Daktronics Data Manager (DDM) Software

Operation Manual

DD1376354   *Rev 2 – 2 October 2014*

DAKTRONICS

DAKTRONICS, INC.

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Section 1:   Introduction

The purpose of this manual is to assist users with the installation and operation of the Daktronics Data Manager (DDM) application. The DDM application is a plug-in for Microsoft® Office Excel® that converts data from spreadsheets into formats used by Daktronics display control systems. Once the data entered in a spreadsheet is outputted as Real Time Data (RTD), it can easily be sent to displays. The manual is divided into four sections: Introduction, Installation, Operation, and Appendix.

- **Introduction** covers the basic information about the application and this manual. Take time to read the entire introduction as it explains concepts and conventions used throughout the rest of the manual.
- **Installation** describes the installation procedures of the DDM application.
- **Operation** details the specific operation and configuration of the DDM application.
- **Appendix** includes an exercise to help users create a basic DDM spreadsheet.

Daktronics identifies manuals by an ED or DD number located on the cover page of each manual. Any manuals referenced in this document will be identified by its ED or DD number. For example, this manual would be referred to as *DD1376354*.

1.1   System Requirements

The DDM application has the following system requirements:
- Windows XP or higher Operating System
- Microsoft® Excel® 2003 Professional or better
- CPU and RAM must at least be equal to minimum requirements of operating system
- Additional serial ports or networking may be needed based on interface requirements

The DDM application will typically be loaded onto a computer system that already contains other Daktronics software, such as the Daktronics display controllers; however, it may also be installed on a different computer on the same network.

1.2   Software Conventions

This manual contains the following software conventions and terminology:

Bold	Indicates an item that requires direct action, such as clicking, pressing, selecting or formatting.
Italics	Indicates onscreen text or labels that are not clickable.
Bold Italics	Used to reference items within the manual, such as figures or sections, as well as other documents and important notes.
[X]	Represents a keyboard key that needs to be pressed.
"Quotes"	Text or commands that may be typed; also indicate file or folder names
Click	Press and release the left mouse button.
Double-click	Press and release the left mouse button twice.
Right-click	Press and release the right mouse button.
Select	Highlight or mark, such as by placing a check mark ✓ in a nearby box; clicking will not necessarily perform an action.
>	Followed by, as in menu navigation (ex. **File > Open**).

Section 2:   Installation & Registration

2.1   Installation

To install the DDM application:
1. Download and save the "DDM.zip" file from
   http://dakfiles.daktronics.com/downloads/Sports_Products/DDM/.
2. Extract the contents of the "DDM.zip" file.
3. Double-click the "setup" file to begin the installation procedure.
4. Follow the onscreen instructions.
5. Click **Close** when done.

2.2   Opening & Exiting the Application

To open the application:
1. Navigate to "C:\Program Files\Daktronics\DDM" (Windows XP) or
   "C:\Program Files (x86)\Daktronics\DDM" (Windows 7 +).
2. Copy the "DDM.xls" Excel Worksheet file.
3. Create a new folder in a different location, such as the "Desktop" or "My
   Documents", and Paste the "DDM.xls" Excel Worksheet file into the new folder.
4. Double-click the "DDM.xls" Excel Worksheet file inside the new folder.

Note: It is possible to open the DDM worksheet right from the "Program Files" folder.
However, going through the above process will prevent the original DDM worksheet
from being overwritten, and a clean copy will always be available to make new
worksheets later on.

To exit the application:
- Click the top exit button in the upper-right corner of the window to close the Excel
  application completely.
- Click the bottom exit button in the upper-right corner to close only the DDM
  spreadsheet.
- Hold **[Alt]** and press **[F4]**.

2.3   Registration

When the DDM application is first opened, the registration screen will appear (*Figure 1*).
A new software license file must be obtained using the given *Lock Code*.

Figure 1: *Registration Window*

The registration process varies depending on the operating system in use:

Windows XP
1. Open a DDM spreadsheet as described in *Section 2.2*.
2. Write down the *Lock Code,* and exit the DDM spreadsheet.
3. Email the *Lock Code* to DakStats@daktronics.com with the subject line "DDM Lock Code", and a software license file will be emailed back upon proof of purchase.
4. Save the software license file to "C:\Program Files\Daktronics\DDM".
5. Reopen the DDM spreadsheet. The license file will load automatically and unlock the application for use.

Windows 7 +
1. Set Excel to Run as administrator by right-clicking the "EXCEL.exe" file located in "C:\Program Files (x86)\Microsoft Office\Office##".
2. From within Excel, press **[Ctrl]** + **[O]** and navigate to the "DDM.xls" file to open. The default location is in "C:\Program Files (x86)\Daktronics\DDM"; however, it is recommended that a backup copy first be saved elsewhere.
3. Write down the *Lock Code*, and exit the DDM spreadsheet.
4. Email the *Lock Code* to DakStats@daktronics.com with the subject line "DDM Lock Code", and a software license file will be emailed back upon proof of purchase.
5. Save the software license file to "C:\Program Files (x86)\Daktronics\DDM".
6. Reopen the DDM spreadsheet, and the license file will load automatically to unlock the application for use.
7. Close out of Excel. It should now be possible to double-click a DDM spreadsheet to open it without having to run Excel as an administrator.

Note: The DDM application will not become functional without a software license. If the DDM application is not registered, be sure to close the DDM spreadsheet, or it will not be possible to open any other spreadsheets.

Section 3: Operation

The operation of the DDM application depends largely on the user's familiarity with Microsoft Excel. For assistance using Microsoft Excel, please refer to the *Microsoft Office Excel Help* by pressing **[F1]**. With a little practice, it will be possible to output data to a display as easily as using ordinary Microsoft Excel spreadsheets.

This section of the manual on program operation is broken into three main sections:
- The Main Application Screen
- Document Actions Task Pane
- Advanced Data Importing

3.1 Main Application Screen

After the DDM application is registered, the main application screen will appear (*Figure 2*). This screen contains all the menus and buttons as a typical Excel spreadsheet. Every setting related to outputting information to a display is found in the *Document Actions* task pane.
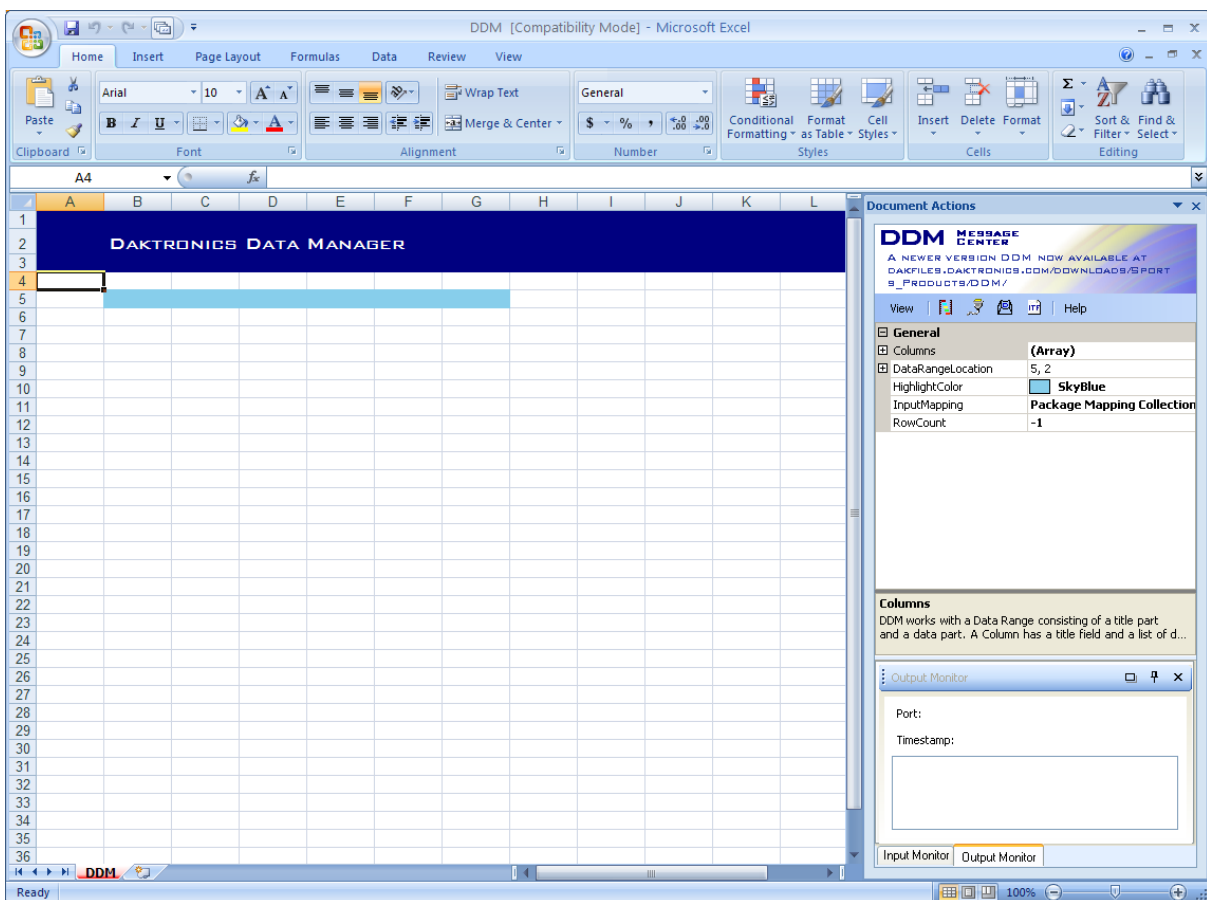
Figure 2: DDM Main Application Screen (Excel 2007)

By default, there are six cells of the spreadsheet highlighted in blue. Any data entered outside of the highlighted columns will not be included as Real Time Data (RTD). The extra space may be used for labels or notes about what data should be included in the spreadsheet.

