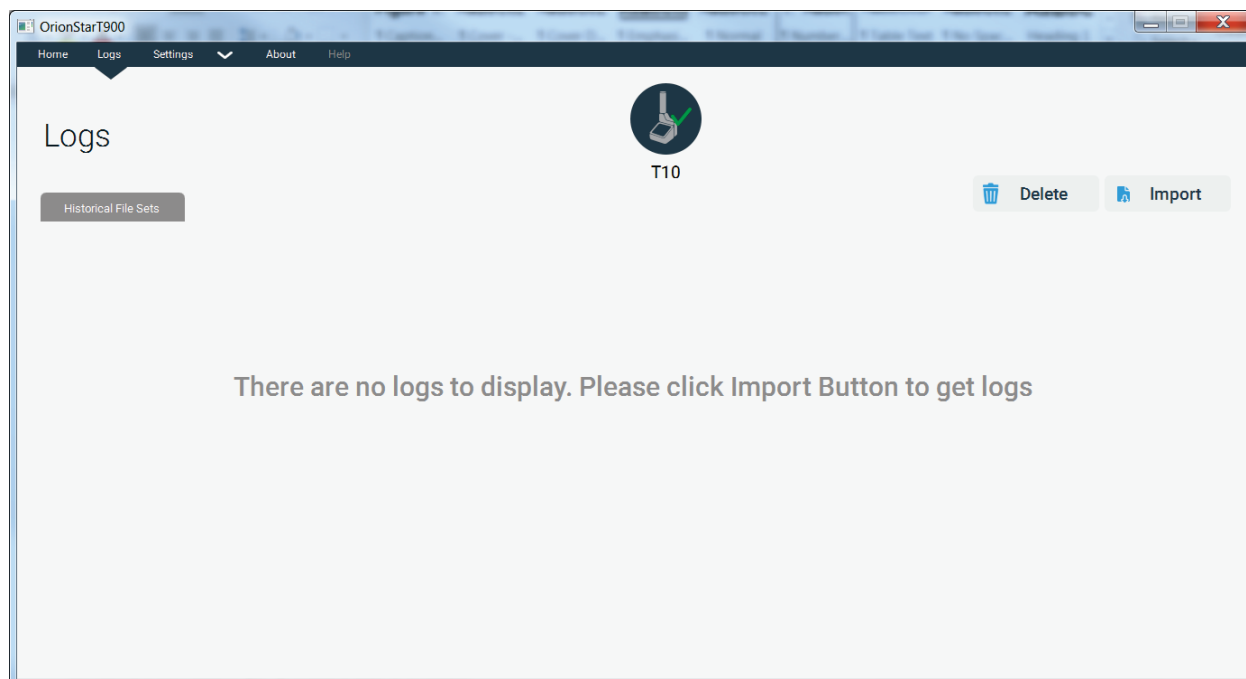
1. Double click the OrionStarT900 icon on your desktop to launch the computer software.
  - a. When launching the software for the first time, you may see a message from the Windows firewall regarding what types of networks to allow. It is recommended that you select all network types before clicking “allow access”. The RNDIS network over USB connection is considered a “public” network by Microsoft and **the computer software must be allowed to access public networks to function**. See the following screenshot as an example:



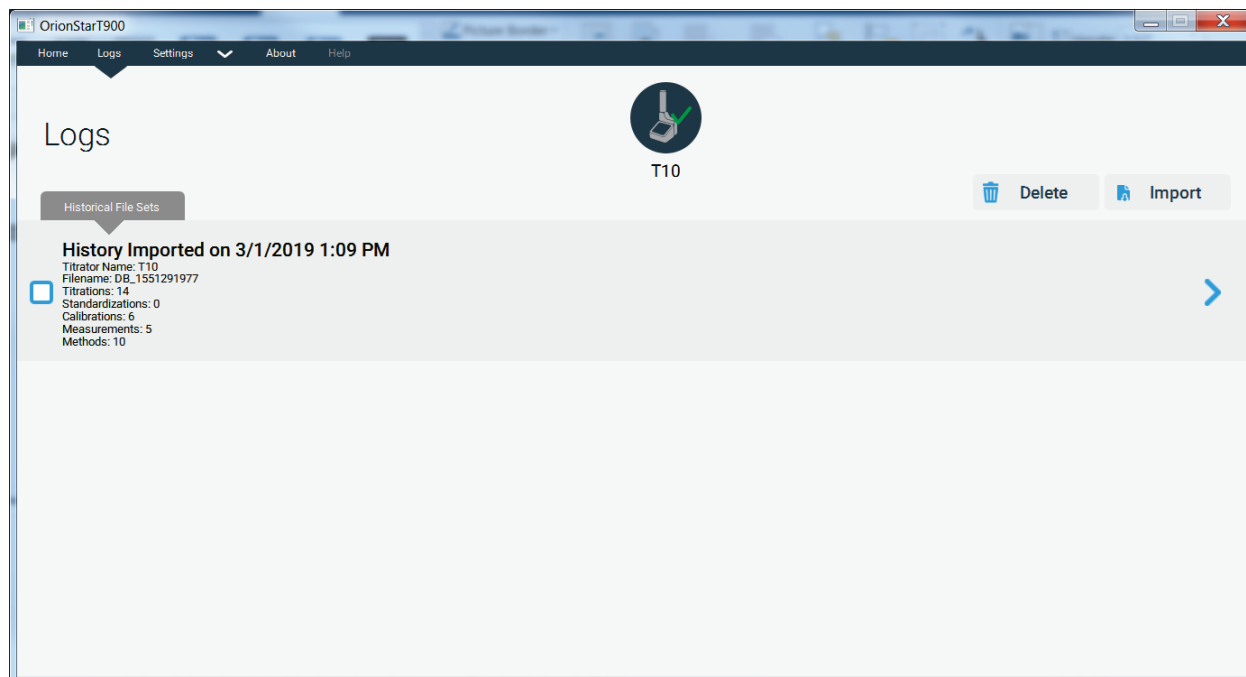
- b. If your company has 3rd party firewall software or other non-standard configuration, you may need to contact your IT department to make sure the connection is allowed. The software will not function if it cannot connect to the RNDIS network.
  2. Once you select your language, the software will open to the “home” screen. The home screen shows a list of all titrators you have previously connected to, along with their serial number, instrument name and connection status.
    - a. It takes a few moments for newly connected titrators to be visible on the network. Wait a few moments and then press the “Refresh” icon.



