DataWedge 3.1
Advanced Configuration Guide

DataWedge Advanced Configuration Guide

Patents

This product is covered by one or more of the patents listed on the website: www.symbol.com/patents

Warranty

Revision History

Changes to the original manual are listed below:

Change	Date	Description
Rev 1	10/2008	Initial Draft
Rev 2	04/2009	Updated to support DataWedge 3.1

Table of Contents

About This Guide

Introduction

DataWedge is a Motorola mobile device application that reads data from input devices, processes the data and sends the data to consumer applications executing in the foreground on the mobile devices.

DataWedge can be installed on Motorola mobile devices that run Windows CE 5.0 and Windows Mobile 5.0 and above operating systems.

This document describes the features and functionality of DataWedge 3.1 and then goes on to explain how to configure these features and functionality to inter-operate with user applications.

Special Notes

Screens/windows pictured in this guide are samples and can differ from the actual screens depending on the device hardware and operating system.

Notational Conventions

The following conventions are used in this document:

- "device" refers to any Motorola enterprise mobility device.
- "User" refers to anyone using an application on the device.
- "You" refers to the End User, System Administrator or Technical Support person using this manual as a reference to install, configure, operate, maintain and troubleshoot DataWedge.
- *Italics* are used to highlight the following:
    - Chapters and sections in this and related documents
    - Dialog box, window and screen names
    - Drop-down list and list box names
    - Check box and radio button names
    - Icons on a screen.

- **Bold** text is used to highlight the following:
  - Key names on a keypad
  - Button names on a screen or window.
- bullets (•) indicate:
  - Action items
  - Lists of alternatives
  - Lists of required steps that are not necessarily sequential
- Sequential lists (e.g., those that describe step-by-step procedures) appear as numbered lists.

NOTE   This symbol indicates something of special interest or importance to the reader. Failure to read the note will not result in physical harm to the reader, equipment or data.

CAUTION   This symbol indicates that if this information is ignored, the possibility of data or material damage may occur.

WARNING!   **This symbol indicates that if this information is ignored the possibility that serious personal injury may occur.**

Chapter 1 Advanced Configuration Overview

Introduction

This chapter provides an overview of components used in DataWedge 3.1. DataWedge 3.1 is different from previous versions of DataWedge in several notable areas which are described in this chapter.

The new version of DataWedge has an architecture based on Profiles (See *Profiles*) and functionality that is based on Plug-ins (See *Plug-ins*). Through the use of plug-ins, the functionality of DataWedge can be modularized into manageable parts which can be configured to change its functionality according to the foreground application.

The configuration data of DataWedge 3 is stored in XML allowing easy deployment of DataWedge across many mobile devices with different platforms. A web-based interactive user interface is provided to manipulate that data and configure DataWedge.

Profiles

A profile contains information on how DataWedge should behave with different applications.

Profile information consists of;

- Associated applications
- One or more data routes (path of the data flow from input plug-in through one or more process plug-ins to an output plug-in)
- Input plug-in configurations
- Output plug-in configurations
- Process plug-in configurations (ordered set of process plug-ins with their configurations for each data route).

DataWedge has a pre-configured default profile, *Profile0* (See *Profile0*), which is created automatically the first time DataWedge is run. Apart from Profile0, DataWedge supports user defined profiles.

Why Profiles

Through the use of profiles, each application can have a DataWedge configuration tailored to it. For example, each user application can have a profile which outputs scanned data in the required format when that application comes to the foreground. Thus DataWedge can be configured to process the same set of captured data differently based on the requirements of each application.
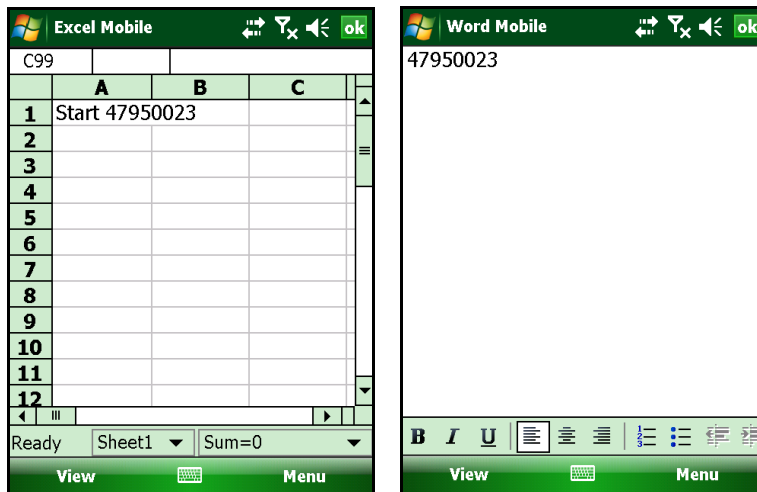
The figures above show two applications associated with two individual profiles. These figures show the data as it appears in each application after scanning the same barcode. The profile which the first application is associated to has been configured to add the prefix "Start" to the scanned data and the other profile which the second application is associated with has not been configured to perform data modifications, thus the scanned data remains unmodified.

Profile0

Profile0 is the generic profile which is used when there are no user created profiles associated with an application.

As the default profile, Profile0 can be edited but cannot be associated with an application. That is, DataWedge allows manipulation of data routes and the plug-in settings for Profile0 but it does not allow assignment of a foreground application. This configuration allows DataWedge to send output data to any foreground application other than applications associated with user-defined profiles when Profile0 is enabled.

Profile0 can be disabled if required. This allows DataWedge to only send output data to those applications which are associated in user-defined profiles. For example, create a profile associating a specific application and disable Profile0 and set Profile Selection to "Auto" and scan. DataWedge only sends data to the application specified in the user-created profile. This adds additional security to DataWedge enabling the sending of data only to specified applications. (See *Profile Selection*)

Plug-ins

A plug-in is a software module utilized in DataWedge to extend its functionality to encompass technologies such as Barcode scanning and RFID. The plug-ins can be categorized into three types based on their operations.

- Input plug-ins
- Process plug-ins
- Output plug-ins

Input Plug-ins

An input plug-in supports an input device, such as a barcode scanner contained in, or attached to a Motorola mobile computer. DataWedge contains base plug-ins for these input devices.

Barcode Scanner Plug-in

The barcode scanner plug-in is responsible for reading data from the integrated barcode reader. The scanner plug-in supports different types of barcode readers including laser, imager and camscan (Camera Scan). Raw data read from the barcode reader can be processed or formatted using process plug-ins (See *Process Plug-ins*) as required. DataWedge has built-in feedback functionality for the barcode reader to issue user alerts. The feedback settings can be configured according to user requirement.

Serial Plug-in

Serial input plug-in collects data captured from the input device connected to the available serial ports of the device. Once properly configured, DataWedge can retrieve data from externally plugged-in input devices and/or devices connected to virtual COM ports such as Bluetooth COM ports.

Output Plug-ins

The output plug-in is responsible for dispatching the data read from input plug-ins to a foreground application on the mobile device.

Keystroke Plug-in

The Keystroke Plug-in is an output plug-in that collects and sends data received from input plug-ins to foreground applications by emulating keystrokes.

Clipboard Plug-in

The Clipboard plug-in sends the processed data to the foreground application using clipboard. This plug-in can be used to transmit large amounts of data quicker unlike the Keystroke plug-in.

The processed data is collected to the device clipboard and passed onto the output device in a similar manner of "paste" in the PC environment.

Process Plug-ins

ADF Process Plug-in

The term ADF is an acronym for Advanced Data Formatting. The ADF plug-in applies rules (actions to be performed based on defined criteria) to the data received from the input plug-in before sending it to the foreground application through an output plug-in. Received data is processed through a set of ADF rules that can be defined when configuring DataWedge. For those familiar with the ADF as supported by Motorola Hand Held Scanners, the ADF plug-in provides equivalent functionality.

ADF plug-in supports escape sequences \n, \r, \t, \x## and \u#### when configuration data is in string format.

Rules

The ADF process plug-in consists of one or more rules. DataWedge formats the output data according to the first matching rule. A rule is a combination of criteria and a set of actions to be performed, upon fulfillment of the criteria set in the rule.

Criteria

Criteria can be set according to input plug-in device, symbology, matching string within the data (at the specified position) and/or data length. Received data must match the defined criteria in order for the data to be processed.

Actions

Actions are a set of procedures defined to format data. There are four types of actions which are for formatting (data modification), cursor movement, data sending and delay specifications. For example an action can be defined to send the first number of characters to the output plug-in, pad the output data with spaces/zeros, remove spaces in data, etc.

Basic Format Process Plug-in

The Basic Format (aka Prefix/Suffix) plug-in is similar to the prefix/suffix feature that exists in earlier versions of DataWedge and it allows DataWedge to add either a predefined prefix or a suffix to the captured data before passing it to an output plug-in.

The Basic Format process plug-in allows setting a string, sticky keys (See *Sticky Key Definitions*), virtual keys (See *Virtual Key Codes*), control characters (characters sent by pressing Ctrl key) and escape sequences (See *Escape Sequences Supported by DataWedge*) at the beginning or at the end of the data received from the input plug-in. Also this process plug-in can be used to send data in hexadecimal format, append TAB and/or ENTER keys or restrict sending data.

Data Routes

A data route specifies the path data takes inside DataWedge, starting from an input plug-in, optionally going through one or more process plug-ins, and ending at an output plug-in. Each route allows one source input plug-in and one destination output plug-in. When there are many input and output plug-ins, the way in which data flows from one input plug-in, through any process plug-ins, and finally to an output plug-in can be specified using routes.

Route Structure of a Profile

A profile can have multiple configurations for given process plug-ins depending on the data routes it is associated with. However, only a single instance of input and output plug-in configuration can be associated with a profile.

For example review the below given scenarios for a newly created profile. In the first instance, the data route of the profile has;

- Scanner input plug-in
- ADF process plug-in and
- Keystroke output plug-in

In the second data route of the same profile has;

- Scanner input plug-in
- ADF process plug-in
- Basic format process plug-in and
- Keystroke output plug-in

In the first scenario the profile configuration includes a single configuration for scanner input plug-in, single configuration for keystroke output plug-in, single configuration for ADF process plug-in but in the second scenario, the data route of the profile has multiple process plug-ins (ADF and Basic format) to facilitate multiple processing requirements i.e. data is sent to the foreground application in multiple formats.

Chapter 2 Getting Started

Installation

The DataWedge installation package is available at the Motorola Product Support website at http://support.symbol.com/support/product/DEV_SW_TOOLS.html.

Installing DataWedge on a PC

Run the DataWedge installation package on the PC. Follow the instructions provided by the installation wizard to complete the installation. The following files/folders are installed on the PC.

- Setup\   - Folder containing DataWedge manual installation files
- INI\DataWedge.ini   - DataWedge configuration settings file
- DataWedgeInstaller.exe   - Executable program to install DataWedge on a mobile device
- DataWedge Configuration Guide
- Remote Config\   - DataWedge Remote Configuration folder
- Readme.htm   - Quick reference file
- WebUpdates.htm   - DataWedge updates web location

Installing DataWedge on a Mobile Device

Automated Installation

1. Establish a Microsoft ActiveSync® connection between host PC and mobile device.

2. On the host PC, go to Start > Programs > Motorola DataWedge > Install DataWedge to initiate the automatic installation process.

3. A screen displaying installation details appears on the mobile device.
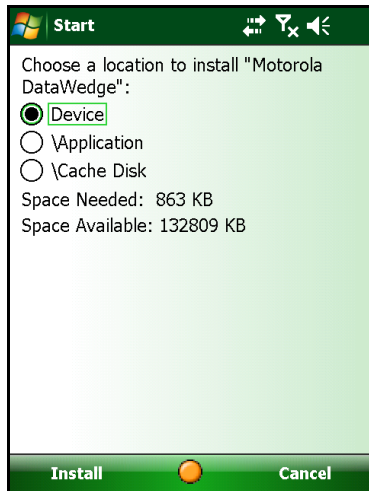
Figure 2-1   *Installation Location Details*

Select the preferred install location using the radio button and press **Install** to proceed with the installation of DataWedge on the mobile device.

4. Wait a few moments while DataWedge is installed to the mobile device. After a successful installation, a message window appears to announce that DataWedge is installed.

Figure 2-2   *Successful Installation Notification*

Tap ok to close the message window.

5. After the installation is completed DataWedge starts automatically.

Manual Installation

1.   Establish a Microsoft ActiveSync® connection between host PC and the mobile device.

2.   Go to *Start Menu > Programs > Motorola DataWedge > Setup* and copy *DataWedge.CAB* to the mobile device.

3.   Run DataWedge.CAB on the mobile computer to install DataWedge. Follow the installation procedure to successfully install DataWedge on the mobile device.

Installing DataWedge for Cold/Clean Boot Persistence

Method 1

Install DataWedge using CAB file and set the installation path in the *\Application* folder of the mobile device and cold/clean boot the mobile device.

Method 2

Copy the contents of *Motorola DataWedge\v3.1\Setup\Application* to the *\Application* folder and cold/clean boot the mobile device.

> ✓ **NOTE**   To remove persistent DataWedge installations follow the steps described in *Uninstalling DataWedge Persisting Installations*.

Run DataWedge without Configuration UI Support

Follow the below steps to remove the DataWedge Configuration UI support.

1.   Install DataWedge to persist boot sequences (see *Installing DataWedge for Cold/Clean Boot Persistence*).

2.   Configure DataWedge (explained in later chapters)

3.   Exit DataWedge

4.   Delete *\Application\DataWedge\DWUI* folder from the mobile device.

5.   Delete *\Application\DataWedge\dwhttpd.exe*

6.   Start DataWedge via start menu.

Running only DataWedge

1.   Install DataWedge to persist boot sequences (see *Installing DataWedge for Cold/Clean Boot Persistence*).

2.   Configure DataWedge (explained in later chapters)

3.   Exit DataWedge

4.   Delete *\Application\DataWedge\DWUI* folder from the mobile device.

5.   Delete *\Application\DataWedge\dwhttpd.exe*

6.   Delete *\Application\DataWedge\DWTray.exe*

7.   Copy *\Motorola DataWedge\v3.1\Setup\Application\DataWedge\Link\DataWedgeonly.txt* file from the host PC to *\Application\DataWedge\Link\DataWedge.txt* of the mobile device.

8.   Cold /Clean boot mobile device.

Upgrading DataWedge 3.0 to DataWedge 3.1

Download and install DataWedge 3.1 in the host PC. The new installation does not effect the previous DataWedge 3.0 installation as both version can exist in the host PC.