3.2 Document Actions Task Pane

The *Document Actions* task pane (*Figure 3*) displays all the settings to output RTD from the information that was typed or imported into the spreadsheet.
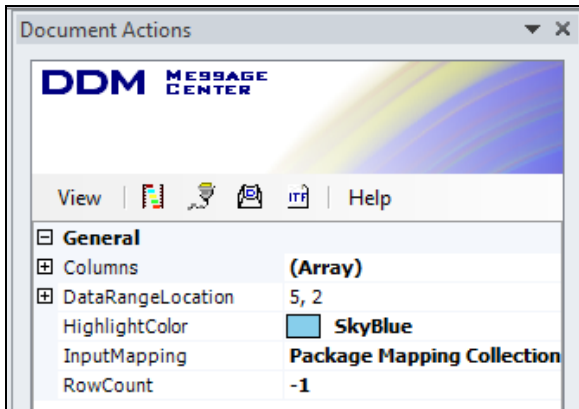

Figure 3: *Document Actions*

Enabling Document Actions

The *Document Actions* task pane is opened by default. If the task pane is closed, go to **View > Document Actions** to turn it back on in newer versions of Microsoft Excel (*Figure 4*).

> *Note:* For Microsoft Excel 2003, go to **View > Toolbars > Task Pane** (*Figure 5*). It may also be necessary to click the down arrow on the Task Pane, and then select **Document Actions** (*Figure 6*).
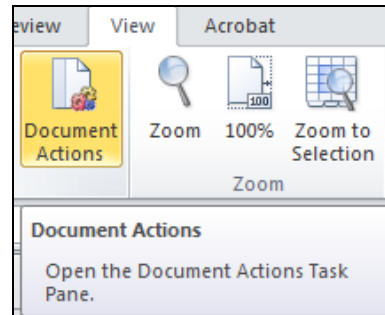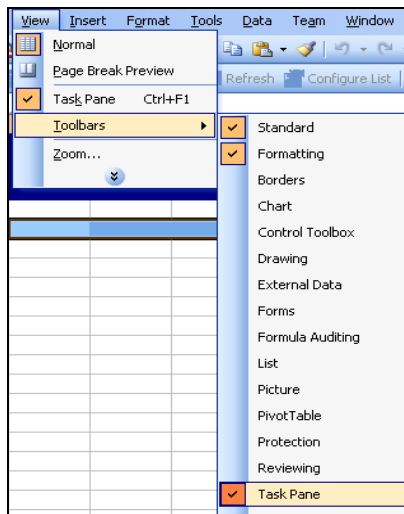

Figure 4: *Enabling Document Actions*
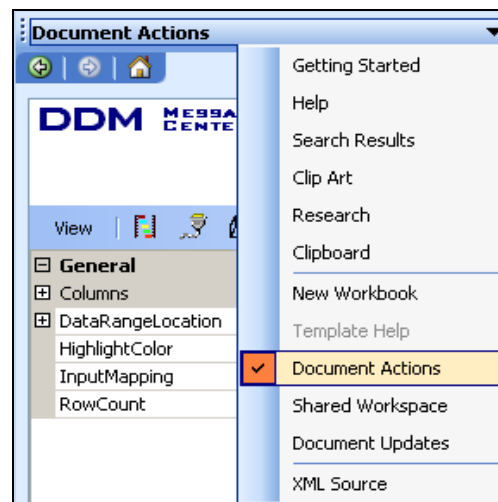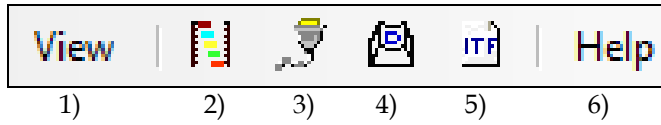

Figure 5: *Enabling the Task Pane (Excel 2003)*

Figure 6: *Enabling Document Actions (Excel 2003)*

The *Document Actions* task pane contains the following six buttons:

1)   2)   3)   4)   5)   6)

1) **View**
2) **Package Suite Editor**
3) **Port Configuration**
4) **Function Button Configuration**
5) **ITF Configuration**
6) **Help**

In addition to buttons, the *Document Actions* task pane also includes five configuration boxes:
- Columns
- Data Range Location
- Highlight Color
- Input Mapping
- Row Count

View

Click the **View** button (*Figure 7*) to enable or disable the Input and Output Monitor toolbars (see *Input & Output Monitors*).
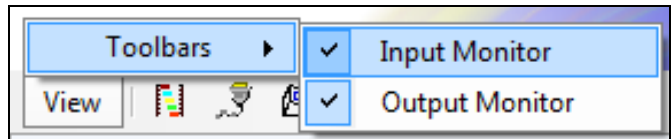
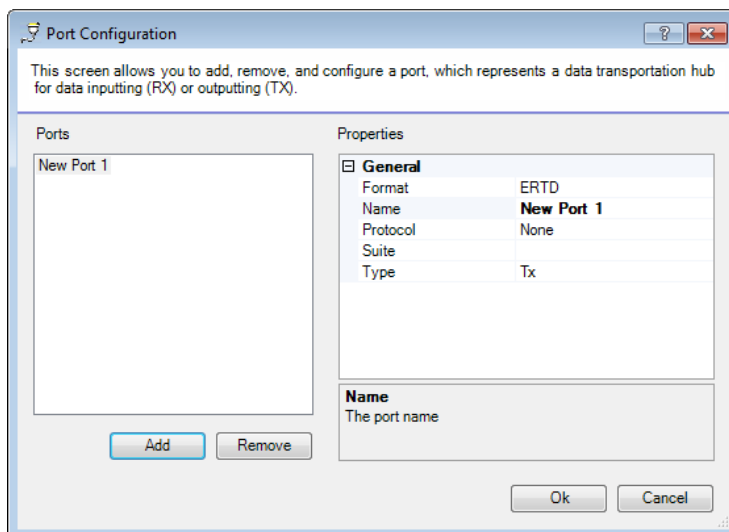**Figure 7:** *View Button*

Package Suite Editor

Click the **Package Suite Editor** button to open a window to import packages of data into the spreadsheet from an external data source (see *Advanced Data Importing*).

Port Configuration

Click the **Port Configuration** button to open a window to set up ports for sending or receiving data (*Figure 8*).

Figure 8: *Port Configuration Window*

1. Click **Add** to insert a new port.
2. Under the *General* header, adjust the following options to set up the new port:
   - *Format:* Set to **ERTD** for outputting data to Daktronics displays.
   - *Name:* Type in a descriptive name for the port.
   - *Protocol:* Select the method of data transfer from **Serial**, **Tcp**, or **Udp**.

     Note: Additional settings will appear based on the chosen connection. Contact the network administrator to apply the appropriate settings.

   - *Suite:* Assign a package suite if applicable (see *Advanced Data Importing*).
   - *Type:* Select **Tx** if the port will be used to send out data or **Rx** if the port will be receiving data.

3. Click **Ok** when finished.

Function Button Configuration

Click the **Function Button Configuration** button [icon] to open a window to set up buttons for starting and stopping data output as well as advanced display control commands (*Figure 9*).

