

# ArKion Systems

Users Manual  
DCOM-H

Ver 1.0

**Document Information**

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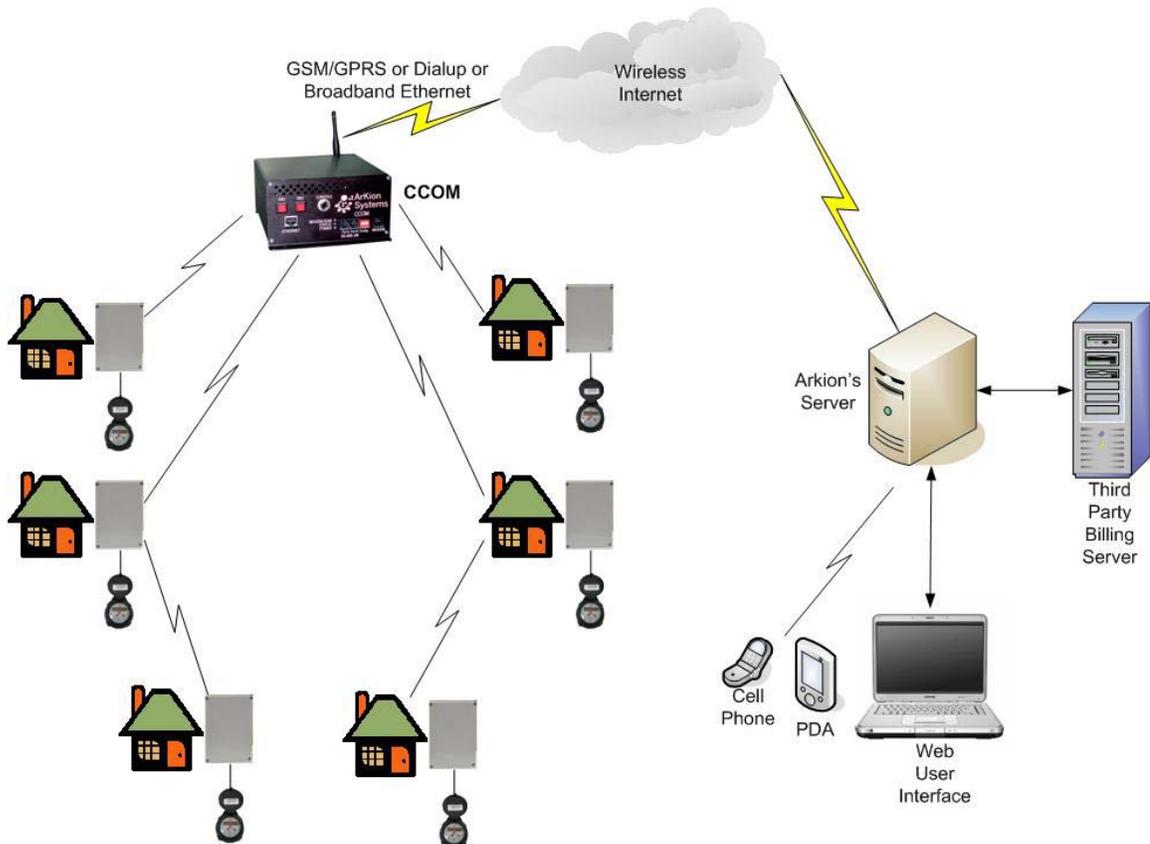
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## 1. Purpose

This Document Describes the Instructions to install and Use Arkion's Residential Water Meter Reading System. Arkion provides a fixed network full duplex wireless AMR system for Residential Sector.

## 2. System Architecture

Figs 2.1 shows how the Water Meters are connected to Arkion Systems Full Duplex Fixed Wireless Network



**Figure 2.1 Water Meters Connected to Arkion Systems Network**

Water Meters are connected directly to Arkion's DCOM-H Module. Water Meters are connected to three wire Digital Absolute Encoder Interface

Each DCOM-H has one three wire encoder type water meter interface and one Pulse Input Interface. DCOM-H is a stand alone battery Powered Radio module. It reads the water reading at preconfigured intervals; time stamps it and stores it. CCOM-RF act as collector for a cluster of DCOM-H's . CCOM-RF collects meter readings from the DCOM-

Hs using 902–918MHz license free Radio Network, and uploads the metering data to ArKion Server at specified upload intervals.