On the mobile device, DataWedge 3.0 can be upgraded to DataWedge 3.1 by running the installation (See *Automated Installation*). When the installation starts, a dialog box appears on the mobile device screen prompting confirmation to whether/not to remove the previous version of DataWedge.
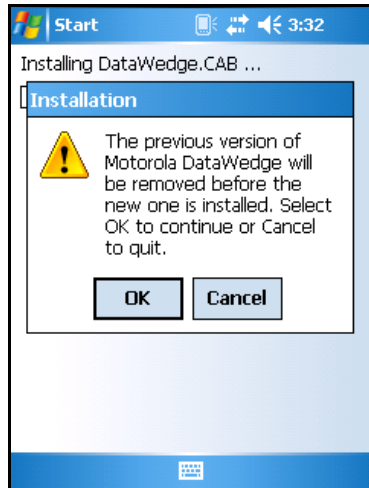
Figure 2-3   *DataWedge Upgrade Screen*

Press **OK** to proceed installing the latest DataWedge application to the mobile device.

Press **Cancel** to abort.

The upgrading process does not remove/corrupt the profiles and DataWedge settings of DataWedge 3.0. Therefore, after upgrading all the user defined profiles and application settings are transferred to the latest DataWedge application.

NOTE   If the previous DataWedge was using the default configuration, i.e. the configuration which DataWedge initially runs after installation, the default configuration of the newer version overrides the earlier configuration.

DataWedge Demonstration Application

The DataWedge Demonstration is an application that advertises the value of DataWedge and allows the user to see the scanned data in a list. It is automatically launched when the user successfully scans a barcode while the mobile device is displaying the Windows Mobile Today Screen or the Windows CE Desktop. The DataWedge Demonstration is enabled by default, but the user can turn it off by making an alteration in DataWedge settings (See *Configuring Desktop Autostart Option*).

Scanned Data
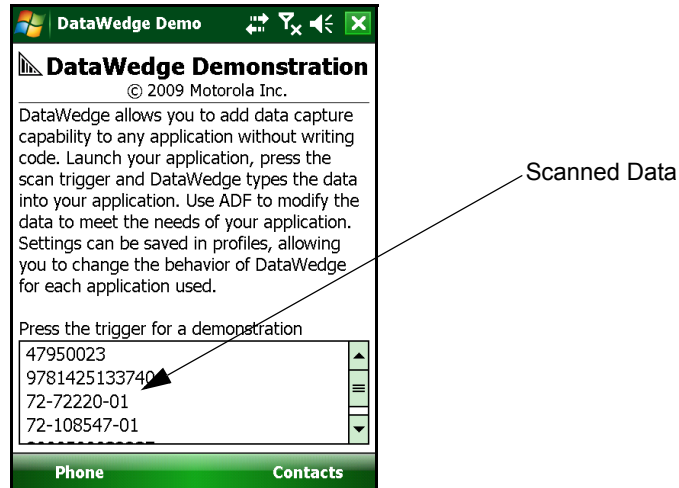
Figure 2-4   *DataWedge Demonstration Screen*

The DataWedge Demonstration application screen displays the barcode data.

To close the DataWedge Demonstration, tap the close button located at the far right of the title bar.

Uninstalling DataWedge

DataWedge can be uninstalled from the mobile device via the host PC or by using the Add/Remove Programs applet on the mobile device.

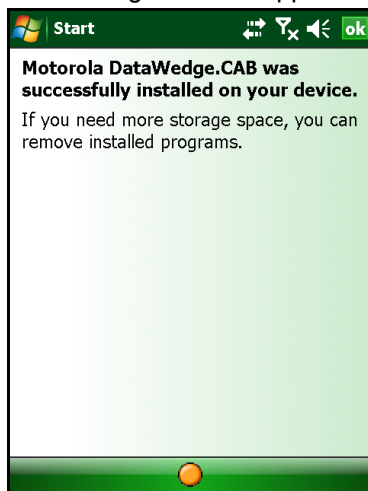## Remove DataWedge via Host PC

Method 1

1. Establish a Microsoft ActiveSync® connection between host PC and the mobile device.

2. On the host PC, go to *Start > Programs > Motorola DataWedge > Install DataWedge*.

3. When *Applications Already Installed* prompt appears, select **No** to move to *Add/Remove Programs* window.
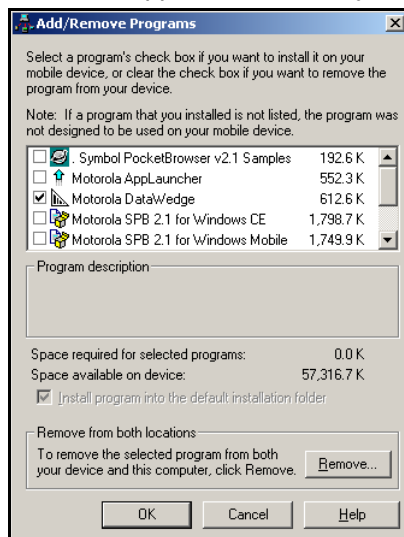
Figure 2-5 *Add/Remove Programs Window*

4. De-select the checkbox alongside *Motorola DataWedge* and press **OK** to remove DataWedge.

Method 2

1. Establish a Microsoft ActiveSync® connection between the mobile device and the host PC.

2. In the *Notification Area* of the host PC, right click the ActiveSync icon and select *Open Microsoft ActiveSync* option or alternatively, double-click the ActiveSync icon to open the Microsoft ActiveSync window.

3. In the Microsoft ActiveSync window go to *Tools > Add/Remove Programs*.

4. De-select the checkbox alongside Motorola DataWedge and press **OK** to remove DataWedge

> **NOTE** Apart from the described methods, DataWedge can be uninstalled from both the host PC and from the mobile device by highlighting Motorola DataWedge from the list in the *Add/Remove Programs* window and pressing the **Remove** button under *Remove from both locations* panel. Press **OK** when the *Remove Application* dialog box appears, to confirm removal of DataWedge from the mobile device and the host PC. This option only removes the temporarily stored CAB file from the host PC and not the DataWedge program group which includes Readme, DataWedge Configuration Guide etc.

Remove DataWedge from Mobile Device

The method for uninstalling programs from the mobile device side differs slightly according to the operating system.

Mobile Devices Running Windows Mobile

1. On a Windows Mobile based mobile device, go to *Start Menu > Settings* to open the Settings window.

2. Select the *System* tab from the *Settings* screen.

3. Tap the *Remove Programs* icon.

4. Select *Motorola DataWedge* from the list and tap the **Remove** button. Tap the **Yes** button when the *Remove Program* dialog appears to uninstall DataWedge from the mobile device.

Mobile Devices Running Windows CE

1. On a Windows CE based mobile device, go to *Start Menu > Settings > Control Panel* to open the *Control Panel* window.

2. Tap the *Remove Programs* icon.

3. Select *Motorola DataWedge* from the list of installed programs and tap the **Remove** button. Tap the **Yes** button when the *Remove Program* dialog appears to uninstall DataWedge from the mobile device.

Uninstalling DataWedge Persisting Installations

1. Delete DataWedge installation files from the \Application folder.

2. Delete the *DataWedge3.cpy* file from the \Application folder.

3. Delete the *Datawedge3.reg* file from the \Application folder.

4. Cold/clean boot the mobile device.

Chapter 3 DataWedge Configuration Mode

Introduction

DataWedge configuration is handled through a browser based interface. It consists of a hierarchy of menus which can be navigated using the keypad or the touch-sensitive screen (if present). The DataWedge configuration settings are saved in XML files.

DataWedge Tray Icon

DataWedge is launched on the mobile device upon successful installation. The tray icon appears on the windows taskbar to indicate that DataWedge is in operation. Tap on the icon to open the DataWedge tray icon menu.
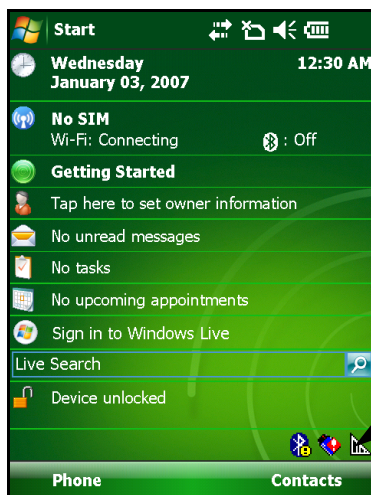
DataWedge Tray Icon

Figure 3-6   *Mobile Device Desktop (DataWedge Icon)*

DataWedge Tray Icon Menu

Use the tray icon menu to start/stop DataWedge, to access basic/advanced configuration modes and to terminate DataWedge activities on the mobile device.
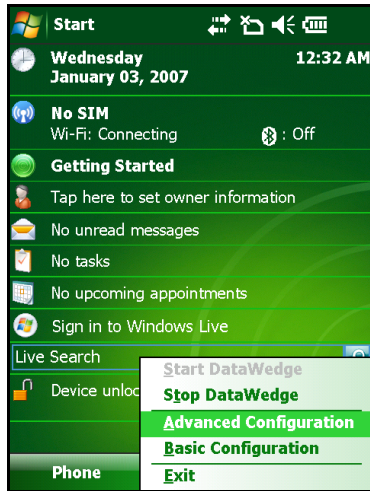
Figure 3-7   *DataWedge Tray Icon Menu*

- Select *Start DataWedge* to launch DataWedge on the mobile device.
- Select *Stop DataWedge* to stop DataWedge on the mobile device. When this option is selected, DataWedge can be launched again using the tray icon menu.
- Select *Advanced Configuration* to launch advanced configuration mode.
- Select *Basic Configuration* to launch basic configuration mode.
- Select *Exit* to close DataWedge on the mobile device. When this option is selected, DataWedge is shut down and the tray icon is hidden as well. To start DataWedge again use the Start Menu.

DataWedge Configuration Modes

The DataWedge Configuration is a XML/HTML based interface that can manipulate DataWedge settings. Changes made through the interface are saved in XML format and can be deployed to other mobile devices that have DataWedge installed allowing those mobile devices to have the same configuration. There are two configuration modes are available for DataWedge.

Basic Configuration

For those users who only need the features of a basic ScanWedge, the basic configuration provides a simpler and quicker interface to a limited number of configuration options similar to that found in ScanWedge and earlier versions of DataWedge. The basic configuration is a limited view of Profile0, the default profile, configuration options. Configuration is limited to the Scanner input plug-in, Basic Format process plug-in and Keystroke output plug-in.

The basic configuration does not provide access to user-created profiles or other settings, nor does it affect any settings that may have been made through the Advanced configuration.

Refer to the *DataWedge Basic Configuration Guide* for more details.

Advanced Configuration

The advanced configuration allows users to create customized profiles. Use this mode to configure DataWedge to collect data from different input devices, process the captured data using both ADF and/or Basic Format plug-ins and send that processed data to different output devices.

In addition to multiple profile support, the advanced configuration mode also allows DataWedge specific settings to be configured via the Settings menu (See *Configuring DataWedge Settings*).

NOTE   This document only explains the features and functionality of the advanced configuration mode.

General Format of User Interface

The DataWedge configuration user interface (UI) has a number of elements. Running across the top of the page is a location bar, which indicates the current location within the menu hierarchy.

Location Bar

Sub menu available

Menu item name description

Status   Keyboard Shortcut
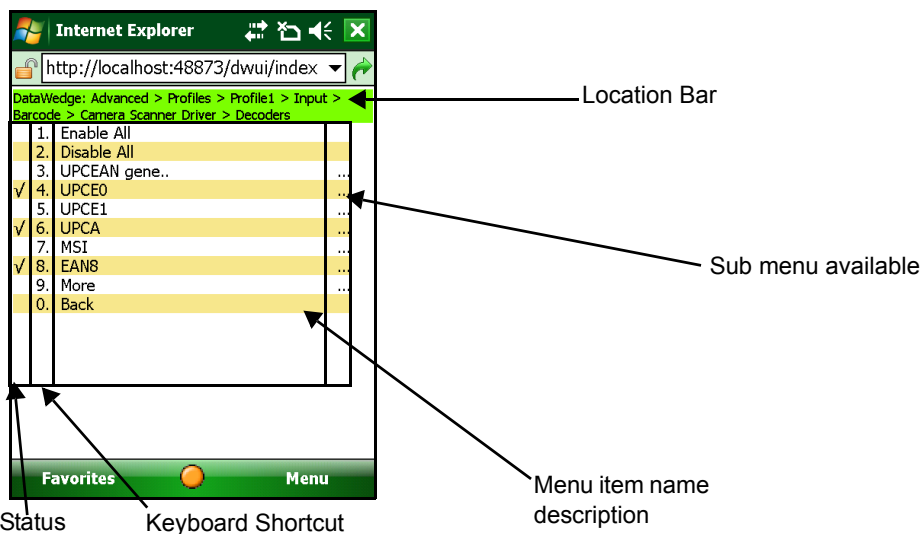
The menu item list is formatted into four columns. The first is a status column indicating whether the item is enabled or not, where applicable. The second column gives the keyboard shortcut for that menu item, enabling navigation of the menu without the need of touch screen input. Column three is the name/description of the menu item. The fourth column is a sub menu indicator that generally displays ellipses ("…") if a sub menu is available for that menu item. Access the sub menu by selecting that menu item.

The "0" item is universally used as the shortcut to navigate to the previous page. In the main menu only, the "0" item is used to exit from the configuration utility.

Launching DataWedge Advanced Configuration

Select *Advanced Configuration* from the tray icon menu to access the advanced DataWedge configuration.

Advanced Configuration Main Menu

The advanced configuration main menu is displayed on the mobile device screen. This page consists of four menu items, namely *Profiles, Settings, About* and *Exit*.
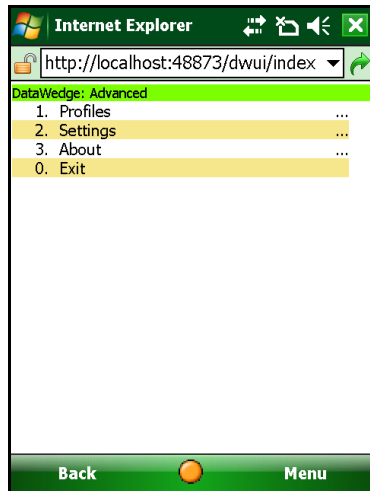
Figure 3-8   *Advanced Configuration Main Menu Page*

Use the appropriate keyboard shortcut or the touch screen to navigate through the main menu.

* Select *Profiles* to open the *Profiles* menu.

* Select *Settings* to open the *Settings* menu.

* Select *About* to display product information of DataWedge.

* Select *Exit* to exit from DataWedge advanced configuration mode.