*Note:* Each DDM spreadsheet file has a corresponding "DDM.cfg" configuration file located in the same directory. If a directory has multiple spreadsheet files, they will read from the same configuration file and share the same buttons. It is recommended to keep each DDM spreadsheet file in its own folder to prevent function buttons from being overwritten.
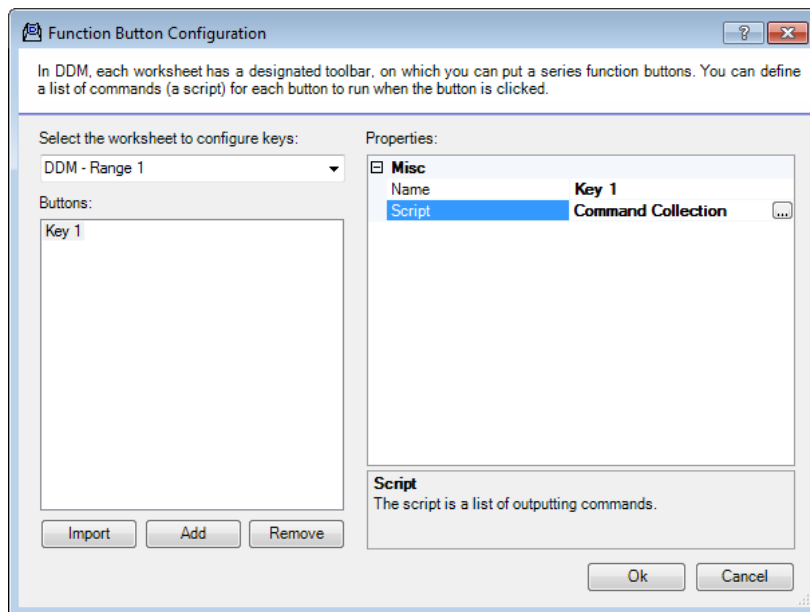
Figure 9: *Function Button Configuration Window*

Creating Function Buttons

1. On the *Function Button Configuration* window, select a worksheet (*Range*) for which the buttons will be used.
2. Click **Add** to insert a new function button.
3. Click *Command Collection*, and then click the ⬚ button to open the *Script Editor* window.
4. Click **Add** to insert a new command.
5. Under *Type*, click the arrow to choose from a list of command types (*Figure 10*). Multiple command types may be assigned to a single button as long as the actions do not negate each other.
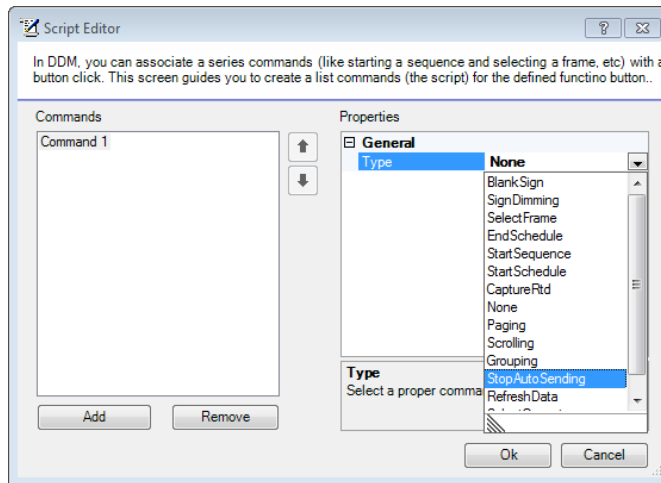
***Figure 10:** Script Editor Window*

6. Select **StopAutoSending**, and then click **Ok**.
7. Change the *Name* of the function button to "Stop".

Note: Every DDM spreadsheet file must include a button to stop sending data and one or more buttons to resume sending data. Other display controls may be configured as needed.

Paging Function Buttons

Paging function buttons send out pages of RTD with a predefined number of rows of information on each page.

1. Repeat steps 1 – 5 under *Creating Function Buttons*.
2. Select **Paging** from the list of command types.
3. Adjust the following settings accordingly:
   - *HoldingTime:* Type in how many seconds to wait before sending the next data set.
   - *Port:* Select a previously configured port (see *Port Configuration*).
   - *RecordCount:* Type in how many rows of data should be sent out at a time.
   - *Sorts:* Sort text or numerical data in ascending or descending order before it is sent out (See *Sorting*).

4. Click **Ok** when finished.
5. Give the Paging function button a descriptive *Name*.

Note: Both Paging and Scrolling will send out data until the first empty row of data, and then start from the top again. To allow blank rows to be sent, there must be at least one cell in that row with a dummy character (such as a space) in order for it to appear to be empty. Otherwise when the DDM application finds a row with absolutely no data, it will disregard any information following the empty row.
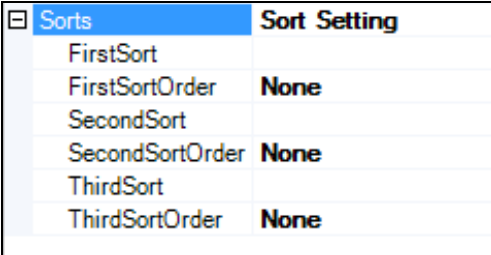
Scrolling Function Buttons

Scrolling function buttons send out RTD line by line with the next piece of data moving into the previous spot until all of the information has gone through.

1. Repeat steps 1 – 5 under *Creating Function Buttons*.
2. Select **Scrolling** from the list of command types.
3. Adjust the following settings accordingly:
   - *HoldingTime:* Type in how many seconds to wait before sending the next data set.
   - *Port:* Select a previously configured port (see *Port Configuration*).
   - *RecordCount:* Type in how many rows of data should be sent out at a time.
   - *Sorts:* Sort text or numerical data in ascending or descending order before it is sent out (See *Sorting*).
4. Click **Ok** when finished.
5. Give the Scrolling function button a descriptive *Name*.

Sorting

When creating Paging and Scrolling function buttons, users are given the option to sort the data before it is sent out (*Figure 11*). Sorting ensures that data will always be displayed in a specific way, regardless of how it appears in the spreadsheet.

Figure 11: *Sorting*

- *First/Second/ThirdSort:* Select the header name of the column that includes the data that will be used as the criteria for sorting.
- *First/Second/ThirdSortOrder:* Select Ascending (**Asc**) or Descending (**Desc**) sort orders.

Up to three columns can be used to determine how data is sorted. This is useful in cases of duplicate information in a column. For example, if two people have the same last name in a column of names that are sorted alphabetically (*FirstSort*), then a column with their first names could be used to determine the next sort order (*SecondSort*).

Grouping Function Buttons

Grouping function buttons send out multiple rows of data based on the first selected row.

1. Repeat steps 1 – 5 under *Creating Function Buttons*.
2. Select **Grouping** from the list of command types.
3. Adjust the following settings accordingly:
   - *Port:* Select a previously configured port (see *Port Configuration*).
   - *RecordCount:* Type in how many rows of data should be sent out at a time.
4. Click **Ok** when finished.
5. Give the Grouping function button a descriptive *Name*.

Select Current Function Buttons

A Select Current function button allows users to select a row that will always be visible even if it is not due up to be displayed in the main scrolling, paging, or grouping order. The Select Current function button is also used to choose a location to import data (see *Advanced Data Importing*).

1. Repeat steps 1 – 5 under *Creating Function Buttons*.
2. Select **SelectCurrent** from the list of command types.
3. Click **Ok** when finished.
4. Give the Select Current function button a descriptive *Name*.

Note: The buttons on the following two page are optional commands for the display controllers. These buttons are not needed to output data from the DDM application.

Start Sequence Function Buttons

Start Sequence function buttons start sequences on selected signs. Sequences (Presentations) control the arrangement and appearance of graphics and data on a display. Refer to the documentation provided with the Daktronics display control software for more information on creating sequences.

1. Repeat steps 1 – 5 under *Creating Function Buttons*.
2. Select **StartSequence** from the list of command types.
3. Adjust the following settings accordingly:
   - *Mode:* Select from *Continuous*, *SingleStep*, or *SelectedFrame* play modes.
   - *Port:* Select a previously configured port (see **Port Configuration**).
   - *Sequence:* Type in the *Drive* letter, *Frame* number, *Library* name, and *Sequence* name for the sequence to start.
   - *SignNumber:* Type in the sign number for the sign on which the selected sequence should be started.
   - *Times:* Select the number of times to display the sequence.

4. Click **Ok** when finished.
5. Give the Start Sequence function button a descriptive *Name*.

Blank Sign Function Buttons

Blank Sign function buttons clear the data from selected signs.

1. Repeat steps 1 – 5 under *Creating Function Buttons*.
2. Select **BlankSign** from the list of command types.
3. Adjust the following settings accordingly:
   - *Port:* Select a previously configured port (see **Port Configuration**).
   - *SignNumber:* Type in the sign number for the sign to be blanked.
4. Click **Ok** when finished.
5. Give the Blank Sign function button a descriptive *Name*.

Start Schedule Function Buttons

Start Schedule function buttons start schedules on selected signs. Refer to the documentation provided with the Daktronics display control software for more information on creating schedules.

1. Repeat steps 1 – 5 under *Creating Function Buttons*.
2. Select **StartSchedule** from the list of command types.
3. Adjust the following settings accordingly:
   - *Port:* Select a previously configured port (see **Port Configuration**).
   - *Schedule:* Type in the *Drive* letter, *Frame* number, *Library* name, and *Sequence* name for the schedule to start.
   - *SignNumber:* Type in the sign number for the sign on which the selected schedule should be started.
4. Click **Ok** when finished.
5. Give the Start Schedule function button a descriptive *Name*.

