



# SDS2DPT Software Manual

**V1.0.0**

© 2015 Atlas North America

**Marine Sonic Technology  
Yorktown, VA**

**Part Number:           None**

This product was designed and developed by a team of engineers at Marine Sonic Technology.

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## 1 Introduction

This software manual provides a description of how to use the SDS2DPT software. The SDS2DPT software receives Depth and Altitude data via Sonar Data Stream (SDS) packets transported by UDP/IP packets over a network connection and retransmits the Depth and Altitude data over a serial port formatted as a MSDPT NMEA 0183 string.

This manual is separated into several sections: User Interface, Configuring Sea Scan Survey, Example Usage, MSDPT String Format, Windows Registry, and Software History.

The [User Interface](#) section describes all of the buttons and window controls in the SDS2DPT software.

The [Configuring Sea Scan Survey](#) section shows how to configure Sea Scan Survey V4.6.0 and above with the Data Output feature to send Sonar Data Stream data to the SDS2DPT software.

The [Example Usage](#) sections demonstrates using the SDS2DPT software.

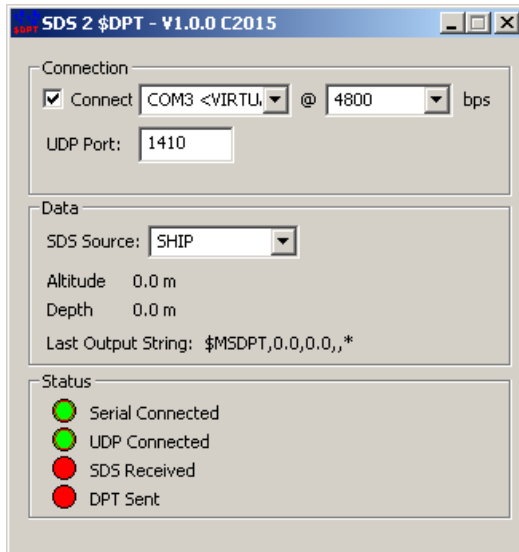
The [MSDPT String Format](#) section describes the DPT NMEA 0183 string format in detail.

The [Windows Registry](#) section describes the usage of the windows registry by the SDS2DPT software.

The [Software History](#) section lists all of the versions of the software and the changes made. The versions are listed newest to oldest.

## 2 User Interface

This section introduces the SDS2DPT software's window layout. The window is display below.

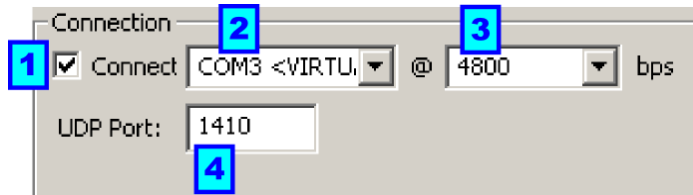


The window can be broken down into sections:

- Connection
- Data
- Status

## 2.1 Connection

The Connection section contains all of the settings and controls to initiate a connection to the Network and to the Serial port.



1. **Connect Button:** Checking this box connects the serial port and network connections.
2. **Com Port Selection Box:** This box automatically fills up with the available serial ports on the computer. It allows the user to select an available serial port to connect to.
3. **Com Port Baud Rate Selection Box:** This box allows the user to select a baud rate to send the DPT strings at.
4. **Network UDP/IP Port:** Change the UDP port by typing into this box. This should be set to the same port as the data output program.

The Serial Connected indicator will turn green when the Connect check box is checked and a successful connection has been made to the currently selected serial port.

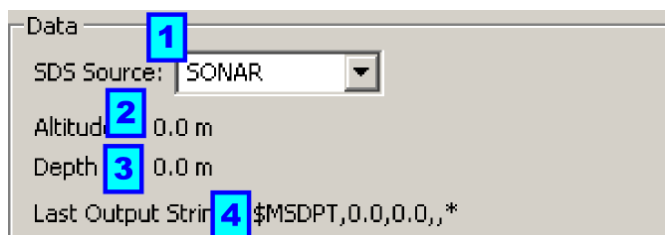
The UDP Connected indicator will turn green when the Connect check box is checked and the configured UDP port has been successfully opened for receiving data.