NOTE   Do not press any buttons until configuration menu is fully loaded as it might hamper the loading process.

Chapter 4 Configuring DataWedge Settings

This chapter provides information on how to set the general DataWedge configuration options. The configuration interface has built-in functionality to modify the general DataWedge settings.

Settings Menu

The *Settings* menu page is displayed when the *Settings* option is selected from the main menu. Use the Settings menu page to configure general DataWedge settings.
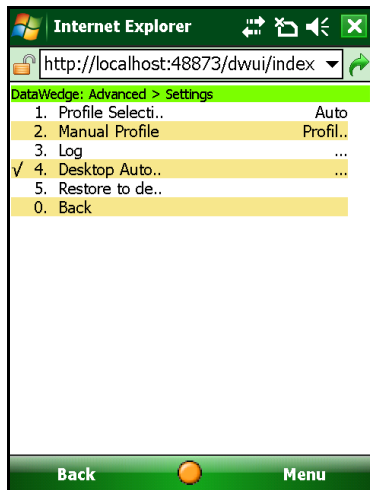
Figure 4-9   *Settings Menu Page*

- Use *Profile Selection* to select whether profile switching should be automatic or manual (See *Profile Selection* for more details).

- Use *Manual Profile* to select which profile to use when Profile Selection is set to "Manual" (See *Setting Manual Profile* for more details).

- Select *Log* to configure logging options (See *Configuring DataWedge Log Settings* for more details).

- Select *Desktop Autostart* to specify an application to show the captured data when mobile device is displaying the Today Screen on Windows Mobile devices or the Desktop on Windows CE devices. (See *Configuring Desktop Autostart Option* for more details)

- Select *Restore to default* to restore DataWedge to its default settings. When this option is selected, all customized profiles and settings on DataWedge are removed.

- Select *Back to* return to the main menu.

Profile Selection

Use *Profile Selection* page to select whether profile switching should be automatic or manual. This setting enables/disables switching of profiles based on the foreground application on the mobile computer.
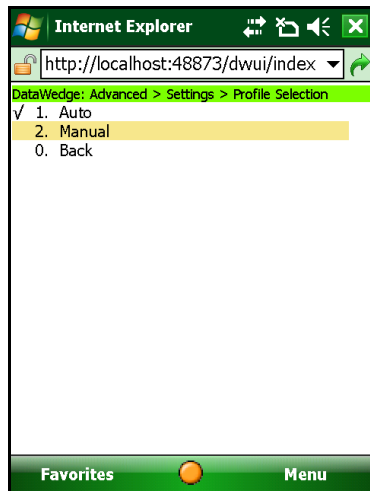
Figure 4-10   *Profile Selection Page*

Automatic Profile Selection

Auto profile selection enables switching between profiles based on the foreground application.

To enable automatic profile selection, select *Auto* from the Profile Selection menu.

When automatic profile selection is enabled, DataWedge monitors the foreground application in the mobile device by checking the application name of the foreground application (exe name). When DataWedge detects a change in the application name, it searches for the profile associated with that application and loads that profile. If an associated profile cannot be found, Profile0 is used.

The profile must be enabled for DataWedge to load it. i.e. DataWedge only loads profiles that have their status set to "*Enabled*".

Manual Profile Selection

Manual profile selection is similar in functionality to the earlier versions of DataWedge. When profile selection is set to Manual, DataWedge does not switch between profiles automatically, based on the foreground application, and only uses the profile specified in the Manual Profile page.

To enable manual profile selection, select *Manual* from the Profile Selection menu.

See *Setting Manual Profile* for details on selecting a manual profile.

Setting Manual Profile

Select the *Manual Profile* option from the Settings menu to move to *Manual Profile* page.
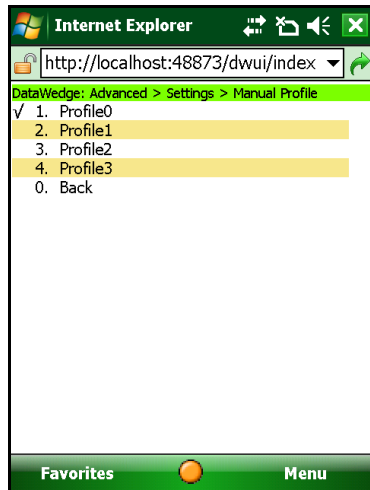
Figure 4-11   *Manual Profile Selection Page*

The manual profile selection page lists all of the available profiles. Select the desired profile name. Make sure that the profile selected is enabled (See *Enabling/Disabling a Profile*).

If the profile selection is set to manual and the selected profile is disabled, DataWedge cannot send data to the foreground application (See *DataWedge Behaviors*)

Manual Profile

The manual profile is the profile which is used by DataWedge when profile selection mode is set to "*Manual*". While in manual mode, DataWedge sends data only to the foreground application associated with the manual profile.

By default, the manual profile is set to Profile0. This setting allows DataWedge to send data to any foreground application. A user-created profile can be set as the manual profile using the Manual Profile selection page.

DataWedge Behaviors

The table below explains the different behaviors of DataWedge according to the Manual Profile and Profile Selection settings.

In this example, Profile1 is a user created profile which has App1.exe set as its associated application. Apart from Profile1, the default profile, Profile0, is also available in DataWedge.

Table 4-1   *DataWedge Behaviors*

Profile Selection Setting	Manual Profile Setting	Profile0 State (Enabled /Disabled)	User Created Profile (Profile1) State (Enabled /Disabled)	Current Foreground Application	DataWedge Behavior
Manual	Profile0	Enabled	Enabled or Disabled	Any application	DataWedge runs with Profile0 (the default profile) configuration
Manual	Profile0	Disabled	Enabled or Disabled	Any application	DataWedge is idle and does not send data to the foreground application
Manual	Profile1	Enabled or Disabled	Enabled	Any Application	DataWedge runs with Profile1 configuration
Manual	Profile1	Enabled or Disabled	Disabled	Any Application	DataWedge is idle and does not send data to the foreground application
Auto	Any profile	Enabled or Disabled	Enabled	App1.exe	DataWedge sends data to foreground application (App1.exe)
Auto	Any profile	Enabled or Disabled	Disabled	App1.exe	DataWedge is idle and does not send data to the foreground application. (App1.exe)
Auto	Any profile	Enabled	Enabled or Disabled	Any application except App1.exe	DataWedge runs with Profile0 configuration
Auto	Any profile	Disabled	Enabled or Disabled	Any application except App1.exe	DataWedge is idle and does not send data to the foreground application.

Configuring DataWedge Log Settings

Log File Overview

DataWedge application has built-in logging capabilities to record errors, warnings, and other diagnostic messages. These messages are saved to a text file (*DWLog.txt*).

The log file records the log entries in the following format:

<Time Stamp>:<Message Type>:Message

<Time stamp> is formatted as YYYY/MM/DD hh:mm:ss.

<Message Type> depicts the type of message that is logged. The following message types can be logged.

- Error   - an error has occurred
- Warning   - a warning is issued
- Message - DataWedge system messages, indicating it is performing a task etc.
- Data   - data read from input devices and intermediate data modified by process plug-ins can be logged to the log file.

Sample Log File

```
$ 2009/09/09 02:49:32    Error    Invalid Configuration XML
```

Select the *Log* option from Settings menu to access the Log page.
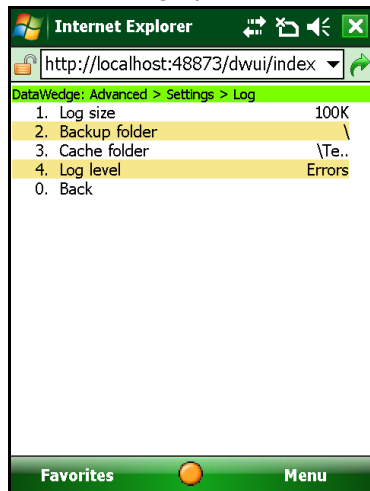
Figure 4-12   *Log Menu Page*

There are four configurable settings for the log file.

- Select *Log size* to set the physical size of the log file.

- Select *Backup folder* to define a location to save the log file.

- Select *Cache folder* to define a location in which the temporary log file is written.

- Select *Log level* to specify the type of information needed to be in the log file.

Define DataWedge Log Size

To set the physical size of the log file, select the Log size option to move to the Log size page.
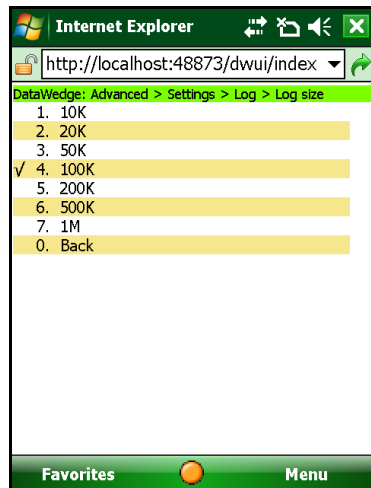
Figure 4-13   *Log Size Page*

Select the storage capacity to allocate for the log file. The maximum allowed size for the log file is 1 MB.

NOTE   If the log file exceeds the set size, DataWedge backs up the text file (DWLog.bak) and creates a new log file (DWLog.txt) to save the new log entries. However, DataWedge creates only one back up file and the previously created backup file is replaced by the new back up file.

Define Log Backup Folder

The *Backup folder* specifies the location where DataWedge saves the log file upon exit or upon being stopped.

Select *Backup folder* from the Log menu page to move to the page where the backup folder can be defined.
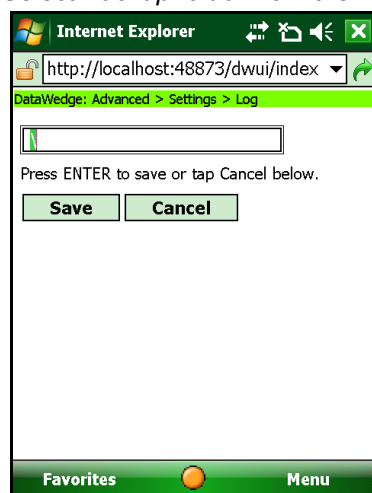
Figure 4-14   *Log Path Page*

Using the mobile device keypad and/or the onscreen keyboard, enter the backup folder for the log file, and then press **Save** to save.

DataWedge writes the log file to the folder specified upon exit or upon being stopped.

Define Cache Folder

The *Cache folder* specifies a location where the log file is temporarily stored whilst DataWedge is running. Windows Mobile makes use of persistent (flash) storage for most of its folders. Writing to persistent (flash) storage can be slow, so DataWedge allows the use of non-persistent (RAM) storage to speed up the logging process.

Select *Cache folder* from the Log menu page to move to the page to define the cache folder.
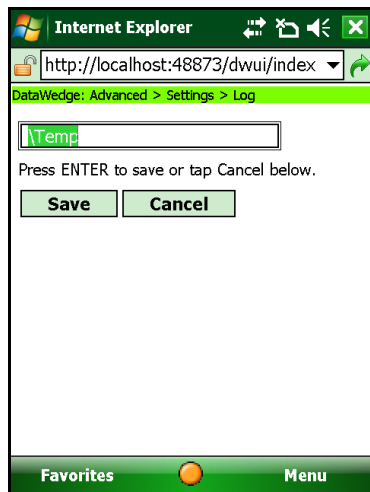
Figure 4-15   *Log Temp Path Page*

Use the keypad and/or the onscreen keyboard to enter the location for the temporary log file, and then press **Save**.

By default the cache folder is set to *\Temp*. For many Motorola devices this default setting is acceptable. An alternative for Windows Mobile devices is *\Cache Disk*.

Define Log Level

Select the *Log level* option from the Log menu to move to the Log level page.

The Log level specifies the level of detail that is logged. Log events up to the given level are written to the log file.
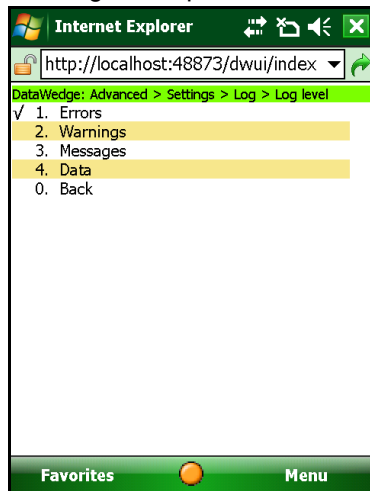
Figure 4-16   *Log Level Page*

Use the menu to set the log level.

- Select *Errors* to log only error messages.
- Select *Warnings* to log error and warning messages.
- Select *Messages* to log errors, warnings and messages.
- Select *Data* to log errors, warnings, messages and data in the log file.

Configuring Desktop Autostart Option

Select *Desktop Autostart* to access the Desktop Autostart configuration menu page.
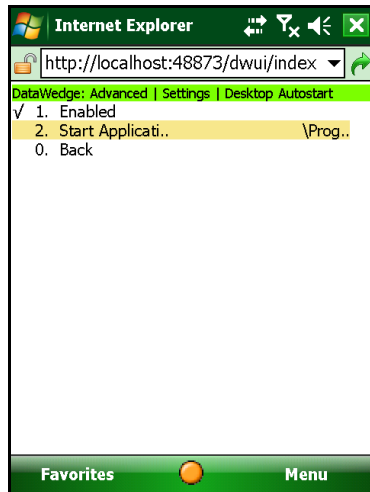
Figure 4-17 *Desktop Autostart Menu Page*

Use the Desktop Autostart menu to define which application should be automatically launched when a barcode is scanned while the mobile device is displaying the Today Screen (on Windows Mobile devices) or the Desktop (on Windows CE devices). By default this feature is enabled and the DataWedge Demonstration application (See *DataWedge Demonstration Application*) is defined as the application to be launched after a successful barcode scan.

- Select *Enabled* to enable/disable this feature.

- Select *Start Application* to define the application to be launched. Enter the path of the target application in the text entry field and press **Save**.
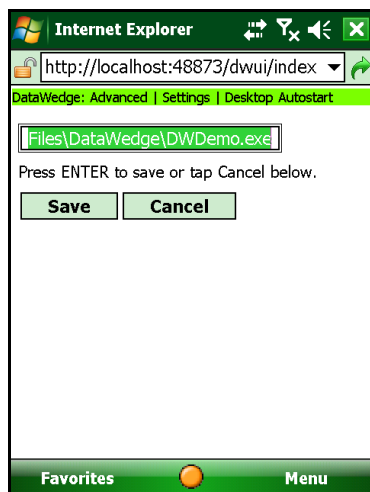
Figure 4-18 *Desktop Autostart Application Definition Page*

Chapter 5 Managing Profiles

This chapter describes how to add and remove profiles and also provides a screen-by-screen tutorial of how to associate applications to the profiles.