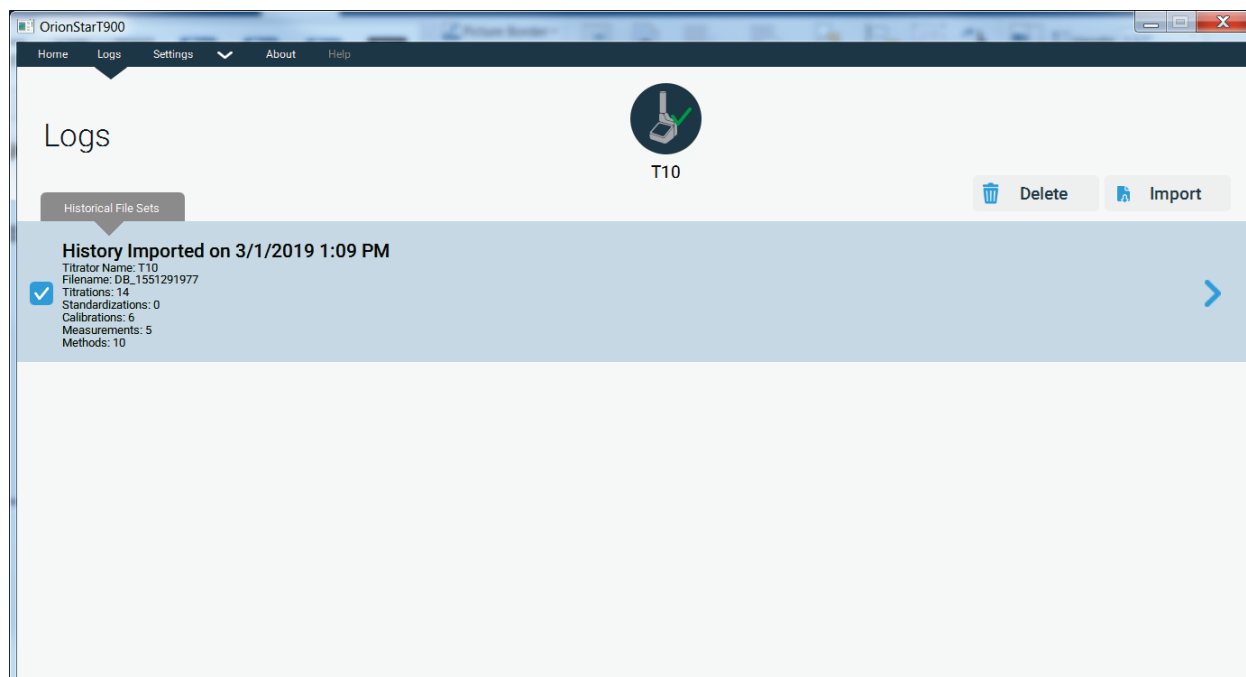
3. Click on the desired titrator to access its Logs screen.



4. Click the “Import” button to download the selected titrator’s data as a history file. Once a history file has been downloaded, you can view it again at any time without connecting to the titrator.
  - a. Press the “Import” button again to download a new history file when updated data is available on the titrator.