End Schedule Function Buttons

End Schedule function buttons stop schedules from running on a sign.

1. Repeat steps 1 – 5 under *Creating Function Buttons*.
2. Select **EndSchedule** from the list of command types.
3. Adjust the following settings accordingly:
    -   *Port:* Select a previously configured port (see *Port Configuration*).
    -   *SignNumber:* Type in the sign number for the sign that should stop running schedules.
4. Click **Ok** when finished.
5. Give the End Schedule function button a descriptive *Name*.

Sign Dimming Function Buttons

Sign Dimming function buttons control the brightness levels of selected signs. Refer to the documentation provided with the Daktronics display control software for more information on dimming controls.

1. Repeat steps 1 – 5 under *Creating Function Buttons*.
2. Select **SignDimming** from the list of command types.
3. Adjust the following settings accordingly:
    -   *Dimming*: Select from **ManualDim**, **ManualBright**, **PhotocellDetect**, **PhotocellRemote**, or **ScheduleDimming**.
    -   *Port:* Select a previously configured port (see *Port Configuration*).
    -   *SignNumber:* Type in the sign number for the sign to have dimming control.
4. Click **Ok** when finished.
5. Give the Sign Dimming function button a descriptive *Name*.

Refresh Data Function Buttons

Refresh Data function buttons resend data before the hold time has passed.

1. Repeat steps 1 – 5 under *Creating Function Buttons*.
2. Select **RefreshData** from the list of command types.
3. Click **Ok** when finished.
4. Give the Refresh function button a descriptive *Name*.

Select Frame Function Buttons

Select frame function buttons play only a selected frame within a currently playing sequence.

1. Repeat steps 1 – 5 under *Creating Function Buttons*.
2. Select **SelectFrame** from the list of command types.
3. Adjust the following settings accordingly:
    -   *FrameNumber:* Type in the number of the frame to play in the current sequence.
    -   *Port:* Select a previously configured port (see *Port Configuration*).
    -   *SignNumber:* Type in the sign number for the sign that contains the selected frame.

4. Click **Ok** when finished.
5. Give the Select Frame function button a descriptive *Name*.

Capture RTD Function Buttons

Capture RTD function buttons are used primarily for in-house testing purposes. These function buttons store the current frame buffer data into a secondary capture buffer that can be recalled at a later time.

ITF Configuration

Click the **ITF Configuration** button to open a window to set up an Input Template File (*Figure 12*). An ITF is the link between the display controller and the information that is entered in the spreadsheet.
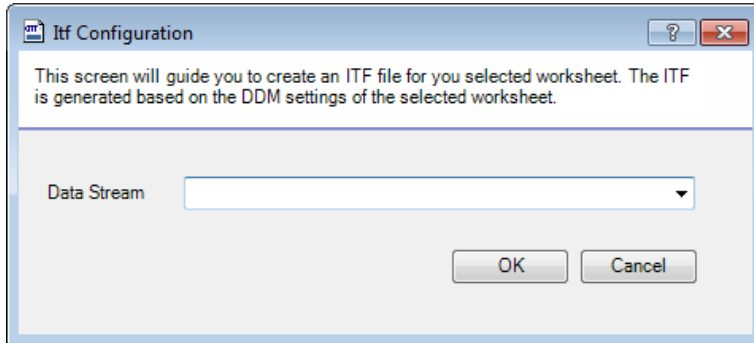
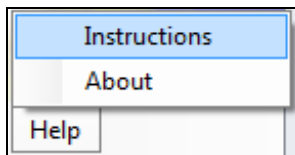*Figure 12: ITF Configuration*

1. Select a *Data Stream* (worksheet).
2. Click **OK**.
3. Save the ITF with a descriptive name.
4. The ITF will then be used by the display controller to gather RTD from the spreadsheet.

Note: An ITF must be saved before data can be sent to a display controller and after the following actions are performed:
- Adding or removing Headers
- Modifying the *Size* of a data field
- Modifying the *Title* of a data field
- Adding, removing, or modifying function buttons

Help

Click the **Help** button to see information about the version of the DDM application that is currently installed and to open the instruction manual (*Figure 13*).

Figure 13: Help Button

Columns

This configuration box sets the number of highlighted columns in the data field, as well as the maximum number of characters for each piece of data in the column. Click the plus (+) and minus (-) signs to expand or hide the options, respectively.

1. Click *Columns*, and then click the [...] button that appears to open the *Header Editor* window (*Figure 14*).
2. Click **Add** to insert more columns, and click **Remove** to delete columns.
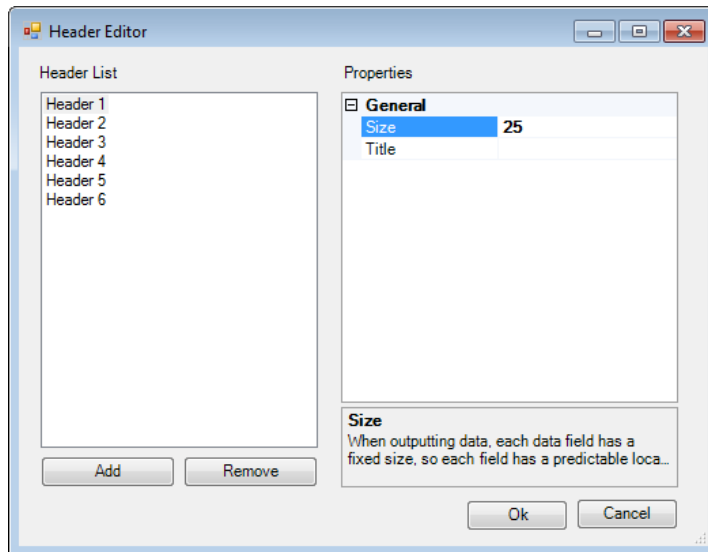
Figure 14: *Header Editor Window*

3. Select a maximum *Size* in characters for the information in each cell for the column.

   Note: If information appears to be getting cut off on the display, make sure that the *Size* is large enough to fit the whole piece of information. Resizing column width to see longer information is not the same as changing the *Size*.

4. Enter a *Title* for the column. The *Title* will show up as the column header in the RTD.
5. Click **Ok** when finished.

Data Range Location

This configuration box sets the starting location of the headers on the spreadsheet (*Figure 15*). Click the plus (+) and minus (-) signs to expand or hide the options, respectively. Be sure to adjust this setting before entering data into the spreadsheet cells.

Figure 15: *Data Range Location*

Highlight Color

This configuration box is used to change the color of column headers. Click *HighlightColor*, and then click the arrow to select from a wide variety of preset colors (*Figure 16*).

> *Note:* Changing the highlight color, text colors, and text sizes or fonts will not affect their appearance on the display.

Input Mapping

This configuration box is used to define what input package fields are to be displayed in which cells of the spreadsheet. See *Advanced Data Importing* for more information about package suites and input mapping.
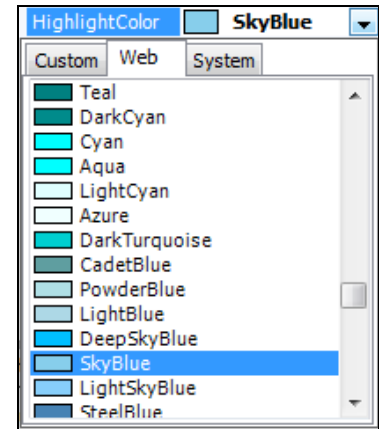
Figure 16: *Highlight Color*

Row Count

This configuration box is used to define the total number of rows in a column, not counting the header. If the final number of rows in a column is unknown, leave the *Row Count* value set to "-1" and the first empty row will be used to determine the actual row count.

Input & Output Monitors

The bottom of the *Document Actions* task pane displays both an *Input Monitor* and an *Output Monitor* (*Figure 17*). These toolbars are used to detect problems in receiving or sending data. Each toolbar shows the port that data is traveling through, the last time the data was sent or received, and the data itself.
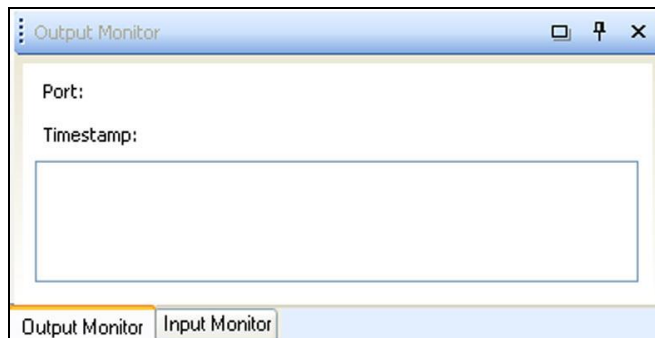

Figure 17: *Input & Output Monitors*

The toolbars can be rearranged or removed entirely:

- Click the **Toggle Tabs** button to view both monitors side by side.
- Click the **Auto Hide** button to minimize one or both monitors.
- Click the **Close** button to remove one or both monitors from the Document Actions task pane. Use the **View** button to bring them back.
- Click and drag the monitor toolbars to move them anywhere on the screen.