From the DataWedge main menu page, select *Profiles* to access the Profile menu.

Profiles Menu

The *Profiles menu* is displayed when *Profiles* is selected from the main menu.
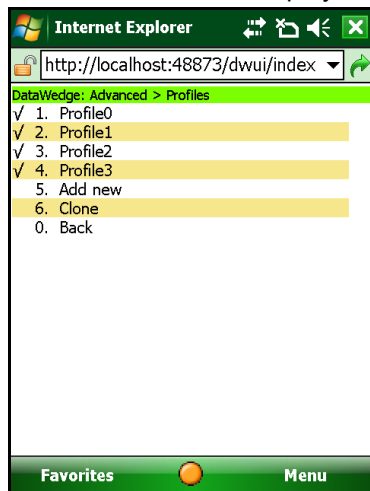
Figure 5-19   *Profiles Menu Page*

The Profiles menu page lists all the profiles used in DataWedge. Use this menu to access each profile configuration.

- Select *Profile0* to move to configure Profile0 (the default profile).

- Select *Add new* to add a new profile. (See *Creating a Profile*)

- Select Clone to make a replica of a preferred profile.(See *Cloning a Profile*)

- Select *Back* to move to the previous page.

Creating a Profile

From the Profiles menu select the *Add new* option to create a new profile. DataWedge configuration moves to a profile name entry form and automatically suggests a unique profile name.
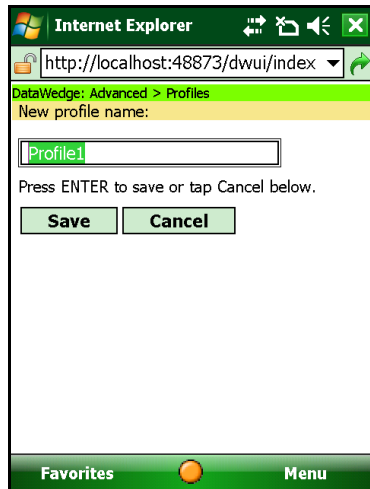
Figure 5-20   *Profile Name Entry Form*

Using either the device keypad or the onscreen keyboard, press **Save** to accept the suggested profile name, or enter a preferred name for the new profile and press **Save**.

> **NOTE**   Use only alphabetical characters and integers when defining a name for a profile.

When a new profile is created, DataWedge automatically assigns default settings to that profile. The new profile is added to the list of profiles. To configure the new profile select it from the profile list.

Profile Configuration Menu

Newly created profiles can be customized to suit user requirements.
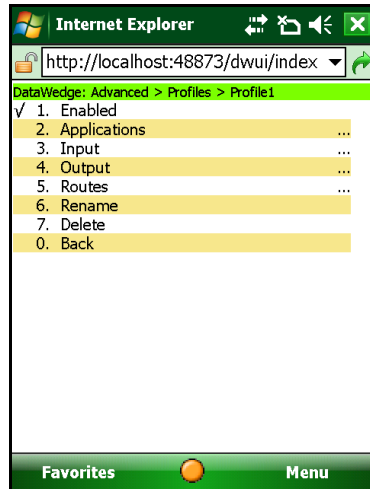
Figure 5-21   *User Defined Profile Menu Page*

By default, the new profile is enabled upon its creation.

- Select *Enabled* to enable/disable the profile

- Select *Applications* to associate an application to the profile. (See *Application Association*)

- Select *Input* to configure an input plug-in for the profile (See *Configuring Input Plug-ins*).

- Select *Output* to configure an output plug-in for the profile (See *Configuring Output Plug-ins*).

- Select *Routes* to configure the routes for the profile. (See *Selecting a Data Route*)

- Select *Rename* to change the name of the profile. Use the mobile device keypad or the onscreen keypad to enter the new name for the profile and press **Save** to set the new name for the profile.

- Select *Delete* to remove the profile.

- Select *Back* to exit the profile configuration.

Enabling/Disabling a Profile

To enable a profile, select *Enabled* from the profile configuration menu. When the profile is enabled, a tick (✓) is displayed alongside Enabled. If Enabled is selected while the profile is enabled, DataWedge disables that profile.

Deleting a Profile

To delete a profile, select the *Delete* option from the profile menu. The system requires confirmation for removal of a profile. Select **OK** to delete the profile. Select **Cancel** to abort the operation.

Application Association

Several applications can be associated to a profile. DataWedge sends the output data to whichever of these applications is in foreground.

When profile selection (See *Profile Selection*) is set to "Auto", DataWedge loads the profile associated with the current foreground application and sends data to it using the selected output plug-in. (See *Setting Manual Profile* for more details)

Select the *Applications* option on the Profile menu to move to Applications page.
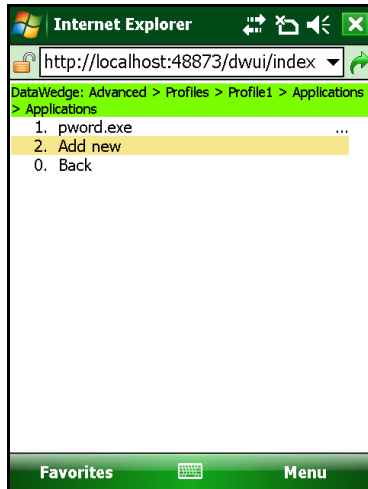
Figure 5-22   *Application Association Page*

The Applications page lists applications associated to the selected profile. Use this page to associate applications.

Adding Applications

Select *Add new* option from the Applications page to move to a page where an application can be added.
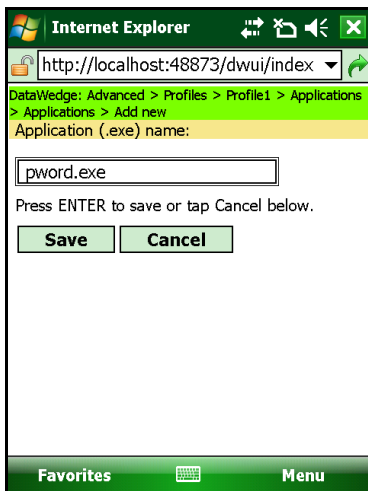
Figure 5-23   *Application Name Entry Form*

Use the mobile device keypad or the onscreen keyboard to enter the name of the application in the field and press **Save** to add it to the profile. Make sure that the application defined in this page is not already associated with another profile. The associated applications are displayed in the Applications menu of the profile.

Associated Application Menu

Select an application from the Applications menu to edit or remove that application.
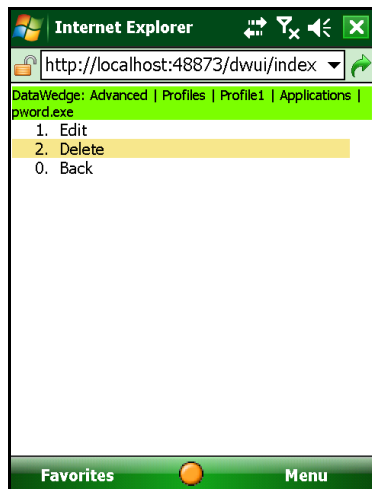
Figure 5-24   *Associated Application Menu*

Use this menu page to edit/remove the associated application.

- Select *Edit* to edit the application name. Using this option, it is possible to set a different application (.exe) to the profile. The earlier application is removed from the selected profile when a different name is saved.

- Select *Delete* to remove the application from the profile. At this point DataWedge configuration UI prompts the user for confirmation to delete the associated application from the profile.

Defining Input Plug-in for a Profile

Select *Input* from the profile menu to move to the Input plug-in selection page which lists all available input plug-ins.
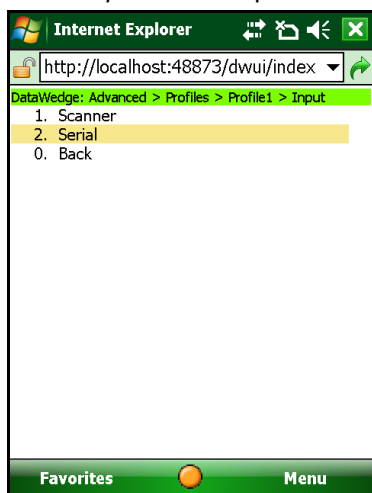
Figure 5-25   *Input Plug-in Selection Page*

Use the menu on this page for defining an input plug-in for the selected profile.

- Select *Scanner* to start configuring the Scanner input plug-in (See *Configuring Scanner Plug-in*).

- Select *Serial* to start configuring Serial input plug-in. (See *Configuring Serial Plug-in*)

Defining Output Plug-in for a Profile

Select *Output* from the profile menu to move to the output plug-in list page.
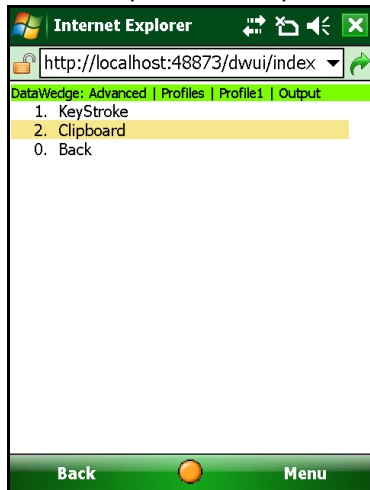
Figure 5-26   *Output Plug-in List*

Use the menu on this page for selecting an output plug-in.

- Select *KeyStroke* to start configuring the KeyStroke output plug-in (See *Keystroke Plug-in Configuration*).

- Select *Clipboard* to start configuring Clipboard output plug-in (See *Clipboard Plug-in Configuration*).

Selecting a Data Route

Select *Routes* from the profile main menu to move to the page listing all available data routes.
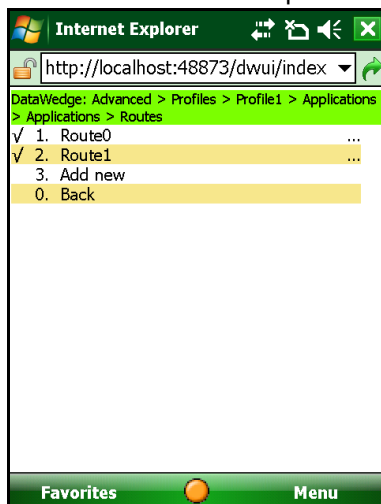
Figure 5-27   *Data Routing List*

- Use *Route0* menu item to access the default data route between the input, process and output plug-ins.

- Select *Add new* to add a new data route to the selected profile. A form appears containing a automatically generated unique name for the new route. Press **Save** to accept the name or change the name as desired, then press **Save** to create the new route.

As new routes are added, they are listed on this page. To configure a route, select the route from the list.

Data Route Configuration

Select a route from the data routes list to configure.
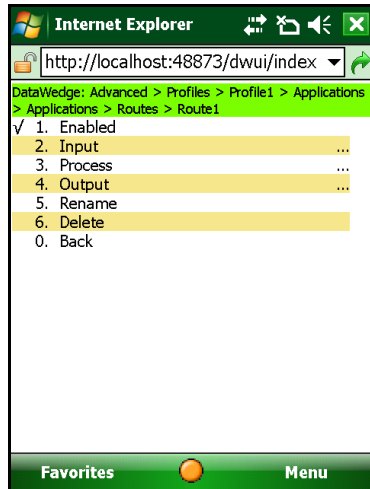
Figure 5-28   *Data Route Configuration Main Menu*

- Select *Enabled* to Enable/disable the use of data route. When enabled, a tick (✓) is displayed alongside Enabled. To disable, select Enable again to toggle the Enabled state.

- Select *Input* to move to a page where an input plug-in for the data route can be selected.

- Select *Process* to move to a page where the process plug-ins for the data route can be enabled and configured.

- Select *Output* to move to a page where an output plug-in for the data route can be selected.

- Select *Rename* to rename the data route. Enter the new name in the text entry field and press **Save** to rename the route.

- Select *Delete* to delete the data route. When this option is selected, a dialog box appears prompting user confirmation to delete the route. Press **Yes** to delete the route or press **Cancel** to abort.

Define an Input Plug-in for the Data Route

Select *Input* from the route configuration menu to set an input plug-in to the data route.
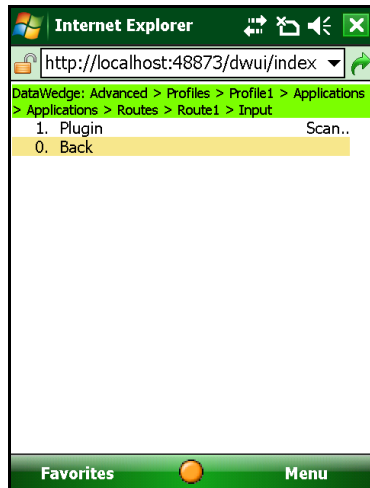
Figure 5-29   *Input Plug-in for Data Route*

This page displayed the current input plug-in associated with the selected data route. Select *Plugin* to move to a page listing the available input plug-ins.
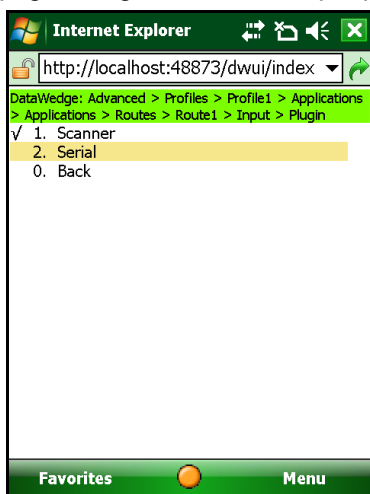
Figure 5-30   *Input Plug-ins List*

Select the desired input plug-in for the route from this page.

✓   *NOTE*   Input plug-in configuration is done at the profile level; no additional configuration is available at this level. See *Configuring Input Plug-ins* for details.

Define Output Plug-in for Data Route

Select the *Output* option from the route configuration menu to view the output plug-in associated with the selected data route.
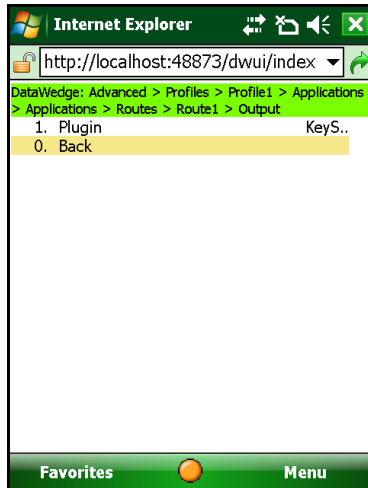
Figure 5-31 *Output Plug-in for Data Route*

Select *Plugin* to move to the list of available output plug-ins.
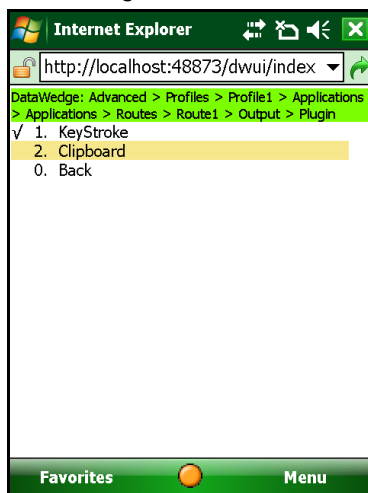
Figure 5-32 *Output Plug-ins List*

Select the desired output plug-in for the data route from the list.