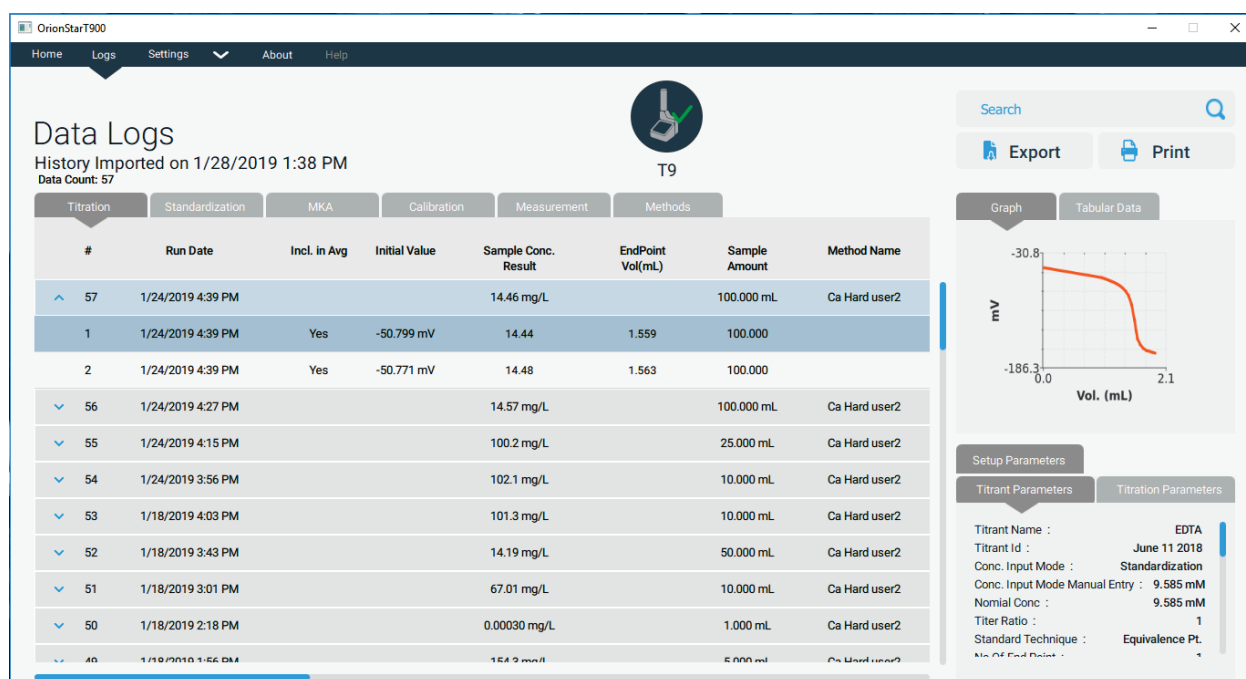


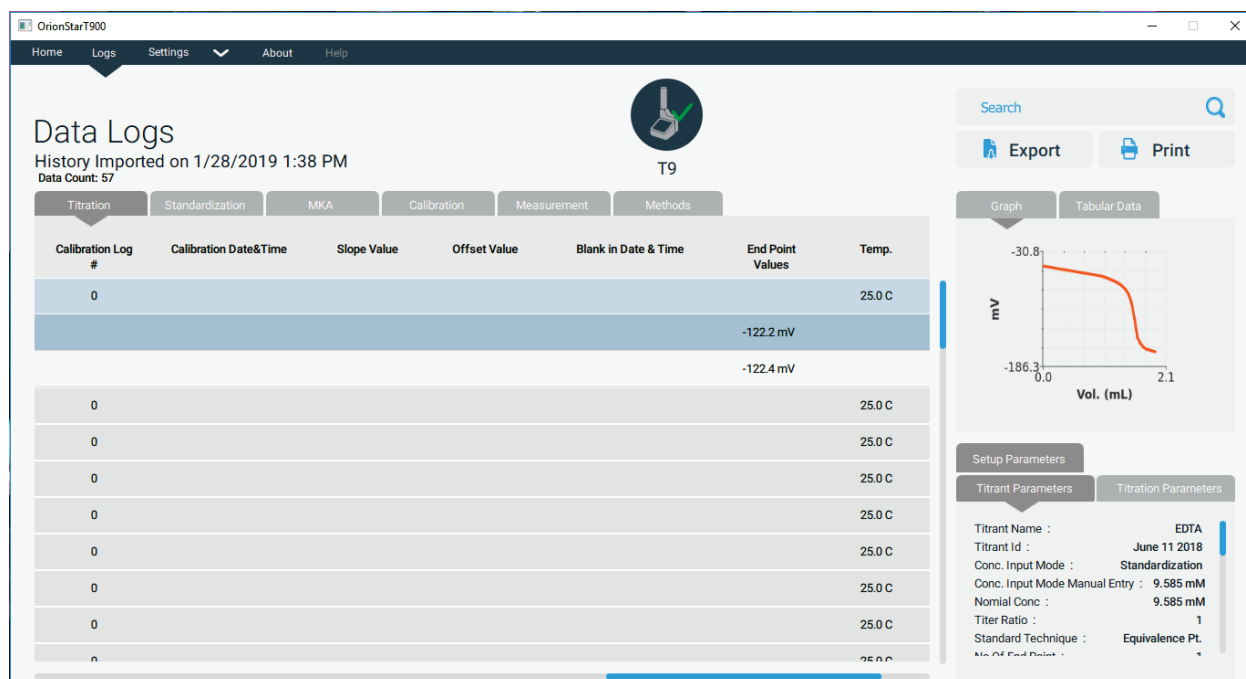
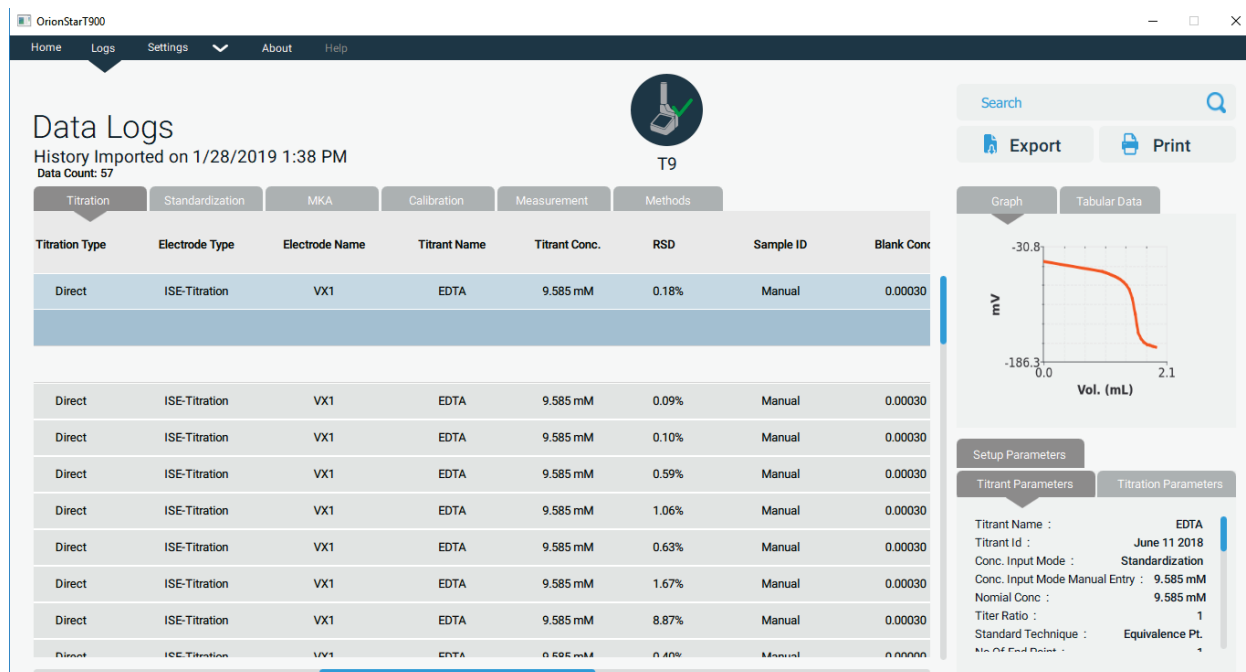
5. Click on a history file to open it and browse the titrator data. You can return to the home screen at any time by clicking “Home” in the upper navigation bar.



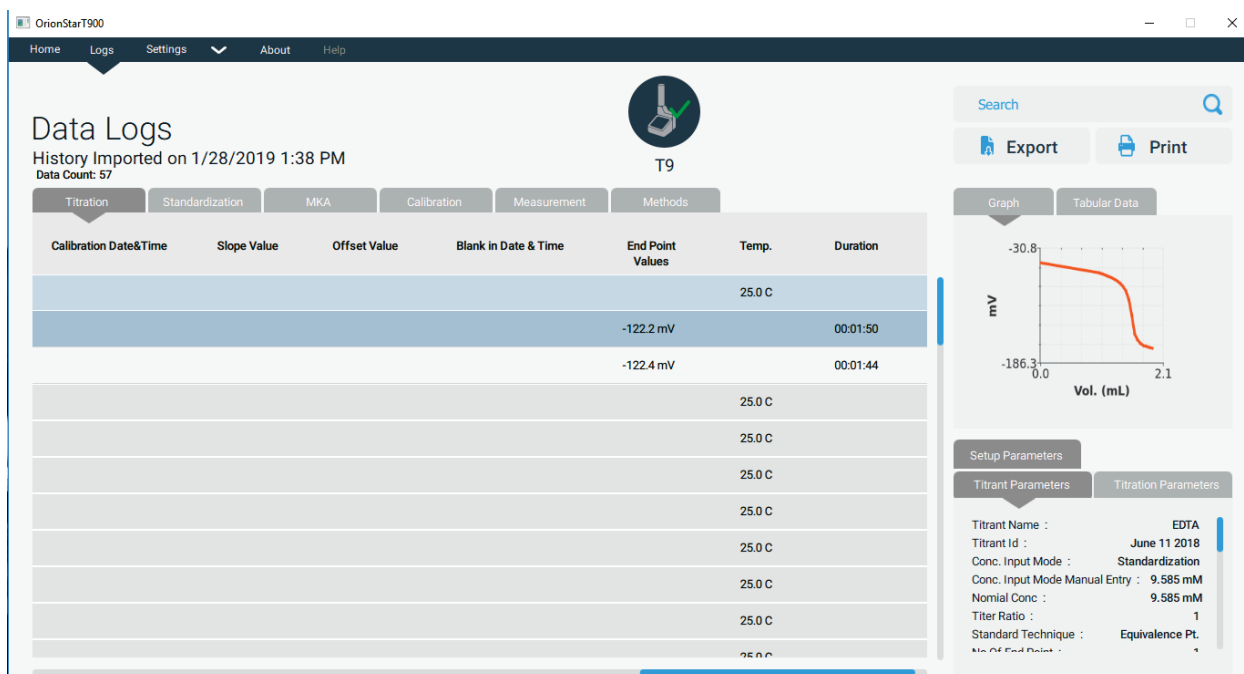
6. Click the Titration tab to view the titration data. Expand the summary line to view the individual cycle data. Click on an individual cycle data line to view its data, graph results and setup parameters.