These settings are saved in the [Windows Registry](#). They are saved when the application closes. When the SDS2DPT application is opened again the settings will be restored. If the Connect checkbox was checked when the application was last closed then the connection to the serial port and network will automatically be restored.

Please note that USB to Serial converters will enumerate to a different Com port number when plugged into a different USB port. The converter's driver can be setup in advance to enumerate to the same COM port no matter which USB port it is plugged into however USB hubs make this process much more complicated. If a USB to Serial converter enumerates to a different Com port number then the SDS2DPT program will not be able to open the saved Com port automatically on startup.

## 2.2 Data

The Data section displays the current incoming Altitude and Depth data as well as the last DPT NMEA 0183 string that was sent. In addition to displaying data the section also allows the user to select which SDS (Sonar Data Stream) source to retrieve the Altitude and Depth data from.

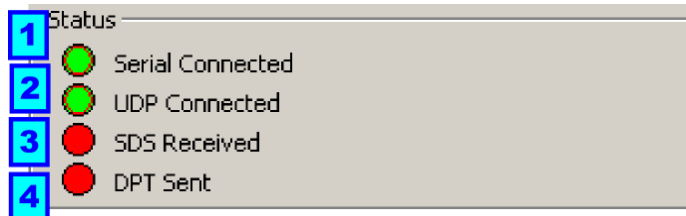


1. **SDS Data Source:** Allows the selection of the Sonar Data Stream data source. SONAR is data from the towfish where Altitude is distance from the towfish to the seafloor and Depth is distance from the towfish to the surface. SHIP is data from the ship where Depth is the total water depth (distance from the ship's depth sounder to the sea floor).
2. **Current Altitude:** Displays the current Altitude read from the SDS data in meters.
3. **Current Depth:** Displays the current Depth read from the SDS data in meters.
4. **Last DPT String Sent:** Displays the last [NMEA 0183 formatted DPT string](#) sent from the SDS2DPT program.

The SDS Source setting is stored in the [window's system registry](#). This setting is restored when the application is started.

## 2.3 Status

The Status sections displays the current state of the SDS2DPT software. It includes indicators that turn green when a condition is active.

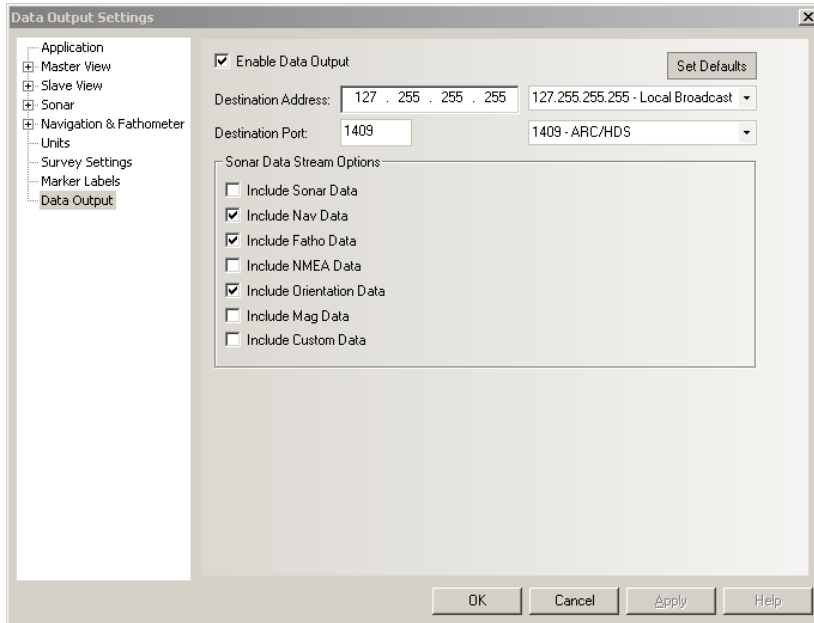


1. **Serial Connected:** Turns green when the serial port is successfully connected. Turns red when the serial port is not connected.
2. **UDP Connected:** Turns green when the network is successfully connected. Turns red when the network is not connected.
3. **SDS Received:** Blinks green when a SDS Fathometer packet is received.
4. **DPT Sent:** Blinks green when a DPT string is successfully sent.

