



## TMS System Interfaces

SmartSynch's Transaction Management System (TMS) seamlessly interfaces with external systems using industry standard formats including (but not limited to) the Itron Mainframe MV-90, the Itron Handheld Reader File Format (HHF) and the California Metering Exchange Protocol (CMEP). Additionally, TMS supports a variety of customized system interfaces tailored to each utility's specific requirements. These export interfaces provide a simple mechanism for transferring billing and interval data from TMS to other systems utilized for consumer billing, web presentment, outage management, load analysis and customer support. All exports may be run on a scheduled or on-demand basis.

### Import Interfaces

#### *Device Information Interface*

The Device Information Interface provides a mechanism for adding, updating and deleting (unprovisioning) devices within TMS based on the contents of an import file containing comma-separated values. These import files can be built using Microsoft Excel.

#### *Bill Cycle/Group Information Interface*

The Bill Cycle /Group Information Interface provides a mechanism for adding or removing devices from a Functional Group (i.e. this mechanism shall be utilized for moving devices from one Bill Cycle to another) based on the contents of an import file containing comma-separated values. These import files can be built using Microsoft Excel.

### Export Interfaces: Both Interval Data and Register Data

#### *S-XML Format*

The S-XML format has been created by SmartSynch to transport all register and interval data in a standard XML format.

#### *Itron Delimited Format (IDF)*

The IDF format has been created by Itron to serve as a standard interface of Register and Interval Data between TMS and multiple Itron applications (MRAS/IEE, Integrator, P4, etc). The IDF format is a comma-separated value format that currently supports all Register Data including Totals, Maximum Demand and Time-Of-Use (TOU) Rates. Support for the transfer of Interval Data using the IDF will be added in a future version TMS.

#### *Itron Handheld Reader File Format (HHF)*

Itron designed the HHF format to provide a mechanism to upload meter data from various vendors' handheld readers into the MV-90 translation system but has been adopted for transferring data between non-handheld systems as well. The HHF format is an industry standard binary fixed-field format that supports both Interval Data and Register Total Values.

#### *Itron MV-90 Mainframe Format*

Itron originally designed the MV-90 Mainframe File Format to upload meter data to mainframe computers but has been adopted for interfaces to non-mainframe systems as well. The MV-90 Format is an industry standard binary fixed-field format that supports both Interval Data and Register Total values.

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### *Real-Time Export (RTE)*

The Real-Time Export format provides near real-time availability of meter data. The RTE is designed to export data at high frequencies as data is returned to TMS via the Near-Term Interval Retrieval interface whereby data is sent from the meter to TMS as frequently as the end of each interval. The RTE is a comma-separated value format that supports both Interval Data and Register Total values.

### **Export Interfaces: Interval Data Only**

#### *California Metering Exchange Protocol (CMEP)*

The California Metering Exchange Protocol (CMEP) is an industry standard data format first mandated by the State of California in 1998. CMEP is intended to transmit gas and electric utility metering, billing, and administrative information between companies. TMS supports the transfer of Electricity Interval Data via the MEPMD01 (version 1.20) record type. CMEP is a comma-separated value format.

#### *LodeStar Enhancement Format*

The TMS LodeStar Enhanced Interface provides TMS users with the ability to create an export file containing load interval data in the LodeStar Enhanced Input/Output Format. C/S LodeStar is a load research system used by many utilities to collect, manage, analyze and store load profile data. The LodeStar Enhanced Format is a comma-separated value format.

### **Export Interfaces: Register Data Only**

#### *Register Data Export (RDE)*

The Register Data Export format has been created by SmartSynch to serve as the standard output of all Register Read and TOU data from TMS. The RDE is a comma-separated value format that supports all registers, including Totals, Maximum Demand and Time-Of-Use (TOU) rates.

#### *Billing Transfer File (BTF)*

The Billing Transfer File format exports all register information, including totals, maximum demand and Time-Of-Use (TOU) rates. The BTF is a fixed-field format.

### **Outage Management/Message Routing Component (MRC)**

The Message Routing Component allows TMS users to designate standard TMS events for inclusion in an MRC export file. When a qualifying event is received by TMS, a corresponding record is appended to the MRC export file. This feature is often utilized to export Power Outage and Power Quality information for Outage Management Systems. The MRC export file is a fixed-field format. Additionally, alarms received by TMS can be automatically routed via e-mail to a specific user or group of users using the TMS Message Routing Interface.

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**About SmartSynch:** Headquartered in Jackson, Miss., SmartSynch has been developing successful Smart Grid Intelligence solutions for the utility industry since 2000. The company's clean-tech innovations in the two-way delivery of real-time energy usage data over public wireless networks, in lieu of private network build-outs, have to date simplified SmartMeter deployments for 100 major North American utilities, while enabling green-energy initiatives and delivering significantly higher Returns on Resources.

Unlike proprietary, closed-architecture solutions, SmartSynch's SmartMeters represent future-proof investments in technology. The standards-based IP connectivity enabled in every SmartMeter deployed makes them adaptable and remotely upgradable to support today's sensor and communications needs, as well as tomorrow's opportunities, better than any alternative.