a. Scroll right to view all data associated with the individual cycle data lines.



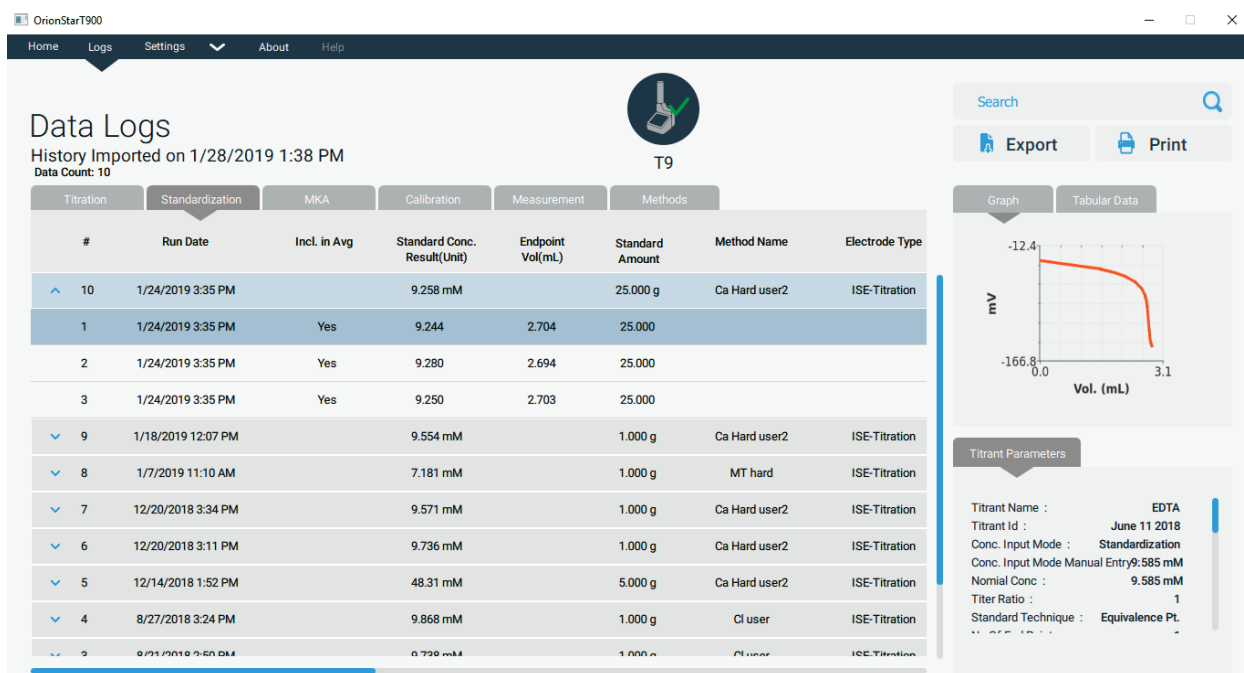


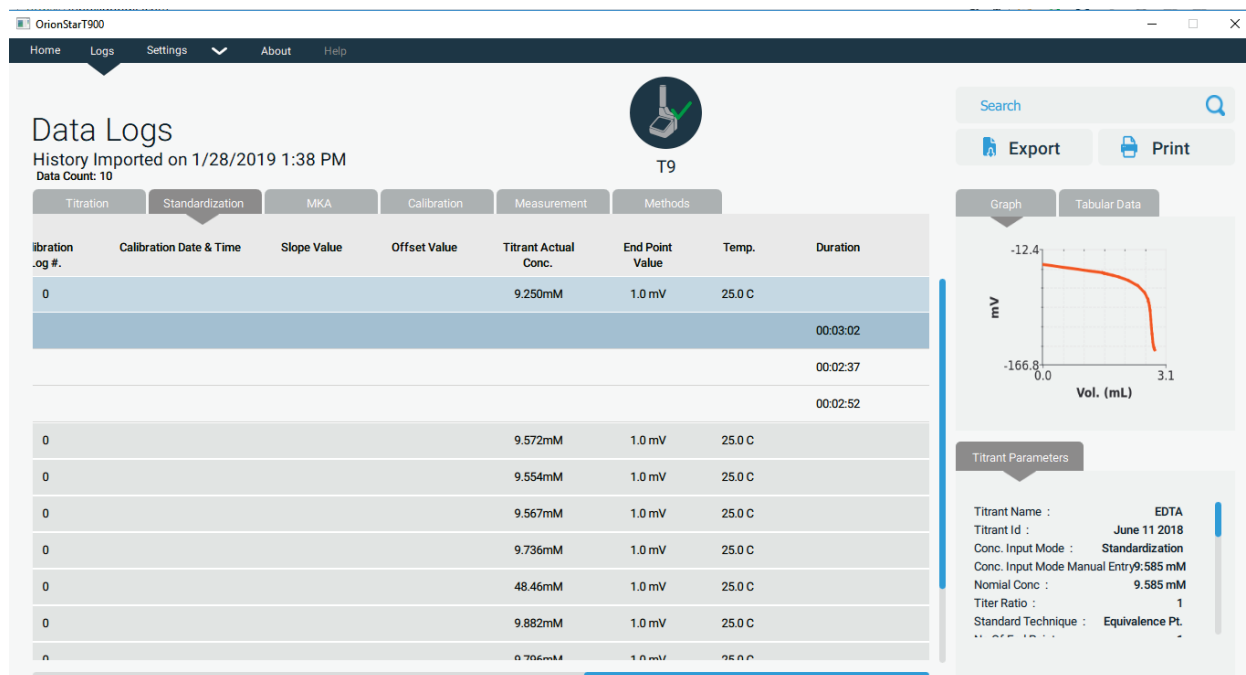
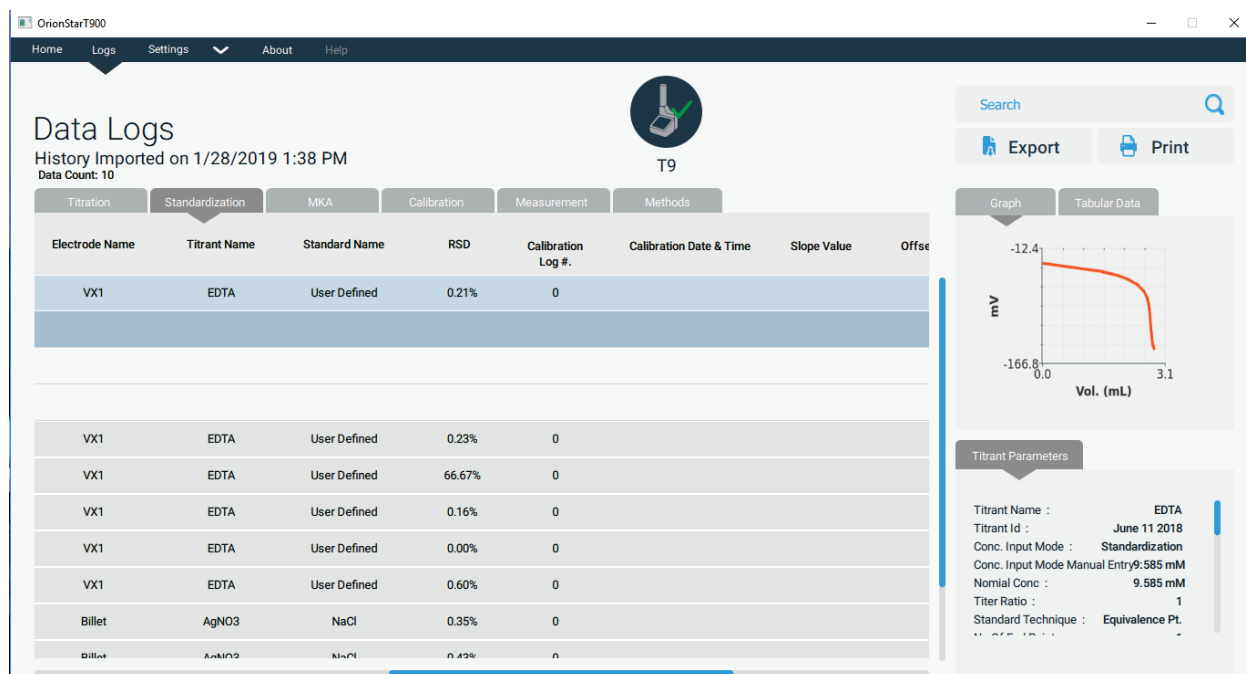




7. Click the Standardization tab to view the titrant standardization data. Expand the summary line to view the individual cycle data. Click on an individual cycle data line to view its data, graph results and setup parameters.

- a. Scroll right to view all data associated with the individual cycle data lines.





8. Click the MKA tab to view the multiple known addition data. Expand the summary line to view the individual cycle data. Click on an individual cycle data line to view its data, tabular results and setup parameters.
  - a. Scroll right to view all data associated with the individual cycle data lines.

OrionStarT900

Home Logs Settings About Help

**Data Logs**  
History Imported on 1/28/2019 1:38 PM  
Data Count: 43

T9

Titration Standardization **MKA** Calibration Measurement Methods

#	Run Date	Incl. in Avg	Sample Conc. Result(Unit)	Electrode Slope	Precision Level	Spike Recovery	RSD
43	10/26/2018 4:10 PM		307.9 mg/100g				7.53%
1	10/26/2018 7:26 PM	Yes	324.3	59.2 mV/dec	1.5 %	100.1 %	
2	10/26/2018 7:31 PM	Yes	291.5	59.2 mV/dec	1.1 %	100.3 %	
42	10/26/2018 3:22 PM		275.5 mg/100g				0.56%
41	10/23/2018 4:29 PM		329.8 mg/100g				2.37%
40	10/23/2018 12:22 PM		342.2 mg/100g				1.16%
39	10/23/2018 12:10 PM		329.0 mg/100g				1.99%
38	10/19/2018 3:37 PM		338.5 mg/100g				2.58%