## 3 Configuring Sea Scan Survey

SDS2DPT requires a Sonar Data Stream to be sent to it over UDP/IP packets. This can be accomplished using a Marine Sonic Technology Embedded Side Scan Sonar System or Sea Scan Survey V4.6.0 or newer. Sea Scan Survey V4.6.0 introduced the Data Output feature which streams the incoming SDS data over a configurable UDP connection.

In order to successfully send data using Sea Scan Survey the Data Output feature needs to be setup properly and enabled. Show below is the Data Output Settings page accessible through Sea Scan Survey's **Tools->Settings** menu option. For an explanation of all of the controls and settings please see the Sea Scan Survey software manual.



By default the Enable Data Output check box is unchecked. This means that the Data Output feature is disabled. To enable the output click the **Enable Data Output** check box and then click the **Apply** button. If no error messages pop up then the output is enabled.

To stream data Sea Scan Survey must be actively recording data. This means that a new survey must be Created or a survey must be Continued using the **File->New** or **File->Continue Survey** menu options. In addition to this a Sonar Interface must be started and connected as data collection in Sea Scan Survey is sonar data centric. This means without sonar data there is no data stream.

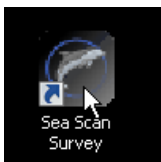
In summary to ensure there is a data stream being transmitted:

- Make sure **Enable Data Output is Checked**.
- Make sure the **Destination Port and Destination Address are correct**.
- Make sure a **Sonar Interface is Started**.
- Make sure **Sea Scan Survey is Recording Data**.

## 4 Example Usage

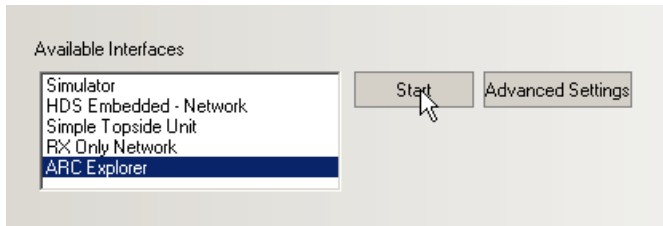
This section demonstrates the setup and usage of the SDS2DPT application.

### 1) Run the Sea Scan Survey program.



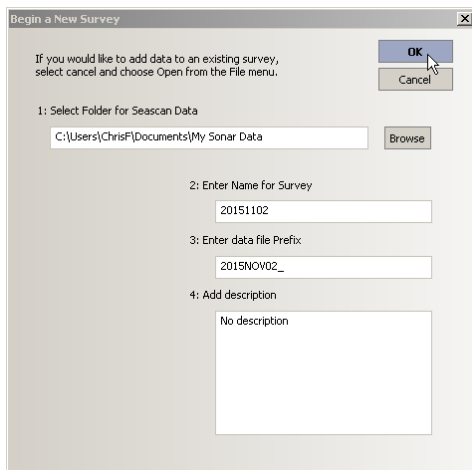
### 2) Start the Sonar Interface.

Click on the **Tools->Settings** menu option. This will open the settings window. Then click on the **Sonar->Interface** settings page in the settings tree on the left side of the settings window. Select ARC Explorer from the Available Interfaces list. Click the **Start** button. If the button says **Stop** instead of **Start** and the sonar status in the lower right corner of the Sea Scan Survey window shows **Sonar Connected** then skip this step as the Sonar Interface is already started successfully.

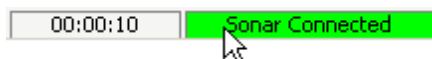


### 3) Create A New Survey.

Click on the **File->New** menu option. This will open the New Survey window. Click the **OK** button to create the survey.