Note: For newer versions of Excel, the data monitor window may have a black background with black text, so it appears as if nothing is outputting. To confirm that data is in fact being sent out, click and drag on the text in this box.

3.3 Outputting Data

After function buttons have been created, a new tab called *Add-Ins* will appear at the top of the screen in newer versions of Microsoft Excel (*Figure 18*). Use this tab to access all of the available function buttons.
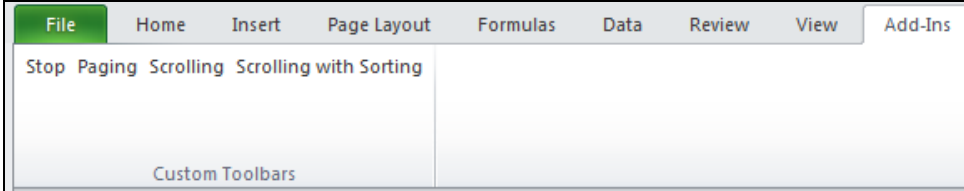

Figure 18: *Function Buttons Toolbar (Add-Ins Tab)*

Note: In Microsoft Excel 2003, the buttons will be in the bottom left corner of the screen (*Figure 19*). If the buttons do not appear at first, re-open the *Function Button Configuration* screen, and click **OK**.
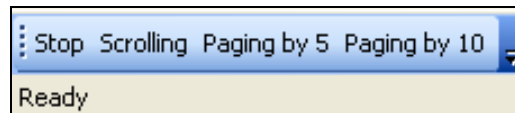
Figure 19: *Function Button Toolbar (Excel 2003)*

1. Enter data into the spreadsheet as normal. Be sure to utilize the formulas and features available in Microsoft Excel for creating spreadsheets.
2. When it is time to output the data:

   - Click a Paging or Scrolling function button to begin continually sending out information across the port assigned to the button. The worksheet tab will turn from red to flashing green, and data will appear in the Output Monitor.
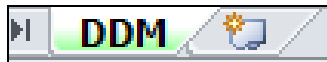
   - Click the Select Current button to highlight a selected row in gray. The current row data will only be sent out if the rest of the data is already Paging or Scrolling. If there is no data in a selected row, the current row fields will be left blank. The worksheet tab will remain red after the button is clicked by itself, or it will remain green if a Scrolling or Paging button was clicked first.

   - Click a Grouping function button to send out information across the assigned port only if valid data has been selected. Grouping buttons can be clicked independently or while data is still Scrolling or Paging. The worksheet tab will remain red after the button is clicked by itself, or it will remain green if a Scrolling or Paging button was clicked first.

   - Click the StopAutoSending function button to stop sending out information. The worksheet tab will become red again.

Note: It is not necessary to stop sending out data to modify it. Simply type in the changes on-the-fly and they will appear in the next data cycle.

## 3.4 Advanced Data Importing

Packages

Packages tell the DDM application what types of incoming data to look out for, similar to what an ITF does for the display controller. Incoming data sources will typically include other Daktronics products, such as an All Sport® controller, for scoring and timing information.

In order to utilize packages for importing data, there are three major steps to complete:
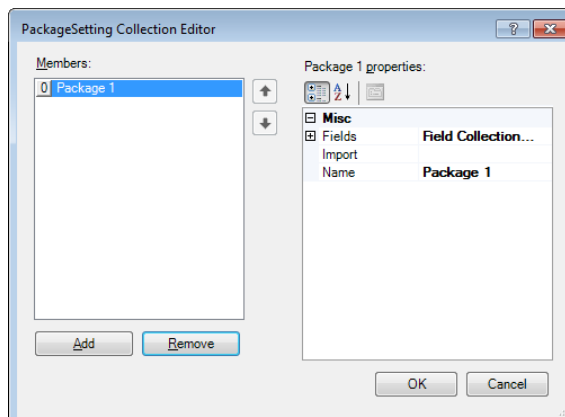1. Create a Package Suite
2. Create an Input Port
3. Input Mapping

Create a Package Suite

1. Click the **Package Suite Editor** button [icon].
2. Click **Add** to insert a new package suite (*Figure 20*).
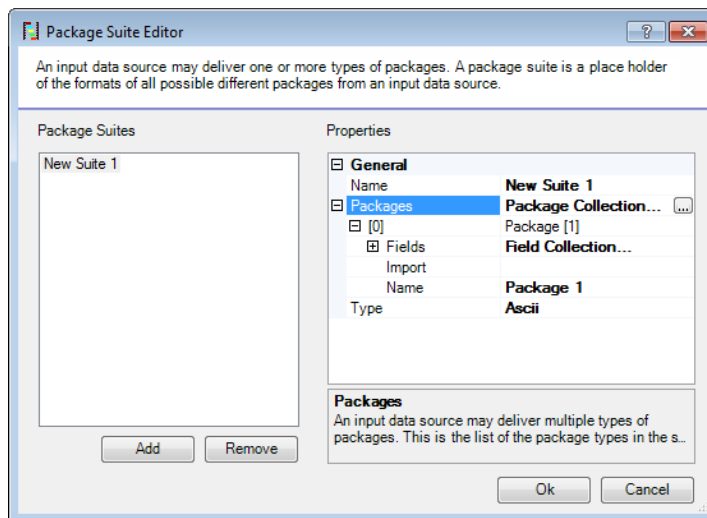
***Figure 20:** Package Suite Editor Window*

3. Type a descriptive *Name* for the package suite.
4. Leave *Type* set to **Ascii**.
5. Click *Package Collection*, and then click the [...] button to open the *PackageSetting Collection Editor* window (*Figure 21*).

***Figure 21:** PackageSetting Collection Editor Window*

a. Click **Add** to insert a new package to the package suite.
b. Type in a descriptive *Name* for the package.
c. Import an ITF, or manually create the data fields:

Import Fields
1) Click *Import* and then click the ⊡ button to locate and **Open** an ITF. A list of *Fields* will automatically be populated based on the ITF.
2) Click **OK** to return to the *Package Suite Editor* window (***Figure 20***).

Create Fields
1) Click *Field Collection* and then click the ⊡ button to open the *PackageFieldSetting Collection Editor* window.
2) Click **Add** to insert a new field to the package (***Figure 22***).
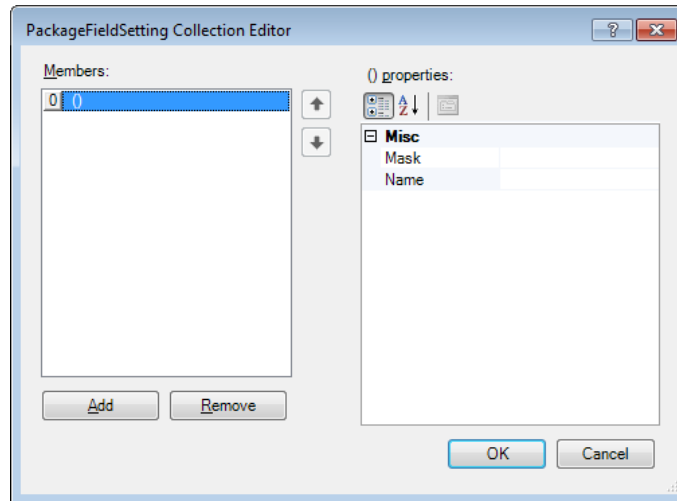
Figure 22: *PackageFieldSetting Collection Editor Window*

3) In the *Mask* cell, type in one or more of the following symbols to represent each character of the expected incoming data:

- Use an asterisk (*) for any number or letter.
- Use a pound sign (#) for a number from 0-9 only.
- Use a question mark (?) for a letter only.
- To use one of the above characters or other special characters instead of a number or letter, place a quote (") before the character.

Note: The first Field should contain definite letters or numbers that uniquely identify the data as the start of a new incoming packet.

4) Type in a descriptive *Name* for the field.
5) **Add** as many fields as needed to receive every piece of desired data.
6) Click **OK** twice to return to the *Package Suite Editor* window (***Figure 20***).

6. On the *Package Suite Editor* window, it is possible to view and modify the current package and field settings using the plus (+) and minus (-) signs.
7. Click **Ok** when finished.

Create an Input Port

1. Click the **Port Configuration** button .
2. Click **Add** to insert a new port.
3. Adjust the following options to set up an input port:
   - *Format:* Select **ERTD** if using an imported ITF. Select **CUSTOM** if the fields were created manually.
   - *Name:* Type in a descriptive name for the port
   - *Protocol:* Select the method of data transfer from **Serial**, **Tcp**, or **Udp**.

     Note: Additional settings will appear based on the chosen connection. Contact the network administrator to apply the appropriate settings.

   - *Suite:* Select a package suite.
   - *Type:* Select **Rx**.