37	10/19/2018 2:33 PM		142.5 mg/100g				0.05%
36	10/19/2018 2:16 PM		71.74 mg/100g				0.0%
35	10/18/2018 3:00 PM		155.5 mg/100g				0.10%

Search

Export Print

Graph Tabular Data

#	Vol.(mL)	Conc.	E(mV)	Precision
0	0.000	0.000	-85.1	-
1	0.303	356.111	-70.4	-
2	0.576	335.709	-60.8	-
3	0.989	327.286	-51.3	3.7%
4	1.611	324.283	-41.8	1.5%

Setup Parameters

Titration Parameters

Titration Parameters

Titration Name : Sodium (Na+)  
 Titration Id : Own  
 Titration Concentration Value : 1 M  
 Titration Reaction Ratio : 1  
 Titration Created At : 10/26/2018 3:03 PM

OrionStarT900

Home Logs Settings About Help

**Data Logs**  
History Imported on 1/28/2019 1:38 PM  
Data Count: 43

T9

Titration Standardization **MKA** Calibration Measurement Methods

Sample Amount	Total Solution Volume	Method Name	ISE Type	Electrode Name	Titration Name	Titration Conc.
2.5000 g	55.000 mL	Na MKA new	Sodium (Na+)	WU	Sodium (Na+)	1.000 M

2.5000 g	55.000 mL	Na MKA new	Sodium (Na+)	WU	Sodium (Na+)	1.000 M
2.5000 g	55.000 mL	Na MKA	Sodium (Na+)	WU2 11138	Sodium (Na+)	1.000 M
2.5000 g	55.000 mL	Na MKA	Sodium (Na+)	WU2 11138	Sodium (Na+)	1.000 M
2.5000 g	55.000 mL	Na MKA	Sodium (Na+)	WU2 11138	Sodium (Na+)	1.000 M
2.5000 g	55.000 mL	Na MKA	Sodium (Na+)	WU2 11138	Sodium (Na+)	1.000 M
2.5000 g	55.000 mL	Na MKA	Sodium (Na+)	WU2 11138	Sodium (Na+)	1.000 M
5.0000 g	55.000 mL	Na MKA	Sodium (Na+)	WU2 11138	Sodium (Na+)	1.000 M
7.5000 g	55.000 mL	Na MKA	Sodium (Na+)	WU2 11138	Sodium (Na+)	1.000 M