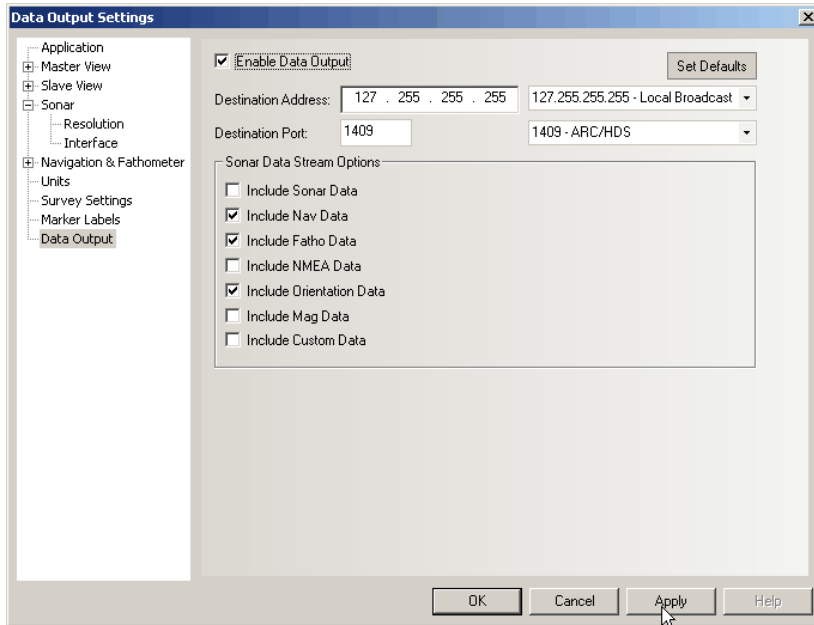
The **Elapsed Survey Time** clock in the lower right corner of the application will begin counting up. If it does not then please check to see that the **Sonar Interface** has been started correctly and that the **Sonar Status** in the lower right corner says **Sonar Connected** as shown below.



### 4) Configure the Data Output.

Setup the **Data Output Settings** in Sea Scan Survey. The default settings show below are recommended. Make sure the **Enable Data Output** checkbox is checked. Click the **Apply** or **OK** button to start the Data Output.



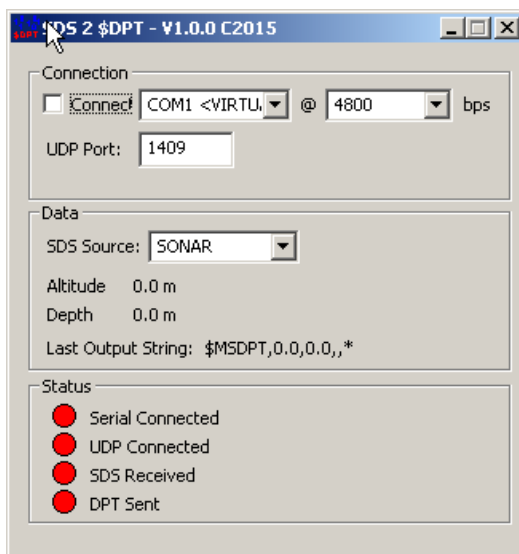


### 5) Run the SDS2DPT program.



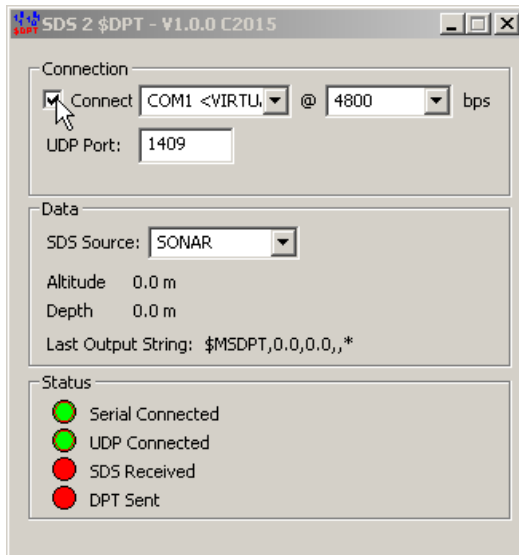
### 6) Configure the Connection Settings.

The exact Com port configuration will vary from computer to computer. In this example we are using Com1. Make sure the UDP port is set the same as the Data Output feature is set for in Sea Scan Survey. In this example the port is set to **1409**. The **SDS Source** should be set for **SONAR** in order to capture and convert data from the Sea Scan ARC Explorer Altimeter/Depth Sensor.



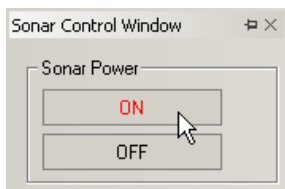
## 7) Click the Connect Checkbox.

The **Serial Connected** and **UDP Connected** indicators should turn green.