NOTE The output plug-in configuration is done at the profile level. Therefore no additional configuration is available at this level. See *Configuring Output Plug-ins* for details.

Defining Process Plug-ins for Data Route

Select *Process* from the route configuration menu to move to the page where available process plug-ins are listed.
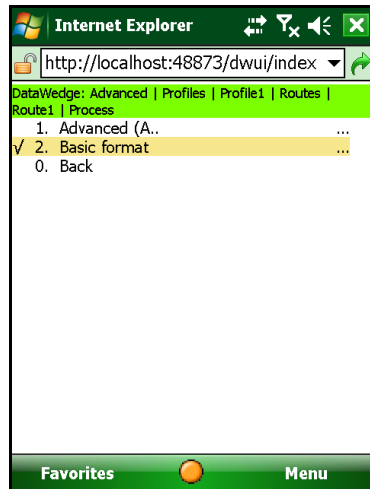
Figure 5-33   *Process Plug-ins Selection Page*

- Select *Advanced (ADF)* to enable and configure the Advanced Data Formatting (ADF) process plug-in for the data route. (See *Configuring ADF Plug-in* for more details)

- Select *Basic format* to enable and configure the Basic format process plug-in for the data route. This option is enabled by default. (See *Configuring Basic Format Process Plug-in* for more details)

Cloning a Profile

DataWedge Configuration allows creating duplicates of a profile. This is done by selecting the *Clone* option from the Profiles menu.
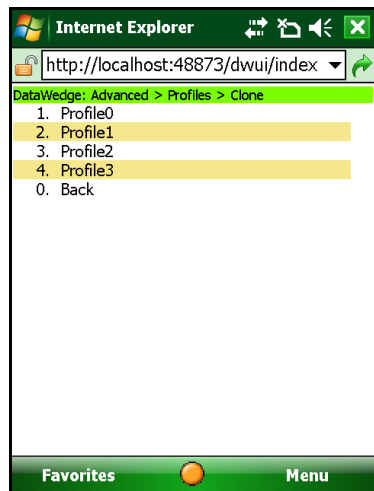
Figure 5-34   *Profile Cloning Page*

Select the profile name from the list of available profiles. DataWedge displays a dialog screen to enter the name for the cloned profile.
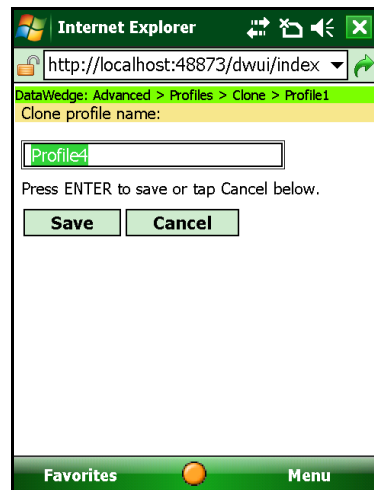
Enter a name for the cloned profile and press **Save** to save. Make sure to name the cloned profile under a different name.

NOTE   When cloning a profile, the applications associated with the master profile are not inherited by the cloned profile as DataWedge does not allow two/more profiles to share the same application.

Chapter 6 Configuring Input Plug-ins

This chapter describes how to configure the input plug-in of a profile. DataWedge uses the input plug-in to access the selected input device (e.g. barcode scanner) and retrieve the data from it for processing.

Configuring Scanner Plug-in

When *Scanner* is selected from the profile configuration menu (See *Input Plug-in Selection Page*), DataWedge Configuration scans the device hardware and lists the available scanners onto the destination page.
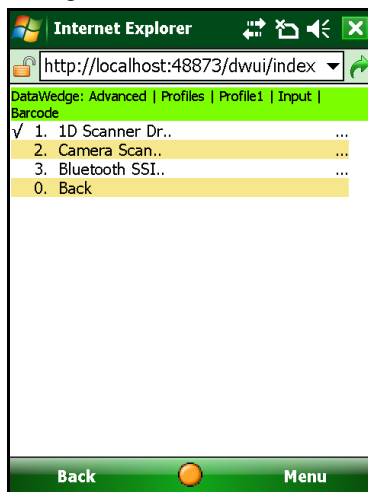
Figure 6-1   *Scanner Selection Page*

Select a scanner from this list and move to the scanner configuration page where all configurable options for that scanner plug-in are listed.
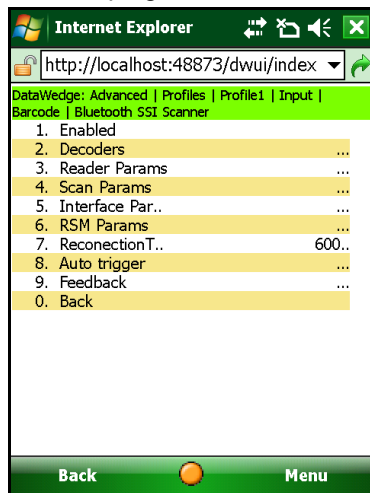
Figure 6-2   *Scanner Configuration Page*

Following is a brief description of the menu items on the scanner plug-in configuration page.

- Select *Enabled* to enable/disable the scanner.

- Select *Decoders* to access the supported decoders for the scanner.

- Select *Reader Params* to access the reader parameters for the scanner. (See *Configuring Reader Parameters*)

- Select *Scan Params* to access the scanner parameters for the scanner. (See *Configuring Scan Parameters*)

- Select *Interface Params* to access the interface parameters for the scanners. (See *Configuring Interface Parameters*)

- Select *RSM Params* to access the RSM properties. This menu item is displayed only on devices that host RSM-ready scanners. (See *Configuring RSM Parameters*)

- Select *ReconnectionTimeout* to set reconnection timeout value (in milliseconds) for Bluetooth-enabled scanners. This menu item is displayed only on devices that host Bluetooth-enabled devices. (See *Defining Reconnection Timeout*)

- Select *Feedback* to configure the notification options for the scanner. (See *Barcode Scanner Plug-in Feedback Settings*)

- Select *Auto trigger* to enable/disable auto trigger mode for the scanner. When enabled, the scanner continuously reads barcodes. Use this feature for Motorola Micro Kiosks, such as the MK500. (See *Enable/Disable Auto Trigger Mode*)

✓ **NOTE** Use of this feature on a battery powered mobile device is not recommended because it can cause the battery to discharge more rapidly.

Enabling/Disabling the Scanner

Select *Enable* to enable the scanner. When the scanner is enabled, a tick (✓) is displayed alongside the *Enabled* item. To disable, select Enable again to toggle the Enabled state.

Configuring Scanner Decoders

Before using the scanner to capture data ensure that the required symbologies are enabled. Select the *Decoders* option from the scanner configuration menu to move to the page listing all decoders supported by the scanner.
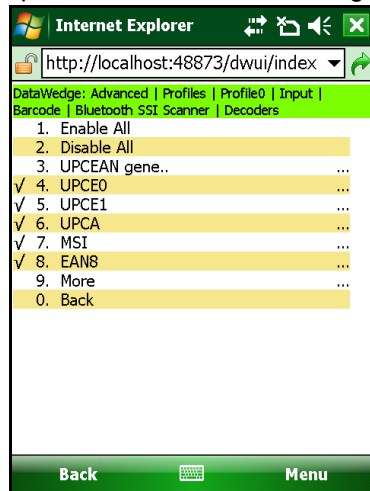
Figure 6-3   *Decoders List*

This menu page lists all the decoders supported by the scanner. Use the *More* option to navigate through the list to configure additional decoders.

• Select *Enable All* to enable all decoders for the selected barcode scanner.

• Select *Disable* All to disable all the decoders.

Configuring Decoders

Select the decoder name from the list, to navigate to the page containing the configurable parameters for that particular decoder.

Example - Configuring EAN8 Decoder

Select *EAN8* from the list to move to the EAN8 decoder configuration page.
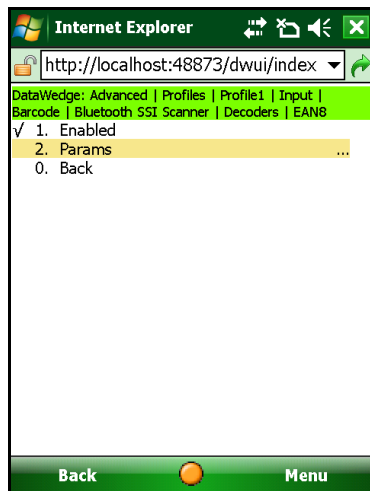
Figure 6-4   *EAN8 Decoder Page*

The *Enabled* option changes the enable/disable status of the EAN8 decoder. When enabled the scanner allows reading of EAN8 barcodes.

Select *Params* to configure additional parameters of the EAN8 decoder.
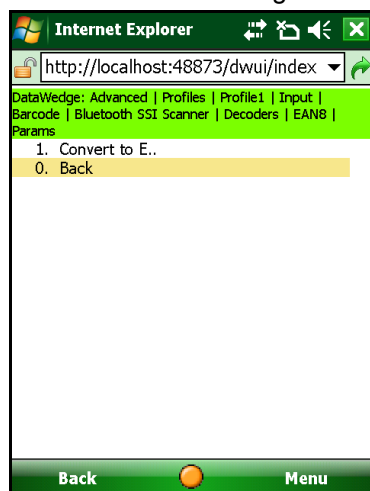
Figure 6-5   *EAN8 Params Page*

Use the *Convert to EAN13* option to enable/disable conversion of EAN8 barcodes to EAN13 barcodes. A tick (✓) is displayed when this option is enabled.

Configuring Reader Parameters

Select *Reader Params* from the scanner configuration menu to configure reader specific parameters.
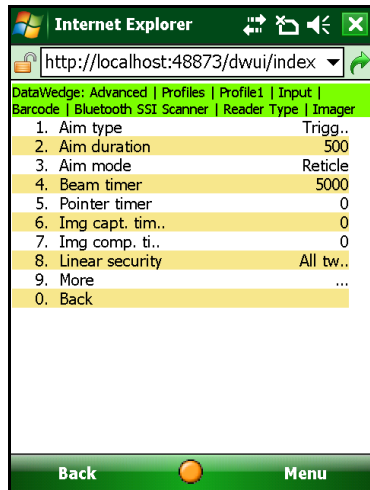
Figure 6-6   *Reader Parameters Page*

Reader Parameters

The *Reader Parameters* settings differ depending on the barcode reader type. See *Laser Scanner Reader Parameters* and *Imager Reader Parameters* for details.

Laser Scanner Reader Parameters

Table 6-1   *Laser Scanner Reader Parameters*

Reader Parameters	Laser Values	Description
Reader Type	Laser	Laser type scan engine is used.
Aim type	Trigger mode:	On/off controlled by the trigger.
	Trigger Hold mode:	Trigger can be released but it remains active for the specified period of time.
	Timed Release mode:	Activation stops after a specified period of time, even if the trigger is held.
Aim duration	0 - 60,000 ms	Sets the amount of time (0 - 60,000 ms in increments of 100 ms).
Aim mode	Dot, Slab, Reticle, None	Describes the aiming modes to use Dot – Projects a dot used for aiming Slab – Projects a line used for aiming Reticle – Projects an aiming pattern used for framing a barcode. None – set to none to disable this
Narrow beam	Enable, Disable	Sets the scan beam width to normal or narrow. Enable – Enables narrow beam Disable – Disables narrow beam (enable normal beam)
Raster mode	Smart	Creates a single scan line which opens vertically for PDF417 symbols using the Smart Raster feature. This feature auto detects the type of bar code presented and adjusts its pattern accordingly. This provides optimal performance on 1D, PDF417, and EAN/UCC.
	Cyclone	A scan pattern which decodes 1D symbologies in any orientation.
	None	Raster mode disabled.
	Open Always	Opens the laser to a full sized raster pattern. Decodes 1D and PDF417. *NOTE* Raster Mode is not supported on all devices.
Beam timer	0 - 60,000 ms	Sets the maximum amount of time that the laser remains on (0 - 60,000 ms in increments of 100 ms). A value of 0 sets the laser to stay on.
Control scan LED	Enable, Disable	Not supported, do not modify default setting.
Scan LED logic level	Enable, Disable	Not supported, do not modify default setting.
Klasse Eins enable	Enable, Disable	Not supported, do not modify default setting.
Bidir. redundancy	Enable, Disable	Sets the read direction for the bar code redundancy. Bidirectional reads in both directions.

Table 6-1 *Laser Scanner Reader Parameters*

Reader Parameters	Laser Values	Description
Linear security level Linear Sec (Laser only)		Sets the number of times a bar code is re-read to confirm an accurate decode.
	All twice:	All twice: Two times read redundancy for all bar codes.
	All thrice:	All thrice: Three times read redundancy for all bar codes.
	Long and Short:	Long and Short: Two times read redundancy for long bar codes, three times for short bar codes.
	Redundancy + length:	Redundancy + length: Two times read redundancy based on redundancy flags and code length.
	Short or Codabar	Short or Codabar: Two times read redundancy if short bar code or CODABAR.
Pointer timer	0 - 60,000 ms	Sets the maximum amount of time that the pointer remains on (0 - 60,000 ms in increments of 100 ms). A value of 0 sets the pointer to stay on.
Raster height	0-100 in.	Sets the Raster Height from 0 to 100 inches in increments of 5 in. Raster Height is not supported on all devices.
DBP Mode		Describes what type of Digital Bar Pulse (DBP) is being produced by the scan engine.
	Normal	Normal – tells the engine to produce normal DBP.
	Composite	Composite – tells the engine to produce composite DBP, which is 2 different sets of DBP data multiplexed together for better decode performance. Note: If the device does not support I2C or if using an older engine the default value for DBP Mode is Normal. An attempt to change this mode to Composite results in an E_SCN_NOTSUPPORTED error.