Search

Export Print

Graph Tabular Data

#	Vol.(mL)	Conc.	E(mV)	Precision
0	0.000	0.000	-85.1	-
1	0.303	356.111	-70.4	-
2	0.576	335.709	-60.8	-
3	0.989	327.286	-51.3	3.7%
4	1.611	324.283	-41.8	1.5%

Setup Parameters

Titration Parameters

Titration Parameters

Titration Name : Sodium (Na+)  
 Titration Id : Own  
 Titration Concentration Value : 1 M  
 Titration Reaction Ratio : 1  
 Titration Created At : 10/26/2018 3:03 PM

OrionStarT900

Home Logs Settings About Help

## Data Logs

History Imported on 1/28/2019 1:38 PM  
Data Count: 43

T9

Titration Standardization **MKA** Calibration Measurement Methods

Electrode Name	Titrant Name	Titrant Conc.	Sample ID	Blank Conc.	Duration	Volume (mL)	End Point Value (mV)
WU	Sodium (Na+)	1.000 M	Peas	0.00000 M	00:02:34	0.696	-61.9
WU	Sodium (Na+)	1.000 M	Peas	0.00000 M	00:02:01	0.517	-68.8
WU2 11138	Sodium (Na+)	1.000 M	Green beans	0.00000 M			
WU2 11138	Sodium (Na+)	1.000 M	Green beans	0.00000 M			
WU2 11138	Sodium (Na+)	1.000 M	Green beans	0.00000 M			
WU2 11138	Sodium (Na+)	1.000 M	Green beans	0.00000 M			
WU2 11138	Sodium (Na+)	1.000 M	Corn 50 low	0.00000 M			
WU2 11138	Sodium (Na+)	1.000 M	Corn 50 low	0.00000 M			
WU2 11138	Sodium (Na+)	1.000 M	Corn 50 low	0.00000 M			

Graph Tabular Data

#	Vol. (mL)	Conc.	E (mV)	Precision
0	0.000	0.000	-85.1	-
1	0.303	356.111	-70.4	-
2	0.576	335.709	-60.8	-
3	0.989	327.286	-51.3	3.7%
4	1.611	324.283	-41.8	1.5%

Setup Parameters

Titration Parameters

Titration Parameters

Titrant Name : Sodium (Na+)  
 Titrant Id : Own  
 Titrant Concentration Value : 1 M  
 Titrant Reaction Ratio : 1  
 Titrant Created At : 10/26/2018 3:03 PM

9. Click the Calibration tab to view the calibration data. Expand the summary line to view the individual calibration point data.

OrionStarT900

Home Logs Settings About Help

## Data Logs

History Imported on 1/28/2019 1:38 PM  
Data Count: 11

T9

Titration Standardization MKA **Calibration** Measurement Methods

#	Read Mode	Sensor Name	Slope / Redox Offset	ISE type	Run Date/Time	Temp.	pH / Concentration	mV Reading
11	ISE	TP1	58.0 mV/dec	Sodium (Na+)	10/26/2018 2:06 PM	ATC		
1			57.2 mV/dec		10/26/2018 2:06 PM	25.0 C	10.000	-158.7
2			58.9 mV/dec		10/26/2018 2:06 PM	25.0 C	100.000	-101.5
3			59.2 mV/dec		10/26/2018 2:06 PM	25.0 C	1000.000	-42.7
10	ISE	TP1	57.8 mV/dec	Sodium (Na+)	10/23/2018 11:49 AM	ATC		
9	ISE	TP1	58.5 mV/dec	Sodium (Na+)	10/23/2018 11:29 AM	ATC		
8	ISE	TP1	58.1 mV/dec	Sodium (Na+)	10/19/2018 11:38 AM	ATC		
7	ISE	TP1	54.1 mV/dec	Sodium (Na+)	10/18/2018 3:11 PM	ATC		
6	ISE	TP1	56.8 mV/dec	Sodium (Na+)	10/17/2018 2:12 PM	ATC		
5	ISE	TP1	55.5 mV/dec	Sodium (Na+)	10/17/2018 1:46 PM	ATC		
4	ISE	TP1	57.6 mV/dec	Sodium (Na+)	9/6/2018 3:52 PM	ATC		

10. Click the Measurement tab to view the direct measure data. Scroll right to view all data associated with the direct measure data lines.

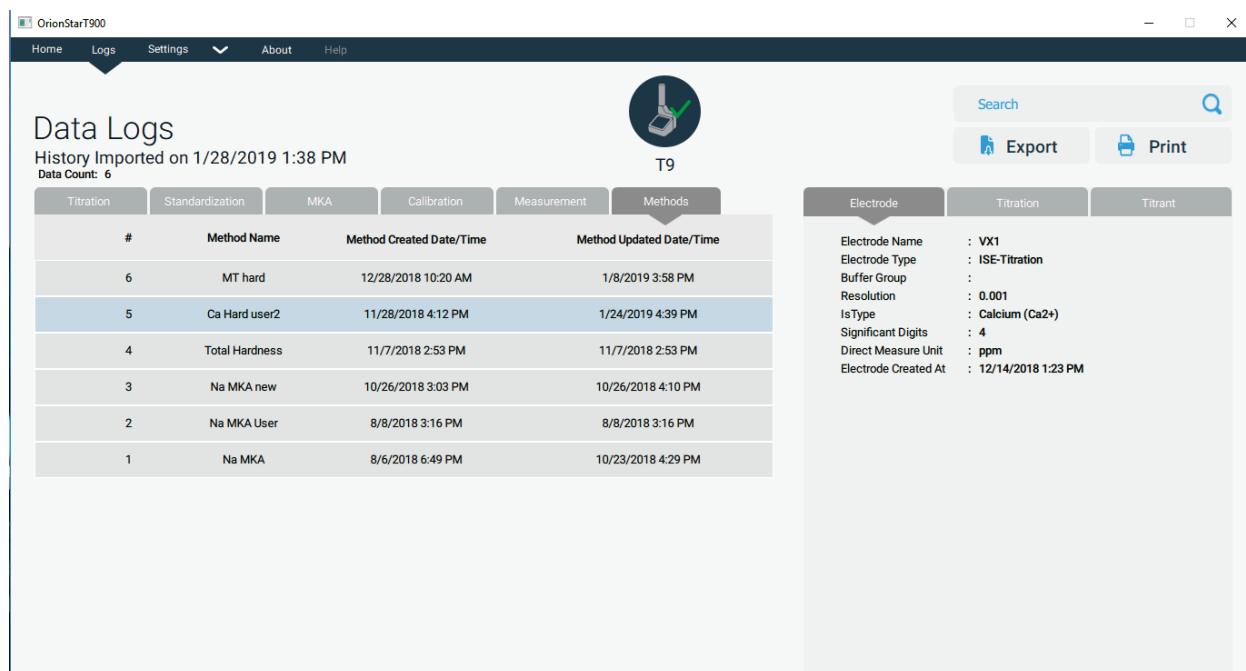
The screenshot shows the OrionStarT900 Data Logs window. The 'Measurement' tab is selected. The table displays two data entries with columns for Read Mode, Scaled Value, Millivolts (mV), Temp., Temp. Input (MAN/ATC), Sensor Name, Sample ID, Stir Speed, Resolution, and Buffer Group.