. DCOM–H’s also act as router for other DCOM–H’s which are not in the range of the CCOM. The System supports maximum 6 hopping levels between a farthest DCOM–H and CCOM.

ArKion Systems provides a Web User Interface for the users to access their metering data by logging into the Web UI.

### 3. System Network Devices

System Network Devices are devices developed by ArKion Systems to connect Water meters to ArKion Systems Fixed Network Two Way Wireless system

#### DCOM–H

DCOM–H Module is a Device Communication Module designed for Water Metering Applications. It is a Stand alone Battery Operated Module and can read One Three Wire Absolute Encoder Water meter Register and One Pulse meters simultaneously.

Main Features of this Module are

- Device Ports:
  - One Absolute Encoder Water Meter Port
  - One Pulse Meter Ports
- 900MHz FHSS Radio
- Stand Alone Battery Powered Module with At least 10 Year battery Life
- 0.5 mile LOS Communication Range
- Communicates the Metering Data to ArKion Systems Collector (CCOM)
- NEMA 4x weather–proof enclosure
- Rated for –20°C to +70°C operation

#### CCOM

CCOM is a Central Communication Module used to collect data from ArKion Systems DCOM–H. CCOM is WAN enabled via GSM/GPRS or Dialup connection or Ethernet. CCOM interrogates the DCOM–H, collects the metering data from DCOM–H’s and sends it over to ArKion Systems Servers.

Main Features of this Module are

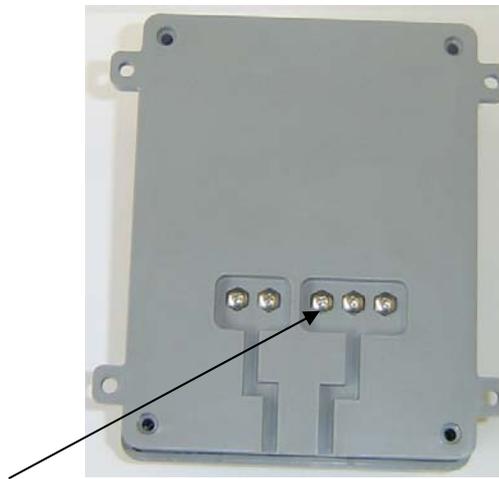
- WAN connection:
  - GSM/GPRS or
  - Dial up connection or
  - Ethernet
- LAN connection
  - 900 MHz ISM band FHSS radio
  - RS232
  - RS485
- Uploads the Metering Data to ArKion Systems Servers
- 12VDC Wall Transformer Powered Module