Imager Reader Parameters

Table 6-2   *Imager Reader Parameters*

Reader Parameters	Imager Values	Description
Reader Type	Imager	Imager type engine is used.
Aim type	Trigger mode:	On/off controlled by the trigger.
	Timed hold mode:	Trigger can be released but it remains active for the specified period of time.
	Timed Release mode:	Activation stops after a specified period of time, even if the trigger is held.
	Presentation	Special mode enables scanning when motion is detected in front of the imager. (Currently only supported by MK500)
Aim duration	0 - 60,000 ms	Sets the amount of time (0 - 60,000 ms in increments of100 ms).
Aim mode	Dot, Slab, Reticle, None	Describes the aiming modes to use Dot – Projects a dot used for aiming Slab – Projects a line used for aiming Reticle – Projects an aiming pattern used for framing a barcode. None – set to none to disable this ***NOTE*** Both Dot and Slab options are invalid for imager, thus if selected the setting is overridden to reticle mode.
Beam timer	0 - 60,000 ms	Sets the maximum amount of time that the laser remains on (0 - 60,000 ms in increments of 100 ms). A value of 0 sets the laser to stay on.
Pointer timer	0 - 60,000 ms	Sets the maximum amount of time that the Pointer Timer remains on (0 - 60,000 ms in increments of 100 ms). A value of 0 sets the Pointer Timer to stay on. ***NOTE*** This parameter is not supported on all devices.
Img capt. timeout	0 - 60,000 ms	Sets the maximum amount of time for the Image Capture Timeout (0 - 60,000 ms in increments of 100 ms). A value of 0 sets the Image Capture Timeout to stay on. ***NOTE*** This parameter is not supported on all devices.
Img comp. timeout	0 - 60,000 ms	Sets the maximum amount of time for the Image Compress Timeout (0 - 60,000 ms in increments of 100 ms). ***NOTE*** Image Compress Timeout is not supported on all devices.

Table 6-2 *Imager Reader Parameters*

Reader Parameters	Imager Values	Description
Linear security		Sets the number of times a bar code is read to confirm an accurate decode.
	All twice:	All twice: Two times read redundancy for all bar codes.
	All thrice:	All thrice: Three times read redundancy for all bar codes.
	Long and Short:	Long and Short: Two times read redundancy for long bar codes, three times for short bar codes.
	Short or Codabar	Short or Codabar: Two times read redundancy if short bar code or CODABAR.
Focus mode	Fixed, Auto	Fixed mode is the only supported focus mode.
Focus position	Far, Near	Specifies the Fixed setting, focus position for Far is 9 inches and focus position for Near is 5 inches.
Poor quality mode	Enable, Disable	This parameter allows poor quality 1D bar codes to be read, BUT adversely affecting the overall decoding performance. Enable – Enables poor quality decoding for 1D barcodes. Disable – Disables poor quality decoding for 1D barcodes.
Picklist mode	Disabled, Enabled/HW reticule, Software reticule	This parameter allows the imager to decode only the bar code that is directly under the cross-hair/reticule (+) part of the AIM pattern. This feature is most useful in applications where multiple bar codes may appear in the field of view during a decode session and only one of them is targeted for decode. When enabled, bPicklistMode overrides dwAimMode if no aiming is chosen and use the AIM_MODE_RETICLE mode. When enabled, bPicklistMode may adversely affect overall decoding performance. Disabled – Disables picklist mode, so any bar code within the field of view can be decoded. Enable/HW reticule – Enables picklist mode, so only the bar code under the cross-hair can be decoded. Software reticule - Enables picklist mode, so only the bar code under the cross-hair can be decoded. In this mode the reticule is seen on the viewfinder as oppose to on the barcode surface. Especially used with Camera Scan.

Table 6-2   *Imager Reader Parameters*

Reader Parameters	Imager Values	Description
DPM Mode	Enable, Disable	This parameter allows Direct Part Marking (DPM) bar codes to be read but may adversely affect overall decoding performance. DPM is a way of stamping bar codes directly on physical objects. Support for this feature is available on DPM enabled mobile computers only. If this feature is not available and user attempts to enable it, an error (E_SCN_NOTSUPPORTED) results. Enable – Enables decoding of DPM bar codes. Disabled – Disables decoding of DPM bar codes. *NOTE* This feature cannot be turned on in conjunction with Picklist as both these modes are mutually exclusive. An attempt to turn on both results in an error (E_SCN_NOTSUPPORTED).
Illumination mode	Auto, Always off, Always On	Illumination modes to use. Possible values are: Auto Illumination – In this mode the auto-exposure algorithms decides whether illumination is required or not. Always on – In this mode external illumination is always on. Always off – In this mode external illumination is always off.
VF left pos.	0 – 600	This setting displays the top left X coordinate of the viewfinder window.
VF top pos.	0 – 800	This setting displays the top left Y coordinate of the viewfinder window.
VF right pos.	0 – 600	This setting displays the bottom right X coordinate of the viewfinder window.
VF bottom pos.	0 – 800	This setting displays the bottom right Y coordinate of the viewfinder window.
VF mode	Disabled, Enabled, Static reticule, Dynamic reticule	This setting displays the Viewfinder modes supported for scanning. Possible values are: Disable - Viewfinder is not displayed during aiming and scanning. Enabled - Only Viewfinder is enabled. Static Reticule - Displays the Viewfinder as well as draws a red reticule in the center of the screen which helps tracking the barcode. Dynamic Reticule - Displays the Viewfinder as well as draws a red reticule in the center of the image. If the barcode in the image is 'decodable' the reticule turns green to indicate this.

Table 6-2   *Imager Reader Parameters*

Reader Parameters	Imager Values	Description
VF feedback	Disabled, Enabled, Reticule	This parameter allows selection of the different feedback parameters on a successful decode. Possible values are: Disabled - This mode disables any visual feedback on a successful decode. Enabled - This mode displays the last image that successfully decoded. The duration for which the image is displayed can be set by the Viewfinder feedback time. Reticule - This mode displays the last image that successfully decoded and also draws a reticule in the center of the image.
VF feedback time	0 - 60,000 ms	This displays the Time for which the visual display selected by Viewfinder feedback mode. For more information Please refer *Motorola Enterprise Mobility Developer Kit for C Help*.
Inverse 1d Mode	Disabled, Enabled, Auto	This parameter allows the user to select decoding on inverse 1D barcodes. Disabled - Disables decoding of inverse 1D symbologies. Enabled - Enables decoding of only inverse 1D symbologies. Auto - Allows decoding of both positive as well as inverse 1D symbologies.

Configuring Scan Parameters

Select *Scan Params* to configure the scan parameters.
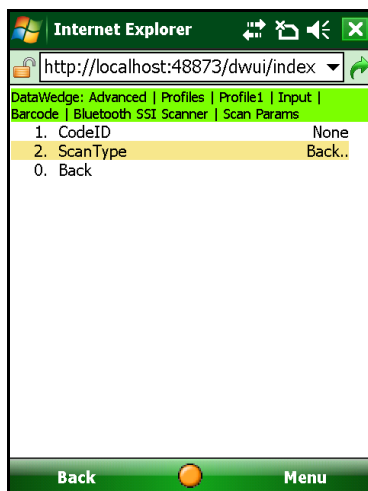
Figure 6-7   *Scanner Parameter Configuration Page*

Use this menu to access and configure the scan parameters.

- Select *CodeID* to specify the CodeID.

- Select *Scan Type* to specify the type of Code ID to be reported.

See *Scan Parameters* for more details.

Scanner Parameters

Below table lists all the scan parameters.

Table 6-3   *Scan Parameters*

Scan Parameters	Values	Description
Code ID Type	None	Default setting. No prefix
	Symbol	A Symbol defined single character prefix.
	AIM	A standard based three character prefix.
Scan Type	Foreground	Foreground reads combine only with other foreground reads and preempt background reads.
	Background	The scan takes place in the background, but only if no foreground reads are pending.
	Monitor	No scanning is requested, but if scanning is initiated by another application, a monitor read receives a copy (if the code type is appropriate).

✓ **NOTE**   By default, the Scan Type is set to 'Background'. This allows DataWedge to share the scanner with other scan enabled applications. Setting this parameter to 'Foreground' is not recommended as this may interfere with other scan enabled applications or vice versa.

Configuring Interface Parameters

Select *Interface Params* from the scanner configuration menu to set the interface parameters.
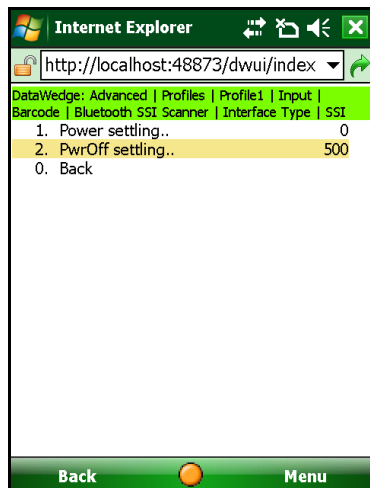
Figure 6-8   *Interface Parameter Page*

Select a parameter from the list to modify the default value assigned to it.

See *Interface Parameters* for more details.

Interface Parameters

Table 6-4   *Interface Parameters*

Interface Parameter	Values
Interface Type	Lighthouse - Lighthouse ASIC Camscan - Camera port interface QSNAC - QSNAC interface SSI - SSI interface LS48XX - LS48XX interface
Power Settle Time	0 - 100 ms
Enable Settle Time	0 - 100 ms
Low Power Time	0 - 60,000 ms

Configuring RSM Parameters

Select *RSM Params* from the scanner configuration menu to configure RSM parameters.
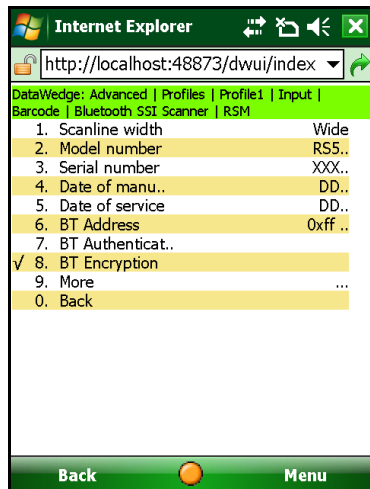
Figure 6-9   *RSM Parameter Page*

RSM Parameters

Table 6-5   *RSM Parameters*

RSM Parameter	Description
Picklist Mode	Defines picklist mode. Narrow - enables narrow beam Wide - enables wide beam
Model number	Device model number. This is a read only value.
Serial number	Device serial number. This is a read only value.
Date of manufacture	Date of device manufacture. This is a read only value.
Date of service	Date of last repair within a Motorola authorized repair facility. This is a read only value.
BT Address	Unique Bluetooth address of the scanner device. This is a read only value.
BT Authentication	Defines whether Bluetooth authentication is required. Enable - requires Bluetooth authentication. Disable - Bluetooth authentication disabled (Default) This is a read only value.
BT Encryption	Defines whether encryption over Bluetooth is required. Enable - enables encryption Disable - disables encryption
BT PIN code	Defines the PIN to verify user when Bluetooth authentication is enabled. Set the PIN in the text entry field and press **Save**. The default PIN code is "12345". This is a read only value.
Reconnect attempts	Defines the number of attempts the scanner tries to reestablish the connection, if it goes out of range. Each attempt occurs after 5 second intervals.
Beep on Recon Attempt	Defines whether the beeper should emit a beeping sound when attempting to reconnect. Enable - enables beeping Disable - disables beeping
HID auto reconnect	Defines auto-reconnect behavior of the scanner when HID connection is lost. Never - never reconnect On data - reconnect on data Immediately - reconnect immediately (Default) This is a read only value.
BT friendly name	Defines friendly name displayed by Bluetooth remote devices. Enter the name in the text entry field and press **Save**.
PIN code type	Prompts the user for PIN code or use PIN code stored in memory. This is a read only value.

Table 6-5   *RSM Parameters*

RSM Parameter	Description
BT inquiry mode	Defines the Bluetooth inquiry mode. General - general mode Limited - limited mode
Exclusive Code128	Defines whether to omit barcodes that have Code128 barcodes prefix. Enable - omit Code128 barcodes. Disable - disable omitting of Code128 barcodes.
Mems	Enables/disables MEMS feature.
Proximity	Enables/disables Proximity feature.
Proximity Distance	Defines proximity distance. Short - short distance Mid - medium distance Long - long distance.
Paging	Enables/disables device paging.
Paging beep sequence	Defines paging beep sequence. Enter the value (between 0-15) in the text entry area and press **Save**.
LoBatt indication	Enables/disables indication when battery is running low.
ScanTrig wakeup	Enables/disables use of scan trigger to wake up the scanner device when running on low battery.
BT auto reconnect	Defines Bluetooth auto reconnection scheme. None - no scheme defined On power - automatically attempt to reconnect when power is on On out of range - automatically attempt to reconnect when out of range On power + range - automatically attempt to reconnect when power is on or when device is out of range. (Default) This is a read only value.
LoBatt Ind cycle	Low battery indication cycle time in seconds. Enter the value in the text entry field and press **Save**.
Proximity continuous	Enables/disables proximity continuous scanning mode.
Good scans delay	Delay (in milliseconds) between proximity continuous good scans. Define this value in the range 0-150 where 150 means 15000ms. Enter the desired value in the text entry field and press **Save**.
Firmware version	Device firmware version. This is a read only value.
Device class	Device class information. This is a read only value.

Defining Reconnection Timeout

Select *ReconnectionTimeout* from the scanner configuration menu to set the timeout for Bluetooth-enabled scanners.
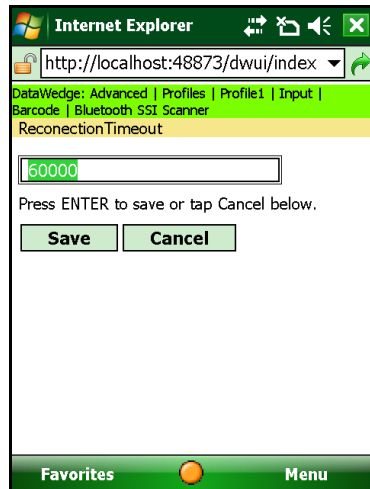
Figure 6-10   *Reconnection Timeout Specification Page*

The ReconnectionTimeout property allows setting a timeout to stop waiting for reconnection once the Bluetooth scanner is disconnected. After the timeout DataWedge tries to enable available Bluetooth scanner.

Enter the desired value (in milliseconds) in the text entry field and press **Save**.

Enable/Disable Auto Trigger Mode

From the Scanner plug-in configuration main menu, select *Auto trigger* to enable auto trigger mode for the scanner. When this feature is enabled, the scanner is activated when movement is detected beneath it and automatically scans barcodes. Use this feature for Motorola Micro Kiosks, such as the MK500.