#	Read Mode	Scaled Value	Millivolts (mV)	Temp.	Temp. Input (MAN/ATC)	Sensor Name	Sample ID	Stir Speed	Resolution	Buffer Group
2	ISE	9999.0	88.7	25.0 C	MAN	TP1	None	Medium	0.001	USA
1	ISE	9999.0	88.7	25.0 C	MAN	TP1	None	Medium	0.001	USA

The screenshot shows the OrionStarT900 Data Logs window. The 'Measurement' tab is selected. The table displays two data entries with columns for Temp., Temp. Input (MAN/ATC), Sensor Name, Sample ID, Stir Speed, Resolution, Buffer Group, ISE Type, Significant Digits, Direct Measure Units, and Run Date.

Temp.	Temp. Input (MAN/ATC)	Sensor Name	Sample ID	Stir Speed	Resolution	Buffer Group	ISE Type	Significant Digits	Direct Measure Units	Run Date
25.0 C	MAN	TP1	None	Medium	0.001	USA	Sodium (Na+)	4	ppm	12/13/2018 1:24 PM
25.0 C	MAN	TP1	None	Medium	0.001	USA	Sodium (Na+)	4	ppm	12/13/2018 1:22 PM

11. Click the Methods tab to view the methods data. Click on an individual method line to view its electrode, titrant and titration setup parameters data.



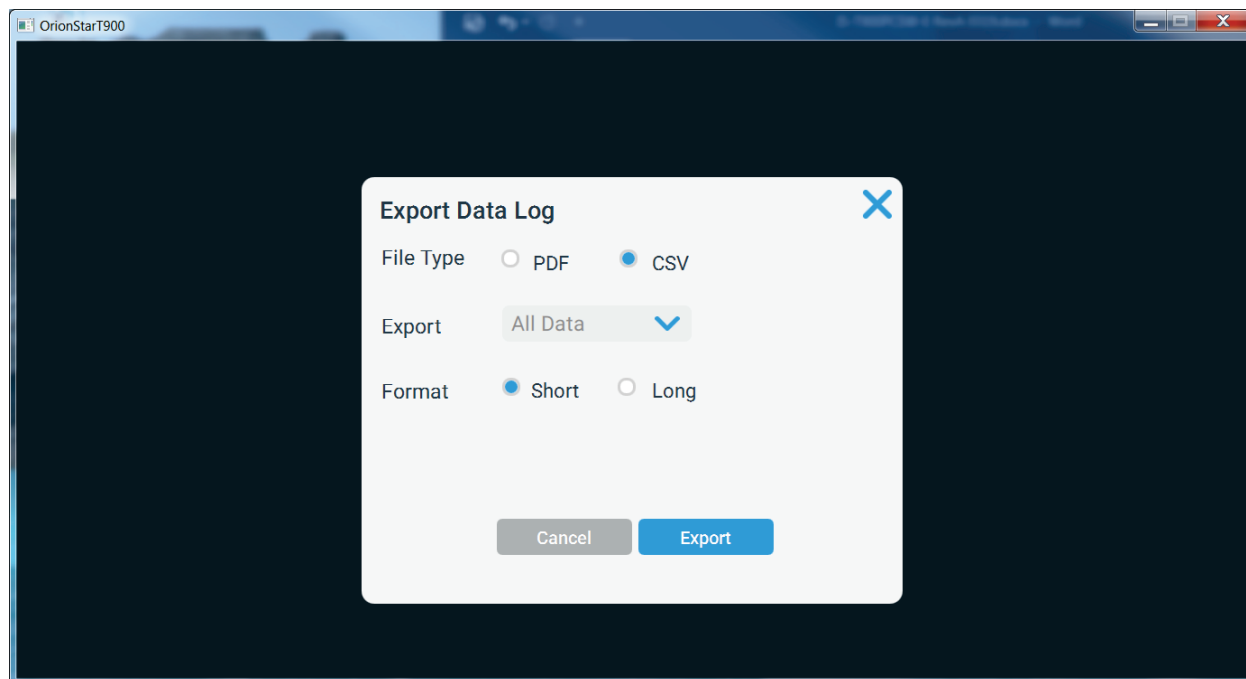
The screenshot shows the OrionStarT900 Data Logs window. The 'Methods' tab is selected, displaying a table of methods. The sidebar on the right shows parameters for the selected method (Ca Hard user2).

#	Method Name	Method Created Date/Time	Method Updated Date/Time
6	MT hard	12/28/2018 10:20 AM	1/8/2019 3:58 PM
5	Ca Hard user2	11/28/2018 4:12 PM	1/24/2019 4:39 PM
4	Total Hardness	11/7/2018 2:53 PM	11/7/2018 2:53 PM
3	Na MKA new	10/26/2018 3:03 PM	10/26/2018 4:10 PM
2	Na MKA User	8/8/2018 3:16 PM	8/8/2018 3:16 PM
1	Na MKA	8/6/2018 6:49 PM	10/23/2018 4:29 PM

Electrode Parameters:

- Electrode Name : VX1
- Electrode Type : ISE-Titration
- Buffer Group :
- Resolution : 0.001
- IsType : Calcium (Ca2+)
- Significant Digits : 4
- Direct Measure Unit : ppm
- Electrode Created At : 12/14/2018 1:23 PM

12. Click the “Export” button to save the data to your computer as a PDF or CSV file.



The screenshot shows the 'Export Data Log' dialog box. The 'File Type' is set to CSV, 'Export' is set to All Data, and 'Format' is set to Short. The 'Export' button is highlighted.