- NEMA 4x weather-proof enclosure
- 0°C to +70°C operational temperature range

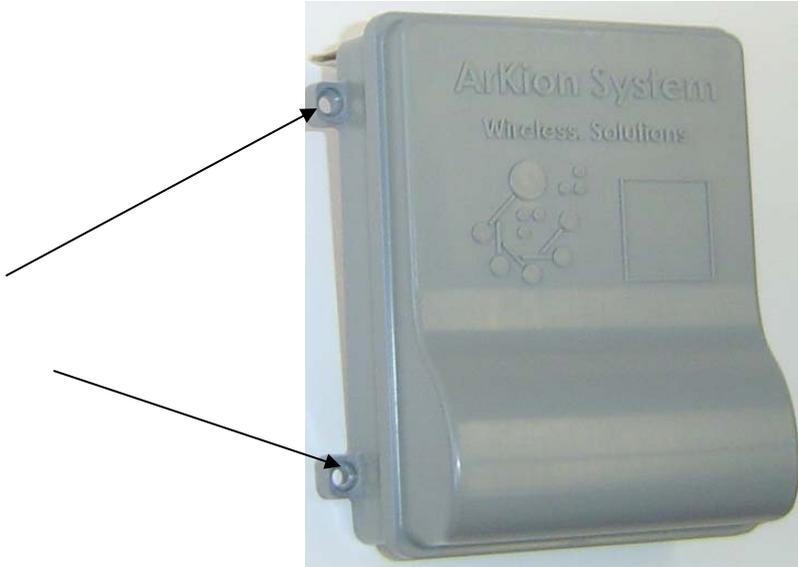
## 4. Module Installation

### DCOM-H Installation

1. Connect three wire Water Meter to the Three wire interface provided on the DCOM-H

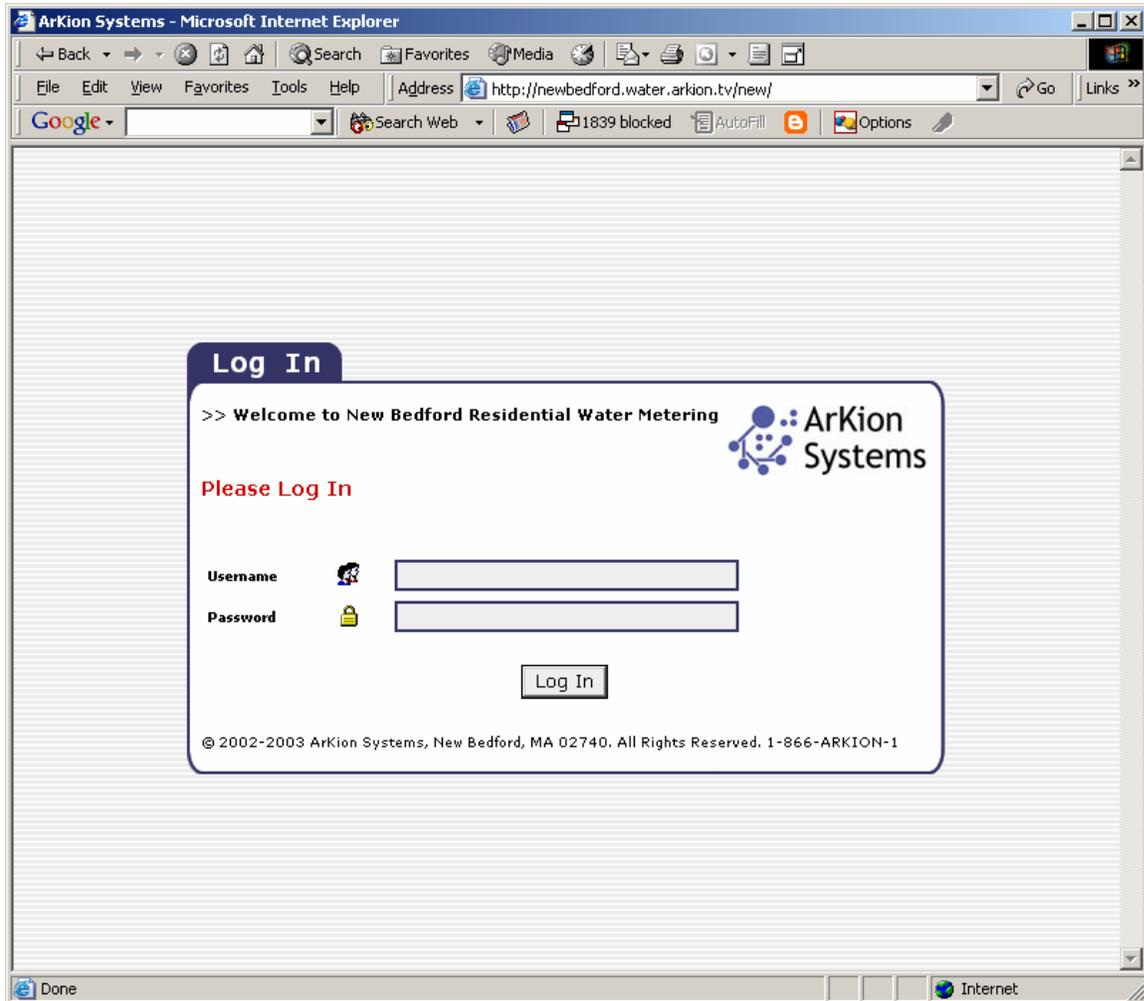


2. Mount the DCOM-H on the Side of a wall using #6 wood screws provided along with the DCOM-H, using the mounting brackets provided on the DCOM-H box.



## 5. Operating the System

A Web User Interface will be provided for the users to view their metering data.