> **NOTE**   Use of this feature on a battery powered mobile device is not recommended because it can cause the battery to discharge more rapidly

By default this feature is disabled on DataWedge. When enabled a tick (✓) is displayed alongside Auto trigger menu item. To disable, select the menu item again to toggle the state.

> **NOTE**   Use of this feature with the camera is not recommended because the Viewfinder is given precedence over the other foreground applications and therefore, DataWedge configuration interface can be obscured. Use the DataWedge Remote Configuration to change DataWedge settings whilst in this mode.

Barcode Scanner Plug-in Feedback Settings

Select the *Feedback* option from the scanner configuration menu to navigate to the feedback settings page where the feedback parameters can be configured.
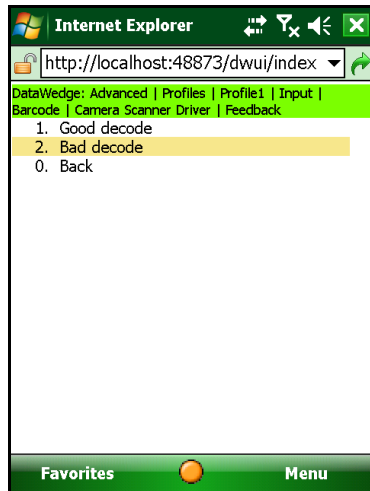
Figure 6-11   *Feedback Selection Page*

Use DataWedge configuration pages to configure the feedback settings for the selected input plug-in.

The scanner plug-in has two events which feedback settings need to be configured.

- Select *Good Decode* to configure feedback settings for a successful decode.

- Select *Bad Decode* to configure feedback settings for a unsuccessful decode.

Select either Good or Bad decode from the list to move to the corresponding page where the feedback options are listed.
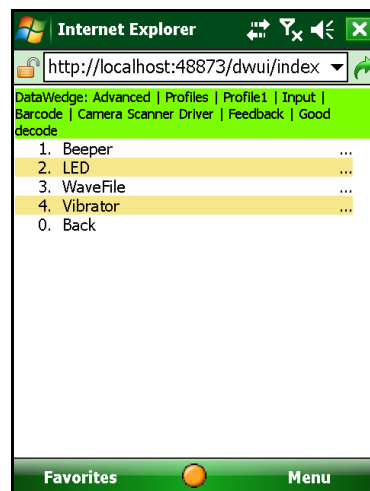
Figure 6-12   *Feedback Module Selection Page*

Select a feedback option from the list to configure it. DataWedge uses the beeper, LED or Wav feedback module for providing user alerts.

- Select the *Beeper* option to access and configure Beeper feedback module.

- Select the *LED* option to access and configure LED feedback module.

- Select the *WaveFile* option to access and configure Wave File feedback module.

- Select the *Vibrator* option to access and configure Vibrator feedback module.

Configuring Beeper Feedback Settings

Select *Beeper* to configure beeper feedback module settings.
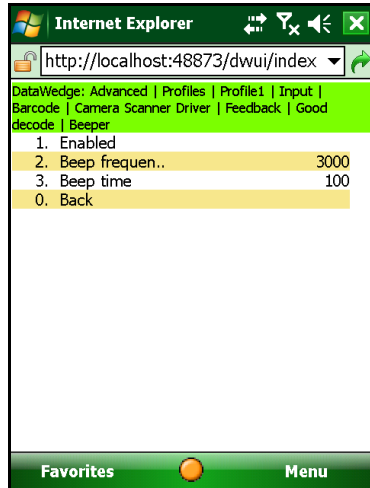
Figure 6-13   *Beeper Configuration Page*

- Select *Enabled* option to enable or disable the beeper feedback. When enabled, a tick (✓) is displayed alongside the *Enabled* item. To disable, select Enable again to toggle the Enabled state.

- Select *Beep frequency* option to set the Beep frequency. A form appears allowing the beep frequency to be changed. Enter the desired value and press **Save** to save.

- Select *Beep time* option to set the beep duration. A form appears allowing the beep duration to be changed. Enter the desired time (in milliseconds) and press **Save** to save.

Configuring LED Feedback Settings

Select LED to configure the LED feedback module settings.
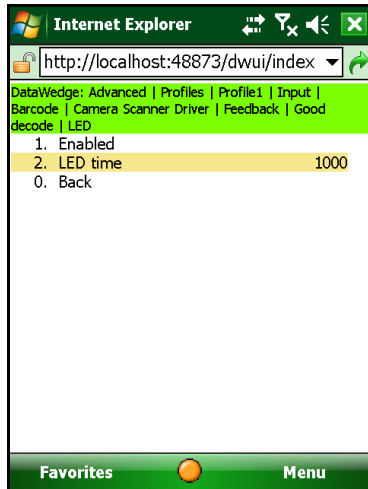
Figure 6-14   *LED Configuration Page*

- Select *Enabled* option to enable or disable the LED feedback.
- Select *LED time* option to set the LED time. Enter the time duration (in milliseconds) in the form that appears and press **Save** to save.

Configuring WAV Feedback Settings

Select WaveFile to configure WAV feedback module settings.
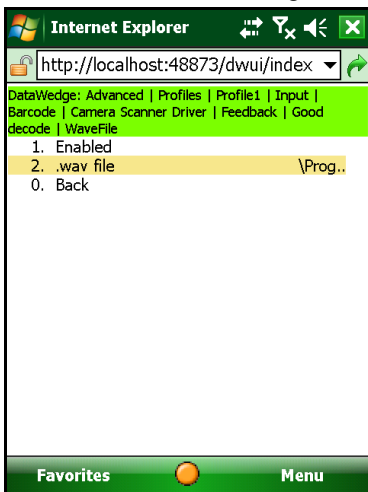
Figure 6-15   *Wave File Configuration Page*

- Select *Enabled* option to enable or disable the WaveFile feedback.
- Select *.wav file* option to specify the WAV file to be used. Enter the path\filename of the .wav file in the form that appears and press **Save** to save.

Configuring Vibrator Feedback Settings

Select Vibrator to configure vibrator feedback module settings.
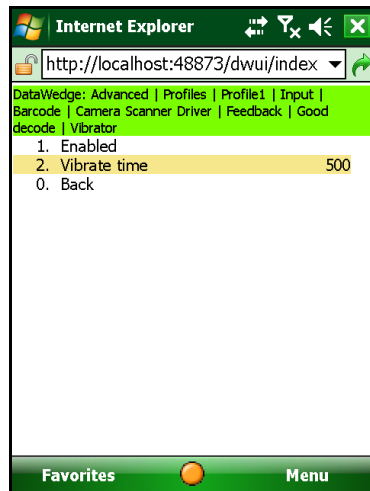
Figure 6-16   *Vibrator Configuration Page*

- Select *Enabled* option to enable or disable the vibrator feedback module.

- Select *Vibrate time* option to specify the vibrate duration (in milliseconds). Enter the desired value in the text entry field and press **Save** to save.

Configuring Serial Plug-in

When *Serial* is selected from the input plug-in selection menu page (See *Input Plug-in Selection Page*), DataWedge Configuration moves to the page listing available communication ports.
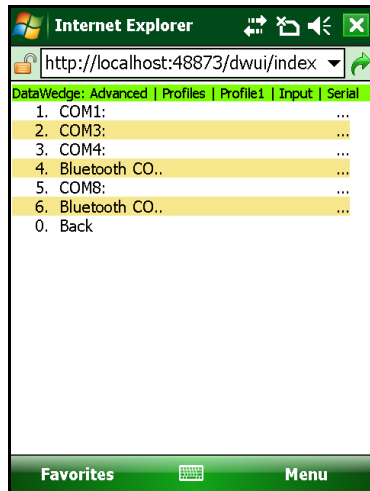
Figure 6-17   *Communication Port Selection Page*

Serial port list includes all physical and Bluetooth serial ports available in the device.

NOTE   Before enabling Bluetooth serial ports, the Bluetooth devices must be paired with the mobile device using the serial port profile (SPP) and should be ready to connect. If the Bluetooth device is not paired properly, or the Bluetooth software is not configured properly, DataWedge may be affected by Bluetooth device connection delays, underlying Bluetooth software messages, configuration dialogs etc.

When using the Microsoft Bluetooth Stack, DataWedge must be restarted in order to correctly list the serial ports in the DataWedge configuration UI.

With Stronestreet One Bluetooth stack, there are connectivity issues when multiple serial ports are configured for DataWedge. This also includes Bluetooth connection established with Bluetooth-enabled scanners such as RS507. Please refer the Readme file for more details.

Select a communication port from this list to start configuring the communication port.
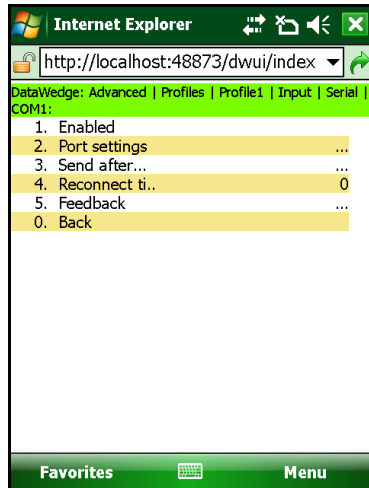
Figure 6-18   *Serial Port Configuration Menu Page*

Use this page to access configurable properties of the serial input plug-in.

- Select *Enabled* to enable/disable the COM port.

- Select *Port settings* to access the communication settings of the selected serial port. (See *Configuring Communication Port Settings*)

- Select *Send after* to define data sending options. (See *Configuring Data Sending Option*)

- Select *Reconnection timeout* to define the reconnection timeout. (See *Setting Reconnection Timeout*)

- Select *Feedback to configure* feedback settings for the serial plug-in. (See *Configuring Feedback Settings for Serial Plug-in*)

Enabling/Disabling COM Port

Select *Enable* to enable the COM port. When enabled, a tick (✓) is displayed alongside the *Enabled* item. To disable, select Enable again to toggle the enabled state.

Configuring Communication Port Settings

Select Port settings from the serial port configuration menu to move to the Port settings page.
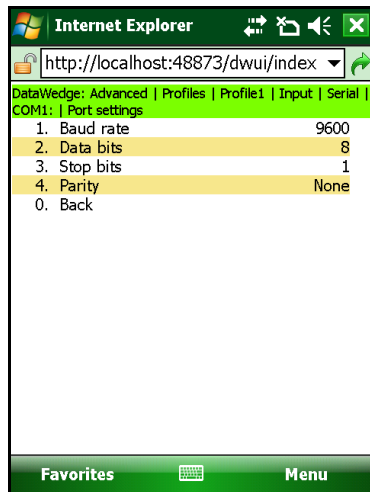
Figure 6-19   *Port Settings Configuration Page*

Defining Baud Rate

Select *Baud rate* from the Port settings page to move to the page where a baud rate can be defined for the selected COM port.
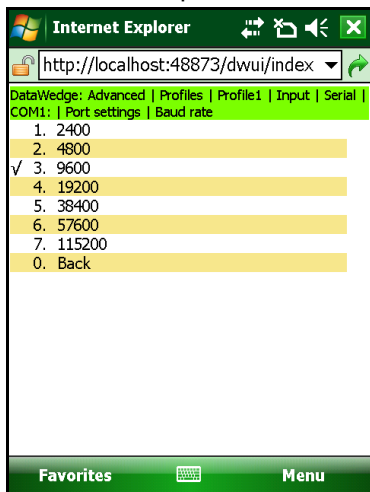
Figure 6-20   *Baud Rate Selection Page*

Select a value from the list to set the baud rate for the COM port.

Defining Data Bits

Select *Data bits* from the Port settings page to move to the Data bits page.
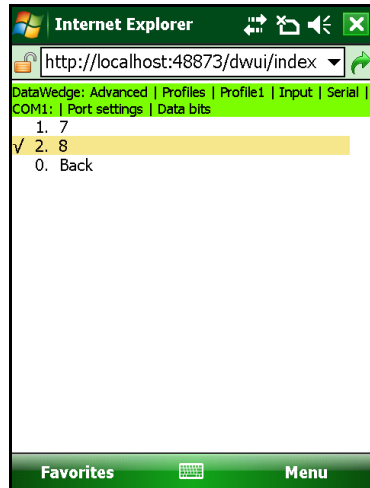
Figure 6-21   *Data Bits Setting Page*

Select a preferred value from the list to enable.

Defining Stop Bits

Select *Stop bits* from the Port settings page to move to the page where stop bits can be set.
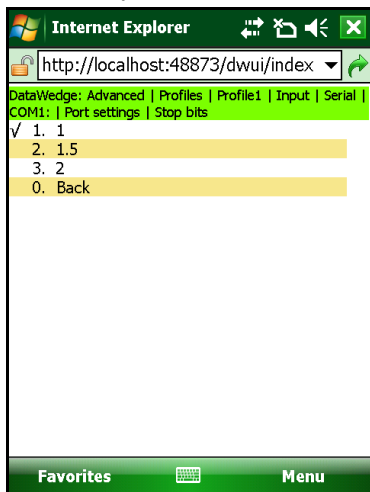
Figure 6-22   *Stop Bits Setting Page*

Select a preferred value from the list to enable.

Defining Parity

Select *Parity* from the Port settings page to set the parity for the selected COM port.
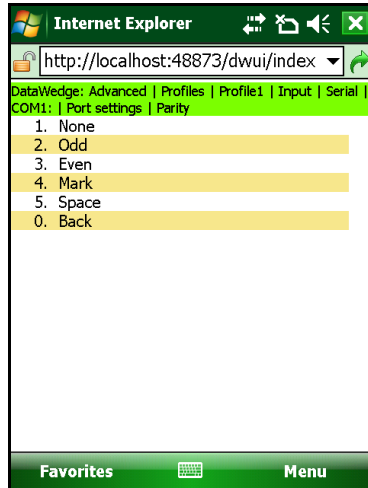
Figure 6-23   *Parity Setting Page*

Select the parity from the list to apply to the COM port.

Configuring Data Sending Option

Select *Send after* from the communication port configuration menu to access the data sending options.
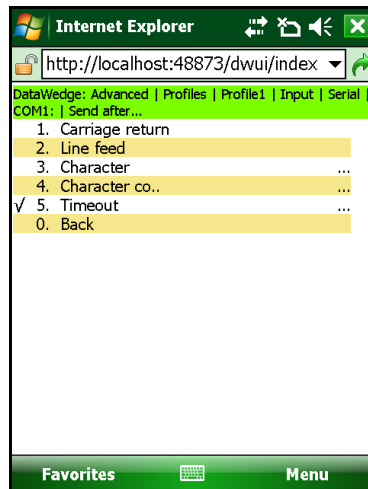
Figure 6-24   *Data Sending Option Selection Page*

- Select *Carriage return* to enable sending data after receiving a carriage return. When data is sent, the carriage return is also included in the output. The carriage return can be excluded from the output by defining an ADF rule.