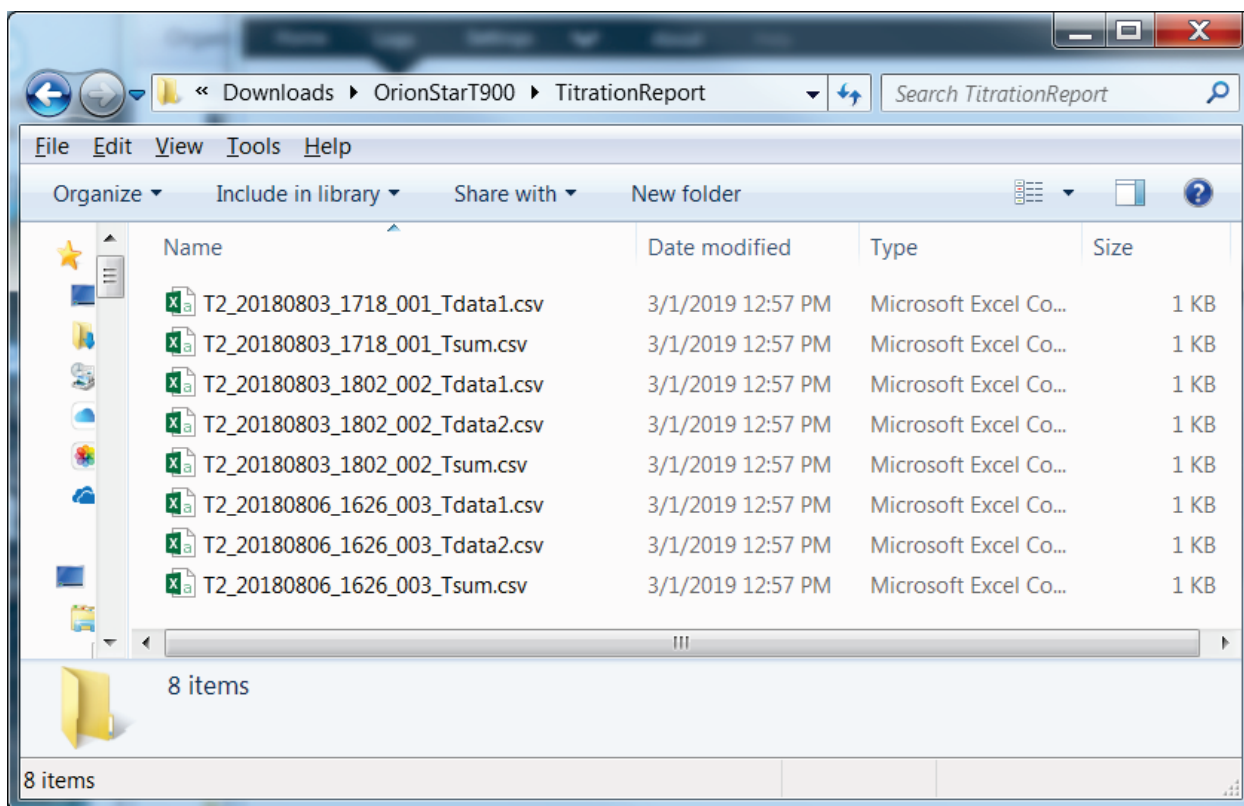
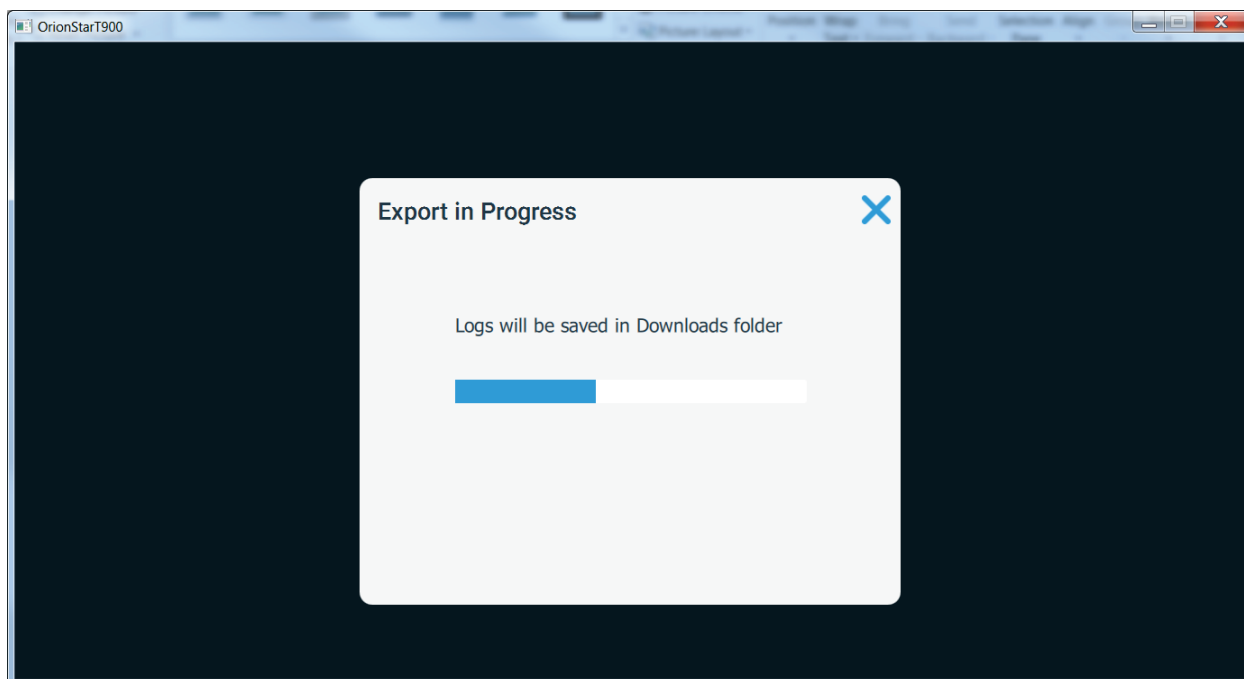
Export Data Log

File Type: ☐ PDF ☒ CSV

Export: All Data

Format: ☒ Short ☐ Long

Buttons: Cancel, Export



13. Click the "Print" button to print the data to your default network printer.

## **Technical Support**

For any questions or if you require assistance, please contact your local Technical Sales Representative, Product Specialist or Technical Support Team.

### **Americas Technical Support Team**

1-978-232-6000

1-800-225-1480 (US toll-free)

[wlp.techsupport@thermofisher.com](mailto:wlp.techsupport@thermofisher.com)

### **Europe Middle East Africa Technical Support Team**

0049 6184 90 6321

00800 1234 9696 (free hotline from D, A, CH, F, UK, IRL)

[techsupport.labproducts.eu@thermofisher.com](mailto:techsupport.labproducts.eu@thermofisher.com)

### **Asia Pacific Technical Support Team**

(65) 6778-6876

[customerservice.sg.wai@thermofisher.com](mailto:customerservice.sg.wai@thermofisher.com)