4. Click **Ok** when finished.

Input Mapping

1. Click *InputMapping*, and then click the [...] button to open the *Data Mapping Editor* window.
2. Click **Add** to insert a new Package Mapping List (*Figure 23*).
3. Select a *Package*.
4. Select a *Type*:
   - *Overwriting:* Used only with a Select Current button. Imported data will be populated in a selected row. Make sure the previous row also contains data.
   - *Mapping:* Rows will be populated with data from the input package based on a predefined *Key*.
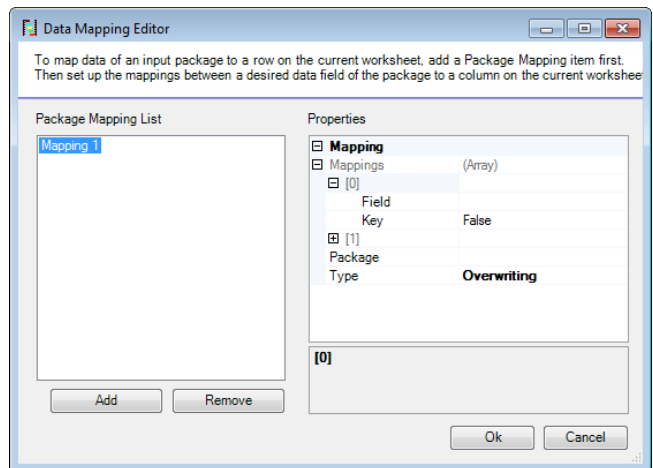
Figure 23: *Data Mapping Editor Window*

5. Click the plus sign (+) next to *Mappings* to see a list of each column in the spreadsheet.
6. Click the plus sign (+) next to the column number.
   - *Field:* Select a data field from the chosen package that will go in the column.
   - *Key:* Used only for *Mapping*. When a field key is set to **True**, the DDM application will not create another row out of the incoming data, but will instead update the other cells in the row containing data that matches the incoming data's key fields.

7. Click **Ok** when finished.

Final Note on Package Suites

If the package suites do not seem to be working correctly, contact Daktronics to create custom configuration files to suit the particular data importing needs.

Web Queries

It is possible to output information to a display that was retrieved from the Internet by using a built-in feature of Microsoft Excel called a Web Query. This feature is useful for displaying news stories, stock quotes, out-of-town scores, and many other types of information that are frequently updated over the Internet. For more information about web queries, please refer to the *Microsoft Office Excel Help* by pressing **[F1]**.

1. Select the cell(s) where the imported information will go.
2. In newer versions of Microsoft Excel, click the **Data** tab, and then click **From Web** (*Figure 24*).

   Note: In Microsoft Excel 2003, go to **Data > Import External Data > New Web Query** (*Figure 25*).
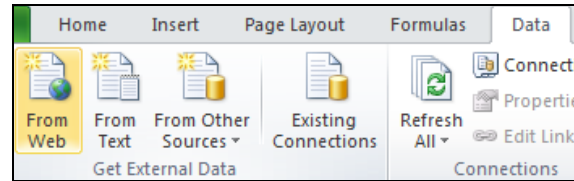
Figure 24: *Import Data From Web*

3. The *New Web Query* window will appear, which acts as a web browser inside Microsoft Excel. Type in or Paste the address to the site where the data will be gathered.
4. Once at the desired webpage, click a yellow arrow ➡ and it will change to a green check mark ✅. Data within the blue highlighted area will be imported into the spreadsheet.

   Note: When gathering data from the Internet, it is very important to identify the source of the information to avoid plagiarism and violating copyright laws. When in doubt, contact the author to ask for permission to use the data. Be sure to include the author of the information on the display if it is someone other than the software user.
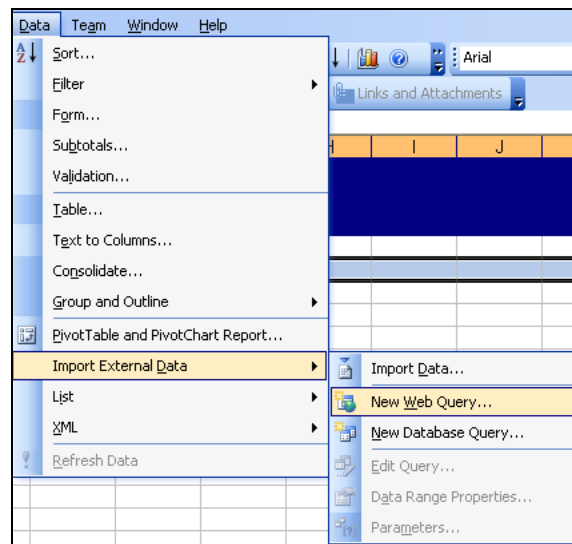
Figure 25: *New Web Query (Excel 2003)*

5. Click **Import**.
6. On the *Import Data* window, select the cell destination for the imported data if needed.
7. Click the **Properties** button to adjust the settings of the imported data, in particular the *Refresh control* (*Figure 26*).
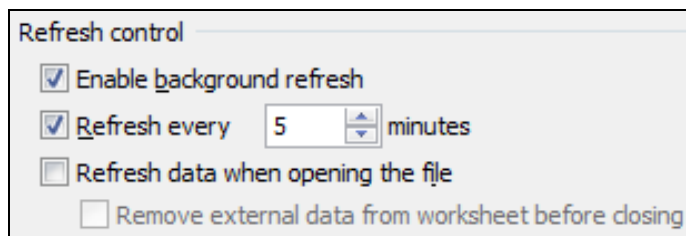

Figure 26: *Refresh Control*

8. When the import properties and location are correct, click **OK**. Depending on the size of the data table, it may take a few moments to import the data into the spreadsheet.
9. Be sure to update the number and size of the *Columns* to match the imported data, and then save the ITF.

Appendix A: Sample DDM Exercise

The following exercise will explain how to create a spreadsheet that contains a basic table of first and last names and output the information as Real Time Data. This exercise is designed to familiarize users with each step needed to output data from a spreadsheet.

At the end of the exercise, the DDM application will look similar to the following screen:
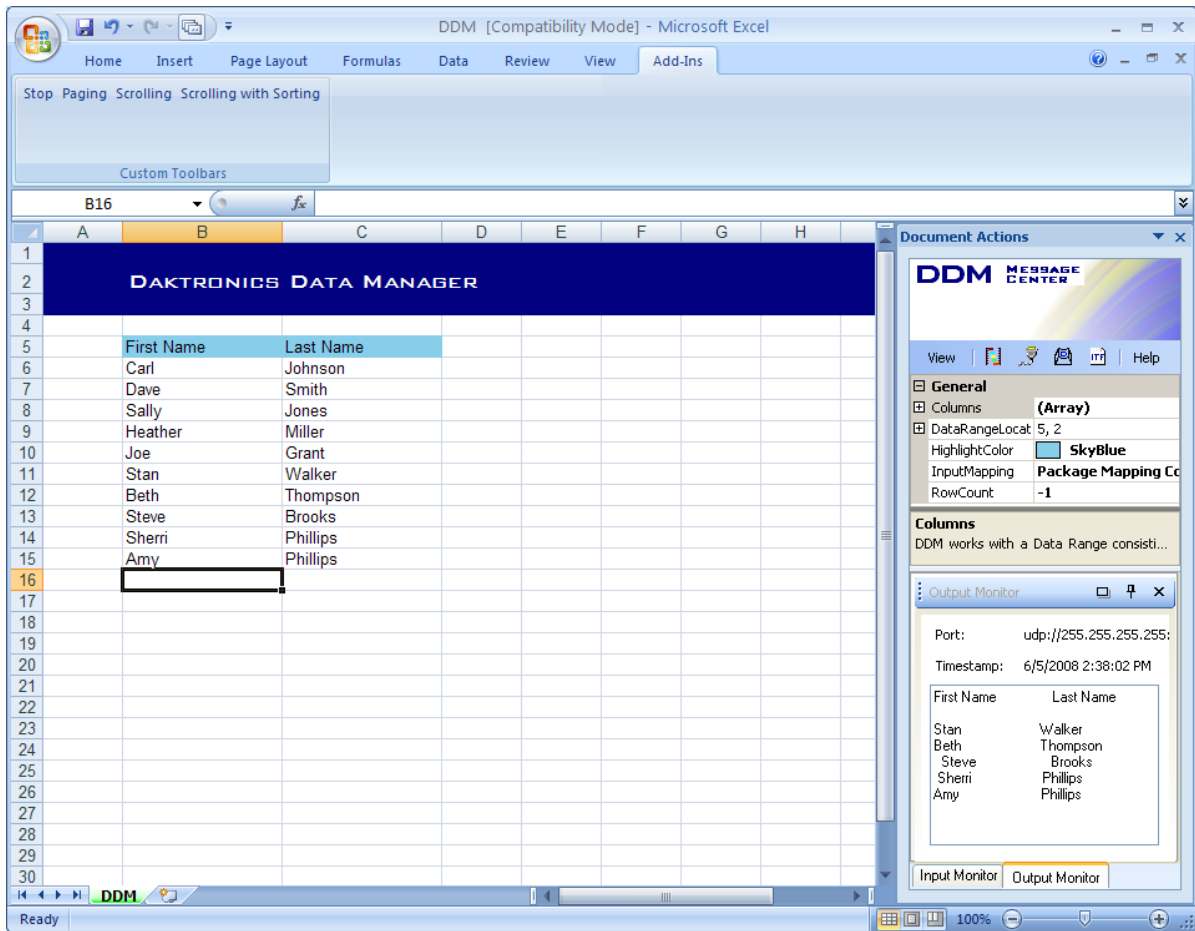
This exercise is broken into five main sections:
- Creating Headers
- Creating an Output Port
- Creating Function Buttons
- Creating the ITF
- Entering & Sending Data