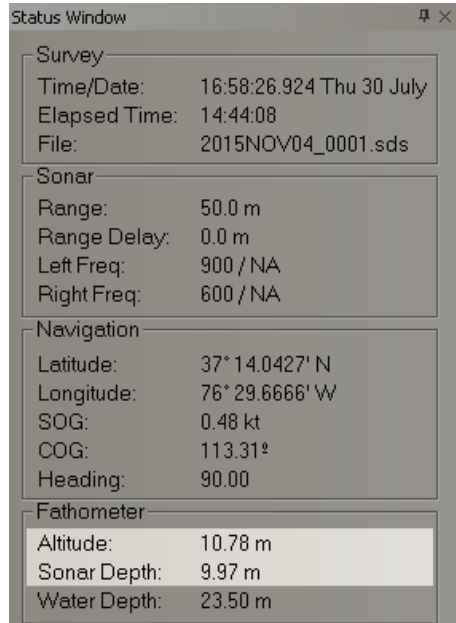


## 8) Start the Sonar.

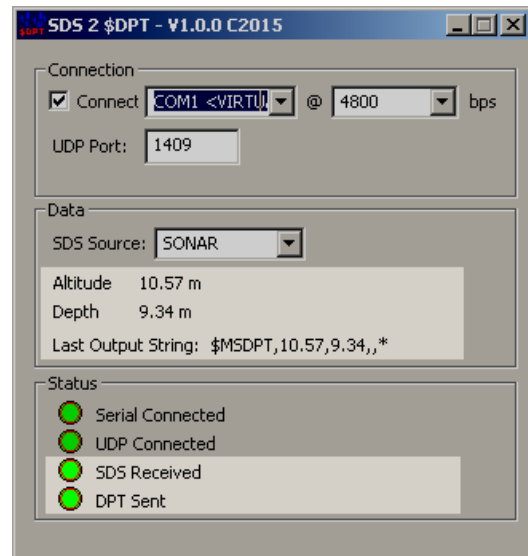
In Sea Scan Survey click on the **Sonar Power ON** button in the **Sonar Control Window**. This will start the sonar collecting data.



The **SDS Received** indicator should turn green and the current sonar altitude and depth readings should now appear in the **Sea Scan Survey Status Window** and in the **SDS2DPT program's data section**. The **DPT Sent** indicator should also turn green and the **Last Output String** in the data section will reflect the current sonar altitude and depth readings.



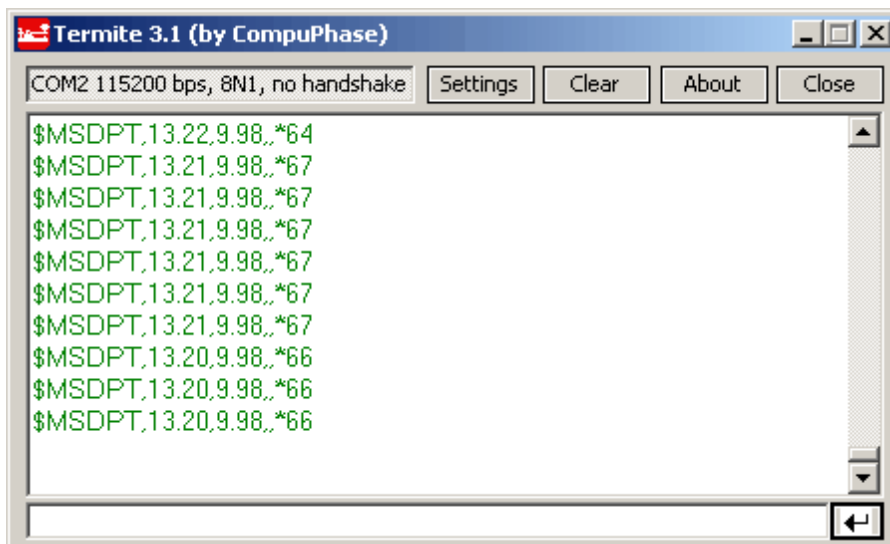
Sea Scan Survey Status Window



SDS 2 DPT Data

## 9) Open a Serial Terminal program.

Run a serial terminal program and connect to the Com port on the other end of Com port that SDS2DPT is connected to. In this example SDS2DPT is connected to a virtual serial port COM1 which is wire in cross over mode to virtual serial port COM2. The terminal program will show the \$MSDPT NMEA 0183 formatted strings that SDS2DPT is transmitting as shown below.