Following services are provided by the ArKion Systems Residential AMR system

### Water Meter Services

1. Daily and Monthly Water Meter Reads
2. Current Read, Previous Read and consumption data
3. Totalizing Billing
4. Summary Billing
5. On request reads
6. Reports on historical readings, up to 1 year
7. Invoice generation
8. Online Customer Information Configuration
9. Meter Disconnect alarm

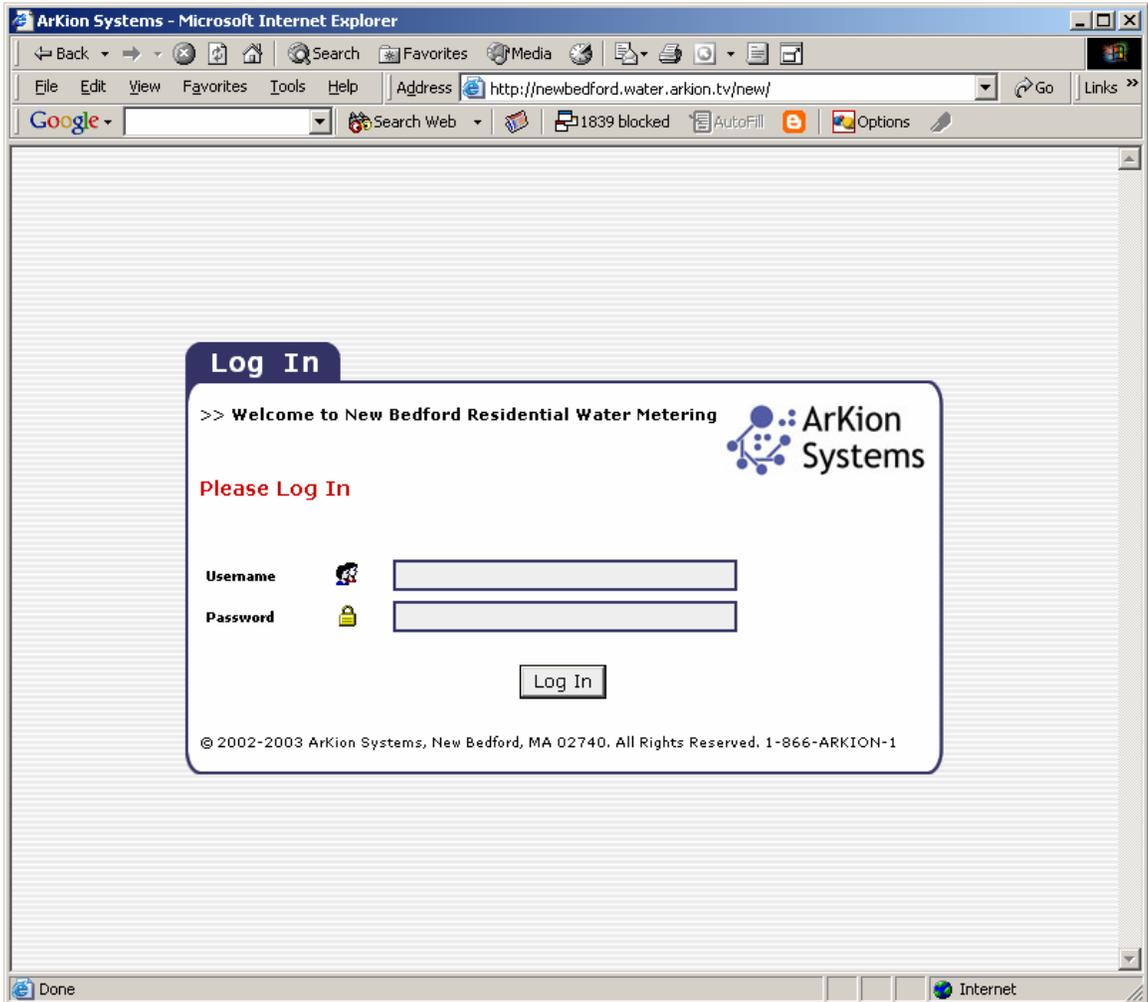
## 6. Interfaces

Basic web based user interface will be provided for users to access to the data collected from the water meter.

The basic user interface has the following capabilities:

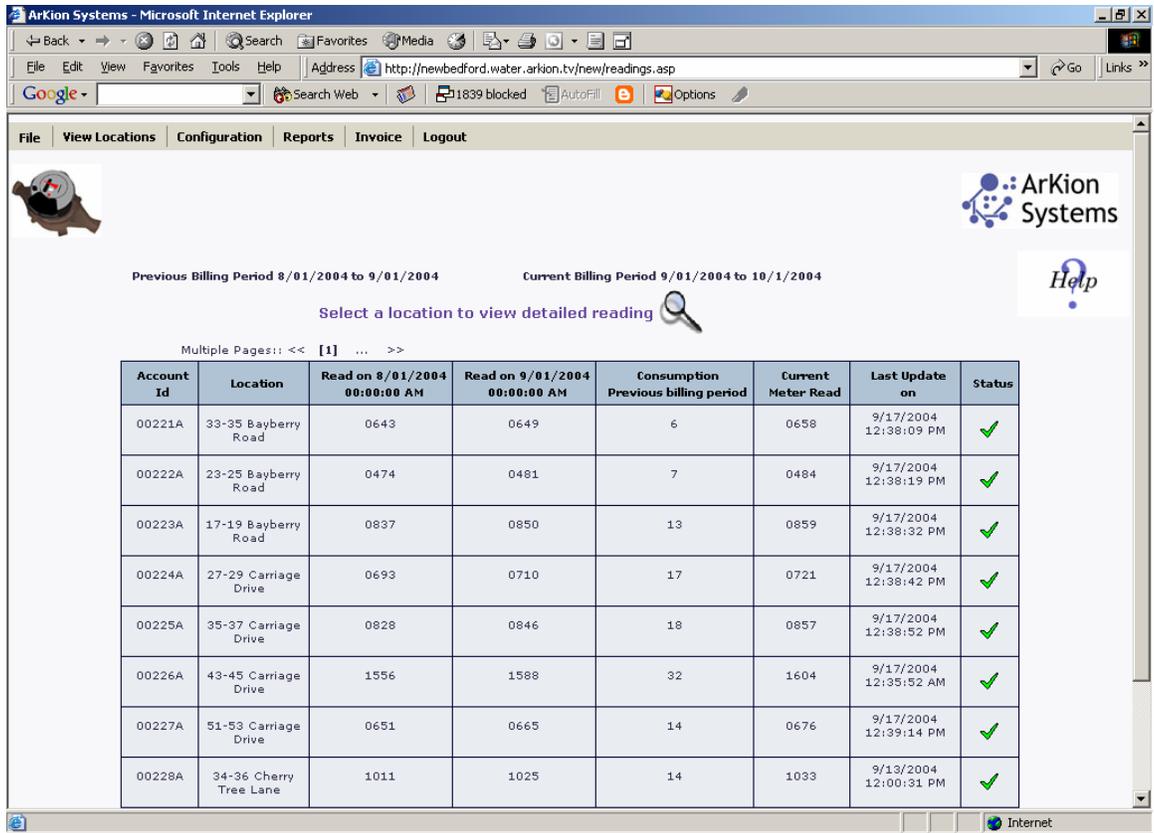
- **User authentication**

Only an authorized user is allowed to access the metering data from only his/her water meters.



- **Locations**

Display a summary of locations and status of the list of meters owned by the user.