Creating Headers

1. Click *Columns* in the *Document Actions* task pane, and then click the ⬚ button.

2. In the *Header Editor* window, click **Remove** to delete Headers 3-6, so only *Header 1* and *Header 2* remain.
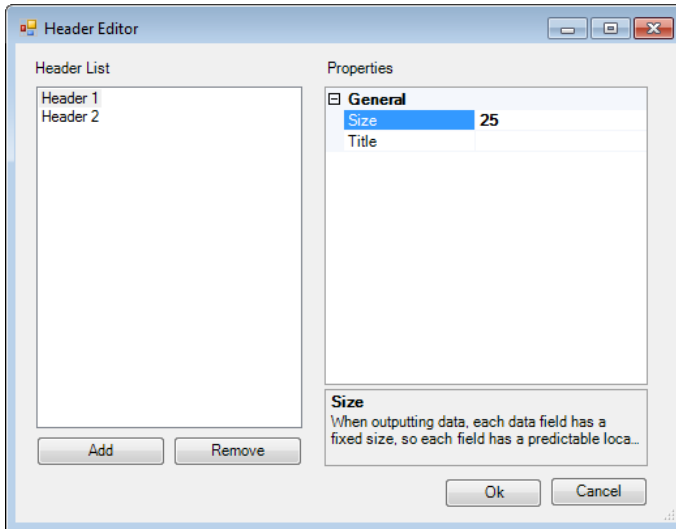
3. In the *Title* for *Header 1*, type in "First Name" and in the *Title* for *Header 2*, type in "Last Name". Leave the *Size* set to "25", and then click **Ok**.
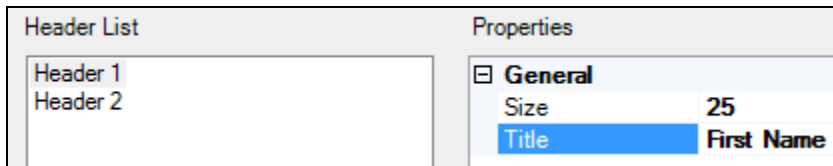
Creating an Output Port

1. On the *Document Actions* task pane, click the **Port Configuration** button to open a window to set up a port for transmitting data.

2. In the *Port Configuration* window, click **Add** to insert a new port, and then set up in the following settings:

   - *Format:* Leave this option set to **ERTD**.
   - *Name:* Type in "Output Port".
   - *Protocol:* For this example, choose **Udp**.
   - *Suite:* Leave this option blank
   - *Type:* Leave this option set to **Tx** for transmitting data.
   - *Port:* For this example, type in "21000".

     Note: When setting up a port, contact the network administrator to make sure these settings are correct and do not interfere with the data ports of other Daktronics programs.
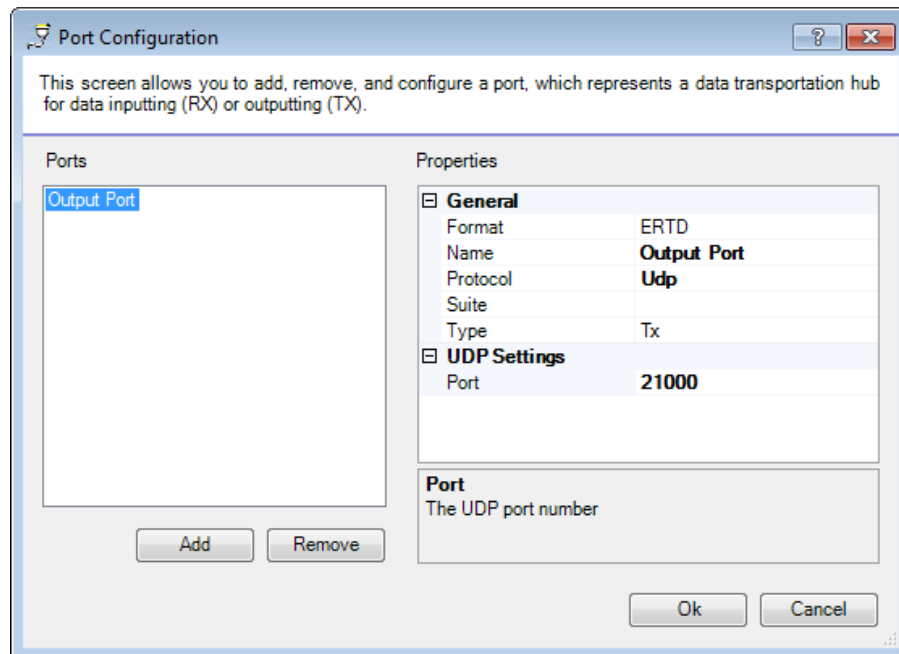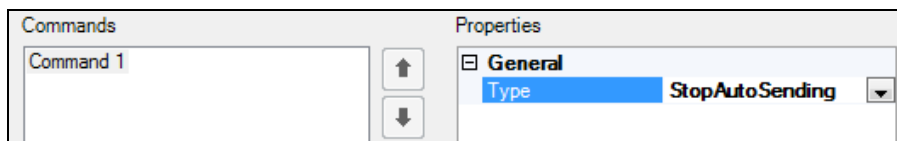

3. Click **Ok** when finished.

Creating Function Buttons

On the *Document Actions* task pane, click the **Function Button Configuration** button [icon] to open a window to set up the buttons for starting and stopping data output.
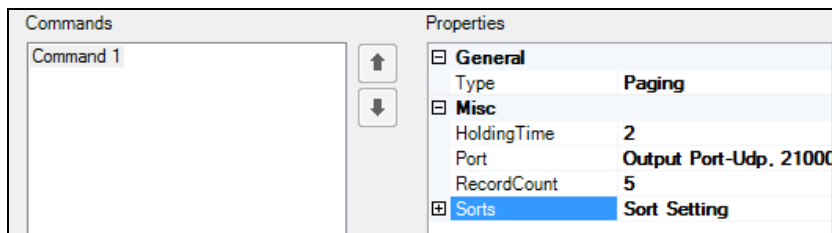
Stop Button

1. In the *Function Button Configuration* window, click **Add** to insert a new button.

2. Click *Script*, and then click the [...] button to open the *Script Editor* window.

3. In the *Script Editor* window, click **Add** to insert a new command. Click *Type*, and then use the drop-down arrow to select **StopAutoSending**.

4. Click **Ok** when finished, and then change the *Name* of the function button to "Stop".
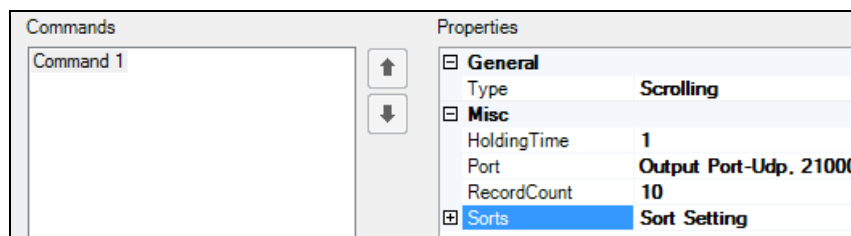
Paging Button

1. In the *Function Button Configuration* window, click **Add** to insert another function button.

2. Click *Script*, and then click the [...] button to open the *Script Editor* window.

3. In the *Script Editor* window, click **Add** to insert a new command. Click *Type*, and then use the drop-down arrow to select **Paging**.

4. Apply the following settings:
   - *HoldingTime:* Type in "2" to wait two seconds between sending the next data set.
   - *Port:* Select **Output Port-Udp, 21000**.
   - *RecordCount:* Type in "5" to send out five rows of data at one time.
   - *Sorts:* Leave this setting empty for now.

5. Click **Ok** when finished.

6. *Name* the function button "Paging".

Scrolling Button

1. In the *Function Button Configuration* window, click **Add** to insert another function button.

2. Click *Script*, and then click the [...] button to open the *Script Editor* window.

3. In the *Script Editor* window, click **Add** to insert a new command. Click *Type*, and then use the drop-down arrow to select **Scrolling**.