## 5 MSDPT String Format

The DPT string is a NMEA 0183 V1.5 standard string that has been adapted to provide more information. The NMEA standard DPT string normally contains Water Depth and Transducer Offset from the surface.

The Marine Sonic (MS) interpretation rearranges the meaning of these values in order to include altitude data. Currently there are no standard NEMA 0183 strings that convey sonar altitude data. When sending the MS DPT string the Transducer offset is interpreted as the Water Depth (distance from the surface to the sonar) and the Water Depth now becomes the Altitude (distance from the sonar to the sea floor). Adding the values together will result in Total Water Depth (distance from the surface to the sea floor). Below is an example of this string:

**Example:**

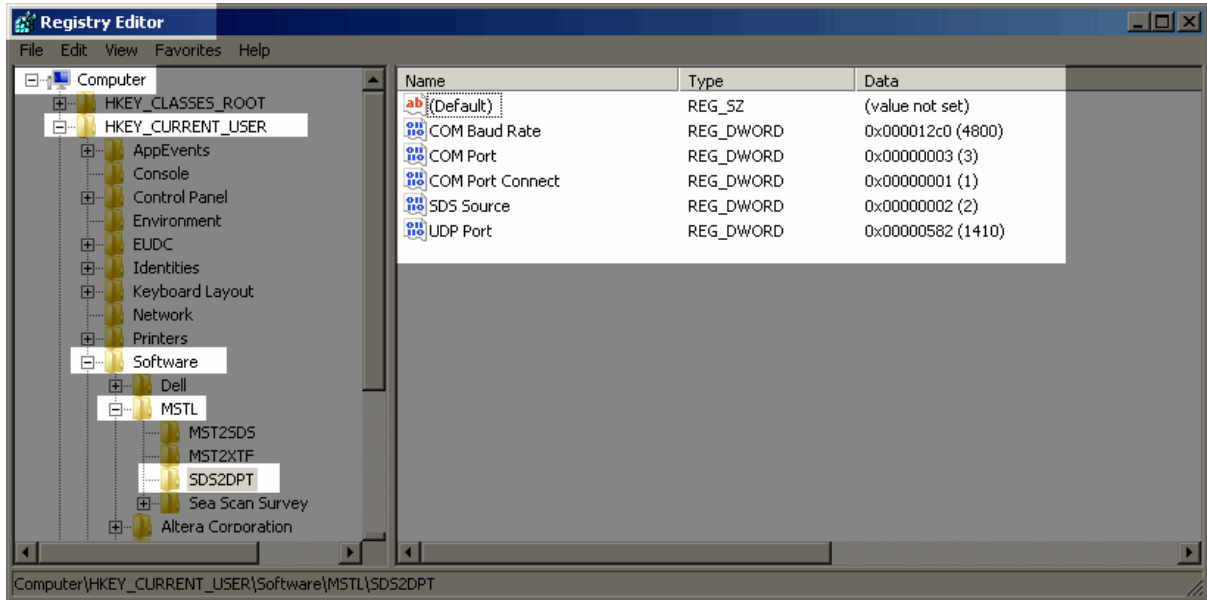
**\$MSDPT,<altitude>,<depth>,<max. range scale>\* hh<CR><LF>**

**Format Description:**

Name	Example	Units	Description
Start Of String	\$		\$ indicates start of string
Message ID	MSDPT		Marine Sonic DPT string identifier
Altitude	<altitude>	meters	Altitude of the sonar (Distance from the sea floor to the sonar).
Depth	<depth>	meters	Depth of the sonar (Distance from the surface to the sonar).
Max. Range Scale In Use			Not used.
Checksum Delimeter	*		The checksum comes after this character.
hh		2 Digit Hexadecimal	Checksum of the entire string.
Sentence Terminator	<CR><LF>		Indicates end of sentence.

## 6 Windows Registry

The SDS2DPT program stores it's settings in the Windows Registry. Below is a highlighted screen capture of the Microsoft Windows Registry Editor showing the SDS2DPT registry entry. The important details are highlighted.



SDS2DPT stores the program settings in HKEY\_CURRENT\_USER->Software->MSTL->SDS2DPT.

The variables are named according to their corresponding controls in the SDS2DPT program.

## 7 Software History

V1.0.0 - October 2015

- Initial Version.