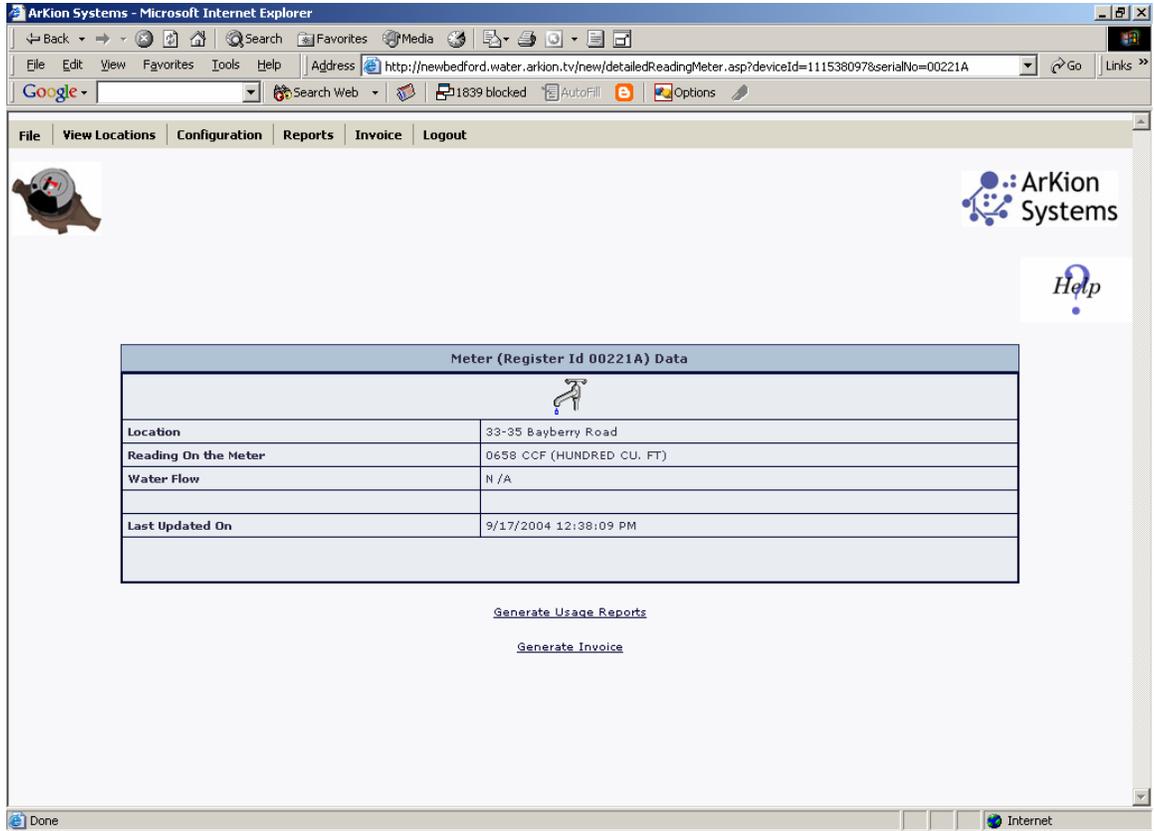


The screenshot shows a web browser window displaying the ArKion Systems interface. The page title is "ArKion Systems - Microsoft Internet Explorer". The address bar shows "http://newbedford.water.arkion.tv/new/readings.asp". The navigation menu includes "File", "View Locations", "Configuration", "Reports", "Invoice", and "Logout". The main content area displays the ArKion Systems logo, a "Help" link, and billing information: "Previous Billing Period 8/01/2004 to 9/01/2004" and "Current Billing Period 9/01/2004 to 10/1/2004". Below this is a prompt "Select a location to view detailed reading" with a magnifying glass icon. A table of meter readings is displayed, with the following data:

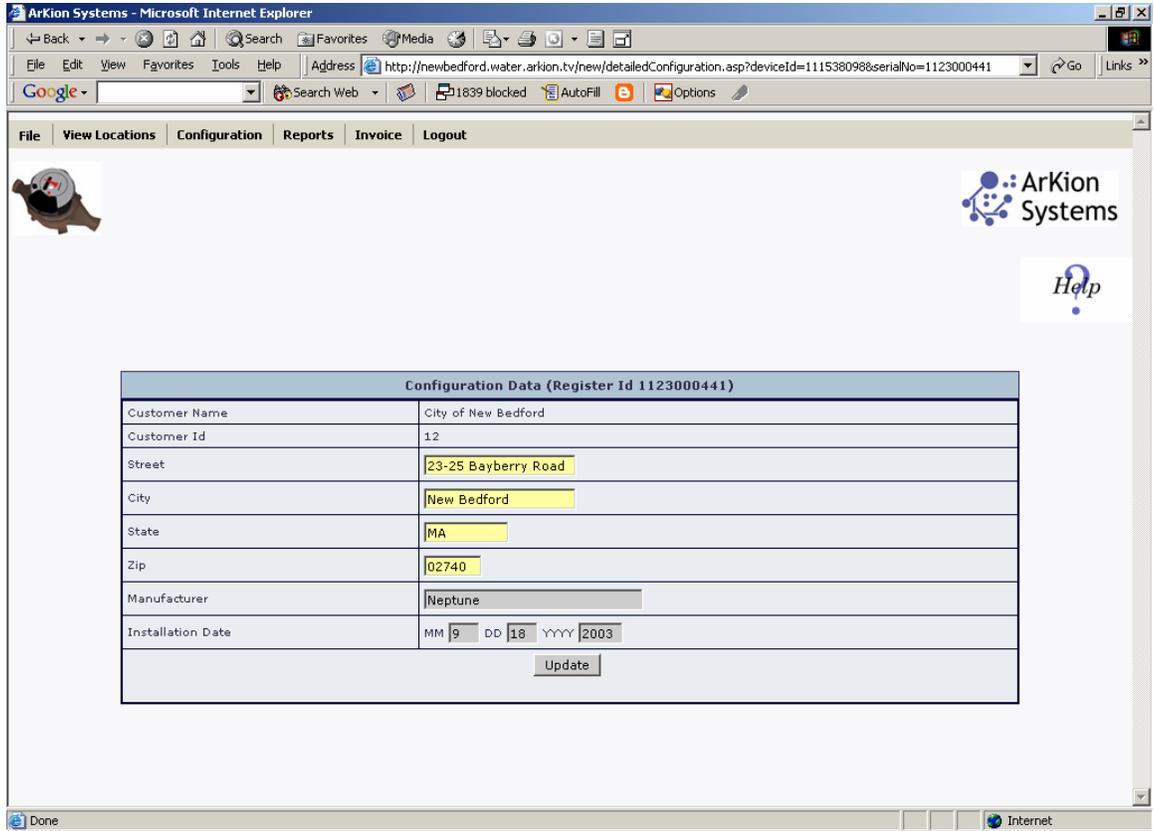
Account Id	Location	Read on 8/01/2004 00:00:00 AM	Read on 9/01/2004 00:00:00 AM	Consumption Previous billing period	Current Meter Read	Last Update on	Status
00221A	33-35 Bayberry Road	0643	0649	6	0658	9/17/2004 12:38:09 PM	✓
00222A	23-25 Bayberry Road	0474	0481	7	0484	9/17/2004 12:38:19 PM	✓
00223A	17-19 Bayberry Road	0837	0850	13	0859	9/17/2004 12:38:32 PM	✓
00224A	27-29 Carriage Drive	0693	0710	17	0721	9/17/2004 12:38:42 PM	✓
00225A	35-37 Carriage Drive	0828	0846	18	0857	9/17/2004 12:38:52 PM	✓
00226A	43-45 Carriage Drive	1556	1588	32	1604	9/17/2004 12:39:52 AM	✓
00227A	51-53 Carriage Drive	0651	0665	14	0676	9/17/2004 12:39:14 PM	✓
00228A	34-36 Cherry Tree Lane	1011	1025	14	1033	9/13/2004 12:00:31 PM	✓