4. Apply the following settings:
   - *HoldingTime:* Type in "1" to wait one second between sending the next data set.
   - *Port:* Select **Output Port-Udp, 21000**.
   - *RecordCount:* Type in "10" to send out the first ten rows of data each time.
   - *Sorts:* Leave this setting empty for now.

5. Click **Ok** when finished.

6. *Name* the function button "Scrolling".

Scrolling Button with Sorting

This example will only create a Scrolling button with sorting, but Paging buttons may be configured with sorting as well.

1. In the *Function Button Configuration* window, click **Add** to insert another function button.

2. Click *Script*, and then click the [...] button to open the *Script Editor* window.

3. In the *Script Editor* window, click **Add** to insert a new command. Click *Type*, and then use the drop-down arrow to select **Scrolling**.

4. Apply the following settings:
   - *HoldingTime:* Type in "1" to wait one second between sending the next data set.
   - *Port:* Select **Output Port-Udp, 21000**.
   - *RecordCount:* Type in "10" to send out the first ten rows of data each time.
   - *Sorts:* Apply the following settings:
     - *FirstSort:* Select **Last Name (2)**.
     - *FirstSortOrder:* Select **Asc**.
     - *SecondSort:* Select **First Name (1)**.
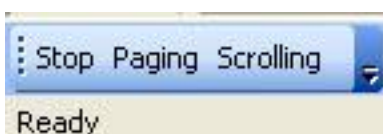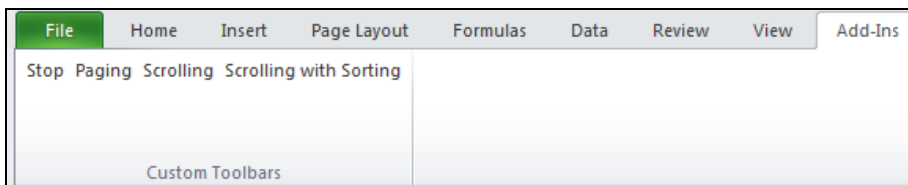   - *SecondSortOrder:* Select **Asc**.
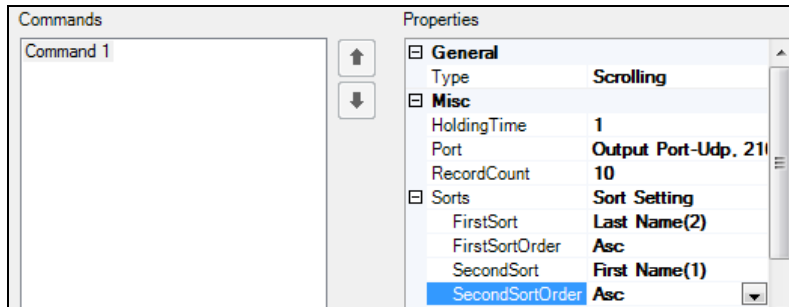
5. Click **Ok** when finished.

6. *Name* the function button "Scrolling with Sorting".

The *Function Button Configuration* window should now look like this:
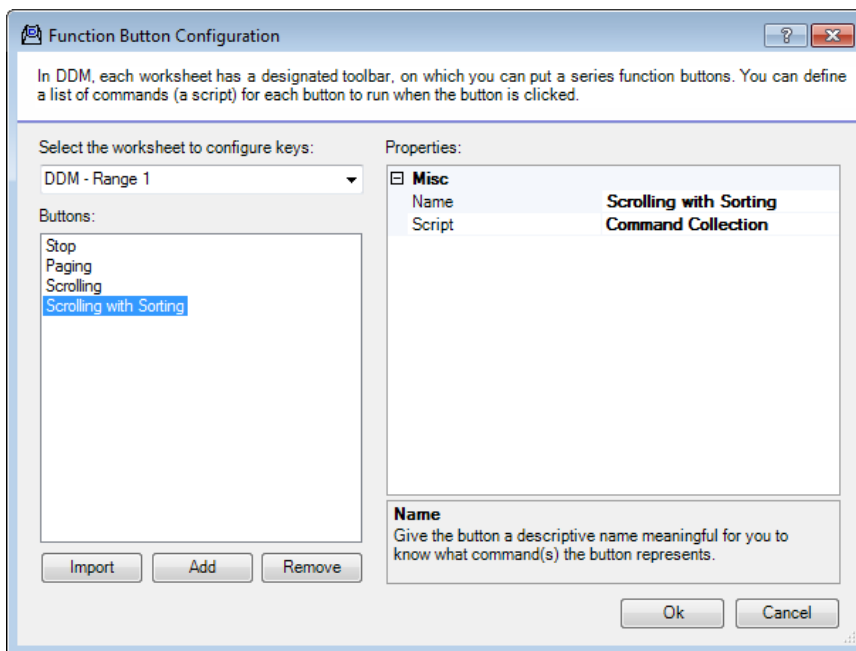
1. Click **Ok** when finished.

2. To locate the function buttons, click **Add-Ins** at the top of the screen in newer versions of Microsoft Excel, or look in the bottom left corner of Microsoft Excel 2003.

Creating the ITF

Creating an ITF is not necessary to complete this particular exercise. However, an ITF will be needed to see how the information would look using a display controller.

1. Click the **ITF Configuration** button to open a window to set up an Input Template File.

2. Select **DDM - Range 1** in the *Data Stream* drop-down box.

3. Click **OK** and **Save** the ITF with an easy to remember name in an easy to remember location, preferably the same folder as the DDM spreadsheet file or directly in the display controller program folder.

4. Refer to the Daktronics display controller software for information on creating display sequences using Real-Time Data (RTD) fields.
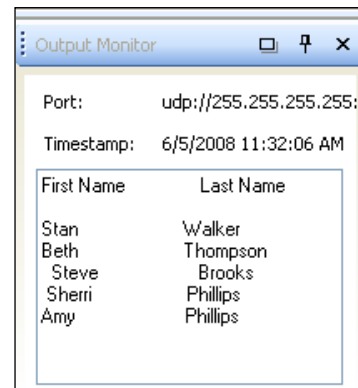
Entering & Sending Data

1. Type any ten random names into the spreadsheet, with the *First Name* and *Last Name* corresponding to the blue headers.

    Note: The column widths may be widened to see the whole names if necessary, but make sure no name exceeds 25 characters per cell.


2. Click the **Paging** button to begin sending out the list of names. Since there are ten names and the button is set up to send five rows at a time, there will be two pages of information switching back and forth. Watch the *Output Monitor* to see the information appear.

3. Now click the **Scrolling** button. Each name will appear and move up one at a time until the first empty row and then start over from the top.

4. Now try clicking the **Scrolling with Sorting** button. Even though the names in the spreadsheet are out of order, the *Output Monitor* shows that they are now listed alphabetically. Notice that if two people share the same last name, the first names are listed in alphabetical order too because of the *SecondSort* command.

5. Click the **Stop** button to stop sending out data from the spreadsheet. The *Output Monitor* will display the last data set that was successfully sent. It is not necessary to stop sending out data to modify it. Simply type in the changes on-the-fly and they will appear in the next data cycle.
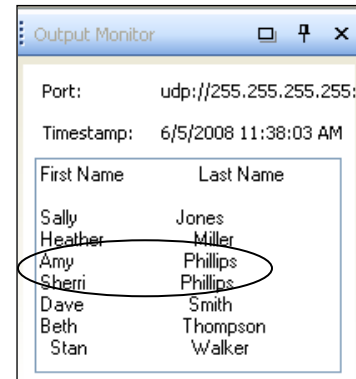
Note: For newer versions of Excel, the data monitor window may have a black background with black text, so it appears as if nothing is outputting:
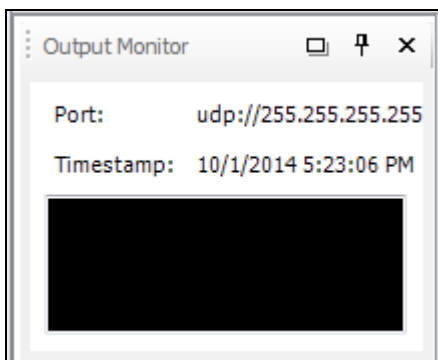
To confirm that data is in fact being sent out, click and drag on the text in this box:
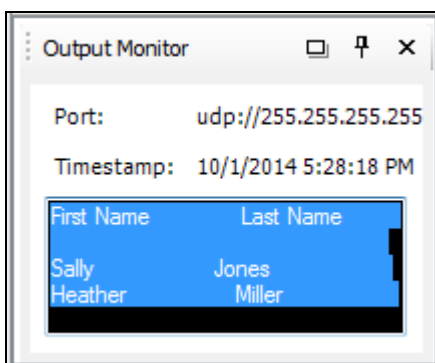
Also, the *Timestamp* field still notes the time of each successful transmission.