- **Readings**

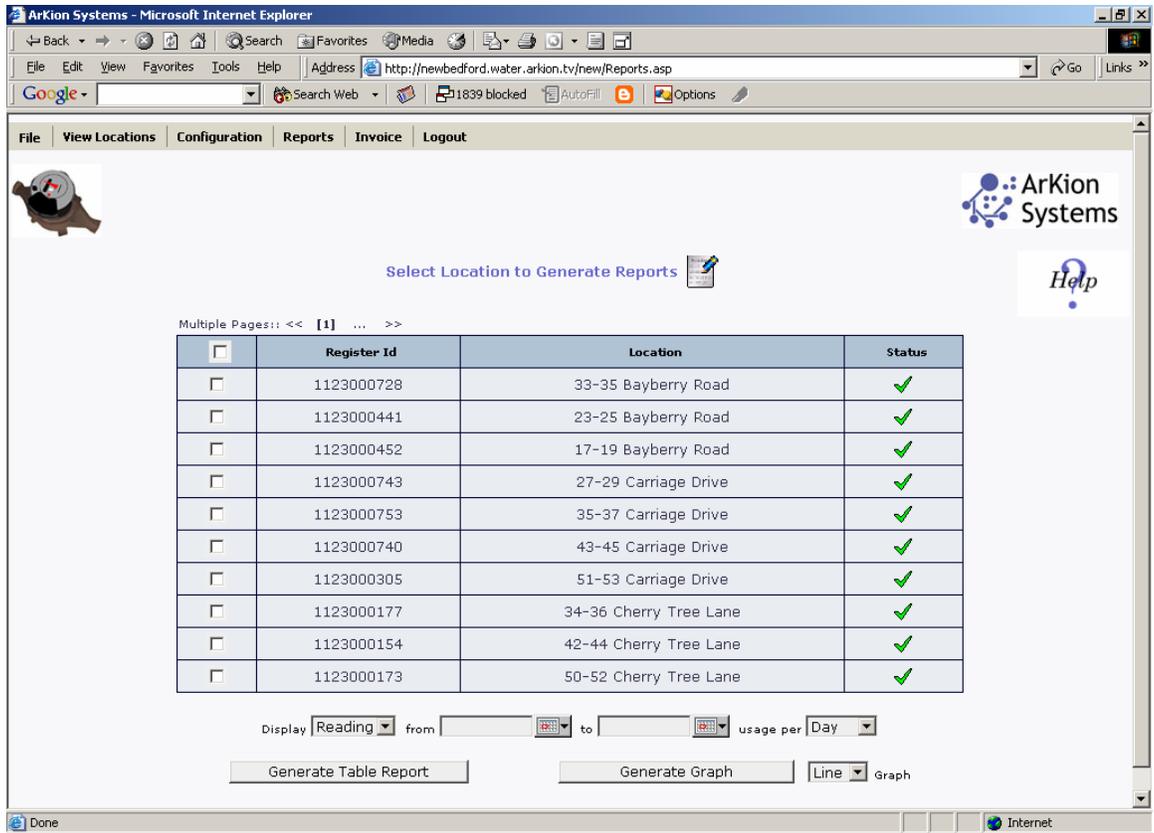
Display a summary of readings, locations, and status of the list of meters owned by the user. The user can view the details of a specific meter on selection. The details of the readings vary on the type of meter selected.



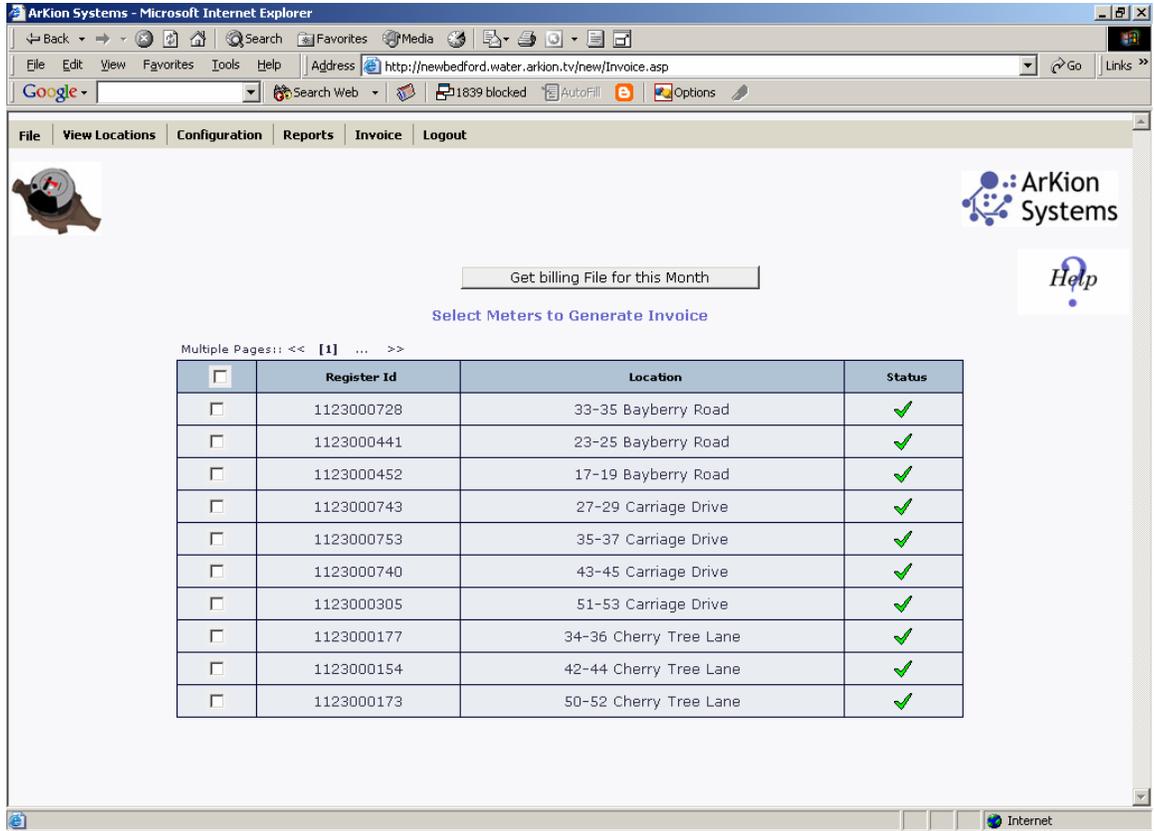
- **Configuration**  
View and change parameters of the meter such as location, manufacturer and installation date for the meter.



- Reports**  
 Generate power usage reports in form of graphs and table based reports for single and multiple meters between given date interval.



- Invoicing**  
 Generate sample invoices based on rates for a meter between given date interval.  
 The invoice can be printed.



**NOTE:** This equipment generates and uses radio frequency energy and may cause harmful interference to radio communications if not installed and used in accordance with the instructions. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Consult a service center for technical assistance.