- Select *Line feed* to enable sending data after receiving a line feed.

- Select *Character* to define a character which upon receiving indicates to DataWedge to send data.

- Select *Character count* to define a number of characters which indicates to DataWedge to send data.

- Select *Timeout* to define a timeout duration. DataWedge counts the number of milliseconds passed from the point of receiving the first character and when reaching the defined timeout sends data.

  ✓ **NOTE** Serial plug-in assumes that the Timeout data sending option is enabled even when all data sending options are disabled.

  If multiple data sending options are enabled, DataWedge transfers data when any of the conditions is met.

Defining a Character for Data Sending

Select *Character* from the Send after page to move to the page where a character can be defined to indicate DataWedge to send data.
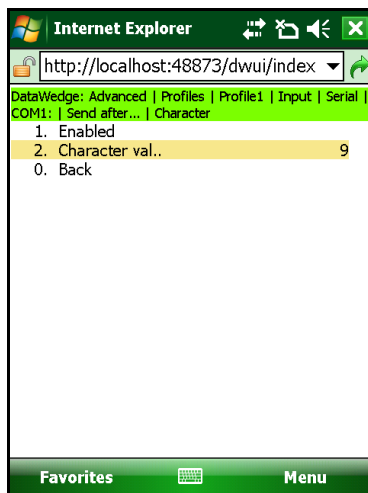
Figure 6-25   *Character Definition Page for Data Sending*

- Select *Enabled* to enable this option.
- Select *Character value* to define a character. Enter ASCII value of the character in the text entry field and press **Save**.

Defining Character Count for Data Sending

Select *Character count* from the Send after page to define a value for the number of characters which acts as an indicator to send data. When the given number of characters are received, data is dispatched.
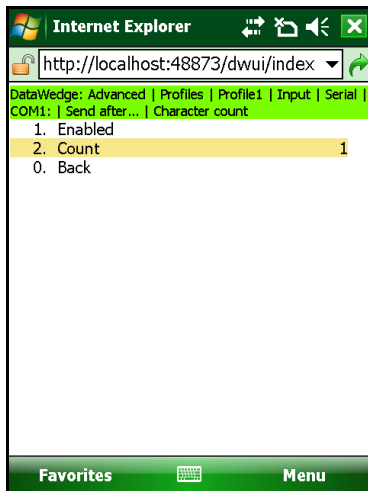
Figure 6-26   *Character Count Defining Page*

- Select *Enabled* to enable this option.

- Select *Count* to define a number of characters. When the first character arrives, DataWedge starts counting the characters passing through the communication port and upon reaching the defined number, sends data. Enter the desired value for the character count in the text entry field and press **Save**.

Defining Timeout for Data Sending

Select *Timeout* from the Send after page to define a timeout value which acts as an indicator to send data.
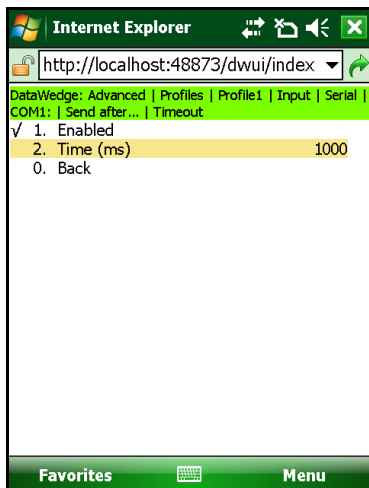
Figure 6-27   *Timeout Definition Page*

- Select *Enabled* to enable this option.

- Select *Time (ms)* to define a number milliseconds. DataWedge starts counting the time upon the arrival of the first character and when the timeout is reached, it sends data. Enter the desired value for the timeout in the text entry field and press **Save**.

Setting Reconnection Timeout

The reconnection timeout is used only in Bluetooth input devices to re-establish the serial connection between input device and the mobile device running DataWedge. Disconnection may be due to the mobile device going through a suspend/resume cycle, out of Bluetooth range or due to low battery charge of the Bluetooth device.

Select *Reconnection timeout* menu item to move to a page where the reconnection timeout can be specified.
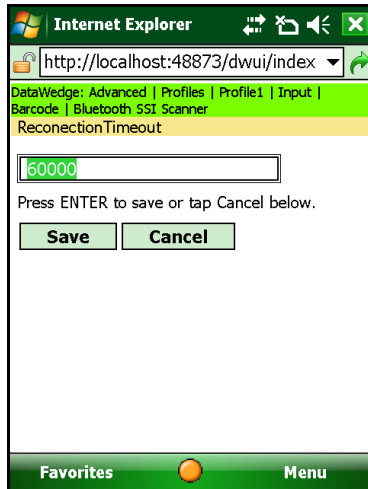
Figure 6-28   *Reconnection Timeout Definition Page*

Enter the timeout value (in milliseconds) in the text entry field and press **Save**.

Configuring Feedback Settings for Serial Plug-in

Select *Feedback* from the communication port configuration menu to move to the feedback configuration page.
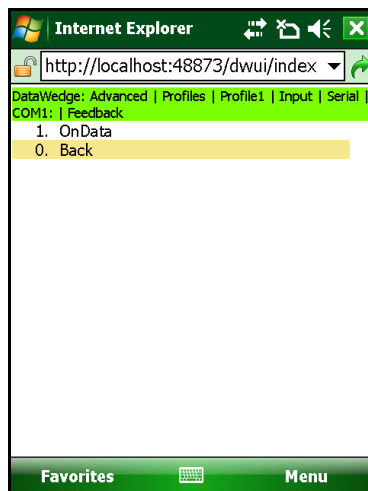
Figure 6-29   *Feedback Event Selection Page*

Select *OnData* to configure feedback settings when data is sent from the serial port.
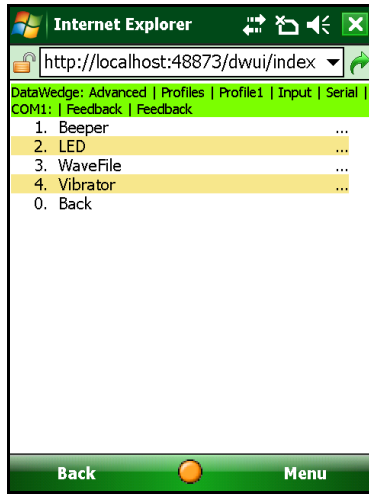
Figure 6-30   *OnData Feedback Options*

The feedback configuration for the serial plug-in is similar to the feedback configuration process of the barcode scanner plug-in. See *Barcode Scanner Plug-in Feedback Settings* for additional details.

Chapter 7 Configuring Output Plug-ins

This chapter describes how to configure the output plug-in of a profile. DataWedge uses the output plug-in to send captured data to the foreground application.

Screen-by-screen details on output plug-in configuration and the parameters associated with the output plug-in are described.

Keystroke Plug-in Configuration

Select *KeyStroke* from the output plug-ins list (See *Output Plug-in List*) to move to Keystroke configuration main menu page.
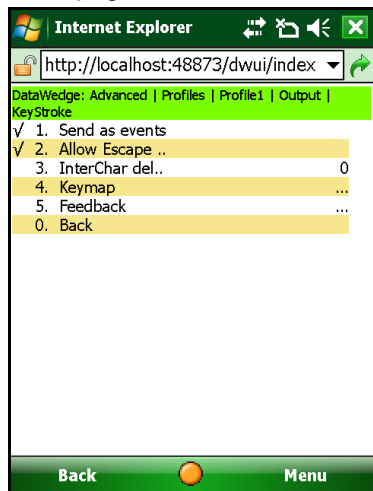
Figure 7-31   *Keystroke Plug-in Configuration Page*

- Select *Send as events* to enable sending keystrokes as keyboard events. When enabled, a tick (✓) is displayed alongside Send as events menu item. To disable this feature, select the menu item again to toggle the state. When disabled, Keystrokes are sent to the foreground application as messages.
  This feature must be disabled to send ASCII printable characters to the foreground application in non-English operating systems. Otherwise the Input Method Editor (IME) of the non-English operating system may process the keystroke data and give out language specific outputs.

- Select *Allow Escape chars* to enable DataWedge to recognize escape sequences in the incoming data and convert them to keystrokes. A tick (✓) is displayed alongside the menu item when this feature is enabled. To disable this feature, select the menu item again. When disabled, escape sequences are sent as data.

- Select *InterChar delay* option to specify the delay to be inserted between each keystroke character that is sent.

- Select *Keymap* to specify the keymap settings.

- Select *Feedback* to specify the feedback settings for events handled by the KeyStroke output plug-in.

Allow Escape Characters

The *Allow Escape chars* option configures the Keystroke plug-in to recognize escape sequences in the incoming data buffer. When this option is enabled DataWedge can process the escape characters in an incoming data stream and also send escape characters to the foreground application via the Keystroke plug-in. Disabling this option causes DataWedge to leave escape characters unchanged. For example if a barcode contains characters "\r" and if Allow Escape chars is enabled, then DataWedge replaces the "\r" with a carriage return character. However, if Allow Escape chars property is disabled DataWedge treats the "\r" as regular characters, leaving them unchanged. The above scenario is also true for data modifications done via Basic format process plug-in.

Table 7-6 *Escape Sequences Supported by DataWedge*

Escape Sequence	Description
\b	Backspace
\f	Form feed
\n	New line
\r	Carriage return
\S	Sticky key
\t	Horizontal tab
\uhhhh	Unicode character in hexadecimal notation.
\vhh	Virtual key represented in hexadecimal notation
\xhh	ASCII character in hexadecimal notation

Inter Character Delay

The inter character delay is the delay (in milliseconds) that is inserted between each keystroke character that is sent.

Select the *InterChar delay* option to move to a dialog where the inter character delay can be specified.

Use the mobile device keypad or the onscreen keyboard to enter the inter character delay and press **Save** to save.

Configuring Keymap Settings

The keymap configuration is used to translate characters from the incoming data to alternative keystroke characters before sending to the foreground application.

Select *Keymap* to move to keymap configurations page.
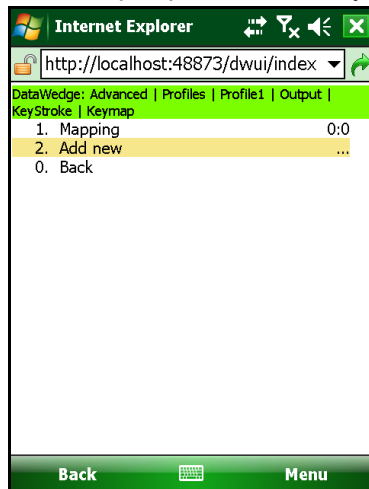
Figure 7-32   *Keymap Configuration Page*

Adding a Keymap

Select *Add new* to add a new key-mapping. A new option titled *Mapping* is added to the keymap configuration page.

Select the *Mapping* option to configure the new keymap.
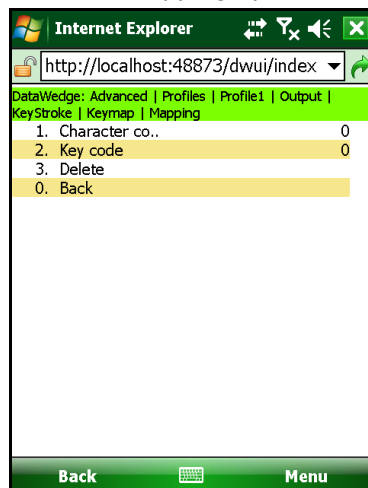
Figure 7-33   *Key Mapping Main Page*

- Select *Character code* to specify the ASCII value of the incoming character.
- Select *Key code* to specify the virtual key value of the alternate character.
- Select *Delete* to delete the selected key mapping.

Modifier Keys

Modifier keys are special keys that modify the normal action of another key, when two are pressed in combination. For example, <Alt> + <F4> in Microsoft Windows is used to close the program in a active window. By themselves, modifier keys usually does nothing. The most widely used modifier keys are Ctrl, Shift and Alt keys.

Table 7-7   *Modifier Key Values*

Modifier Key	Key Value (Decimal)	Key Value (Hexadecimal)
Shift	256	100
Ctrl	512	200
Alt	1024	400

Key Mapping Examples

The examples below explains the procedure of setting keymaps.

Example1

The following example describes how to configure the Keystroke plug-in to simulate SHIFT+8 for left round bracket "(" instead of SHIFT+9 which is the default (101 keyboard) mapping. This is a typical scenario encountered when using an application via Remote Desktop which uses a 106 keyboard (Japanese Keyboard) and scans a barcode containing an open round bracket.

1. Use the *Character code* option to specify the incoming character code that needs to be altered by the Keystroke plug-in.

   In the text box enter the character code for open round bracket as decimal 40 (40 is the decimal representation of "(" according to the ASCII table) and press the **Save** button.

2. Use the *Key code* option to enter the outgoing key code combination and press **Save**.

   Since the outgoing key code is a combination of two keys (SHIFT+8) it is represented as a the sum of "SHIFT" and "8"

   The virtual key value in decimal format for Shift key is 256 (See *Modifier Key Values*). The virtual key value of character "8" is 56 (See *Virtual Key Codes*). Therefore the Key code is;

   Shift + 8 = 256 + 56 =321

See *Virtual Key Codes* for key value information. See to the *ASCII Table* for character code values.

Configuring Feedback Settings for Keystroke Plug-in

Select *Feedback* from the Keystroke plug-in configuration page to move to *Feedback* menu page. Use the output plug-in feedback configuration page to set feedback properties for the Keystroke plug-in.
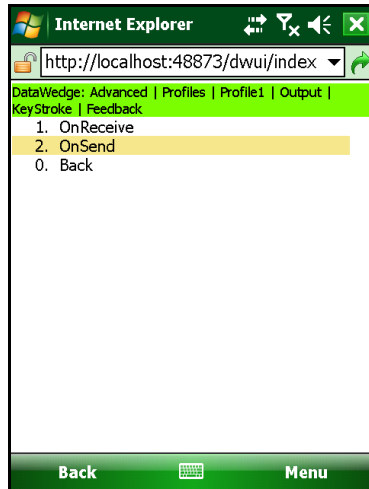
Figure 7-34   *Feedback Main Menu Page*

- Select *OnReceive* to configure feedback settings for data receive events which are triggered when the Keystroke plug-in receives data.

- Select *OnSend* to configure the feedback settings when the Keystroke plug-in sends data.

Configuring Keystroke Plug-in Feedback Settings
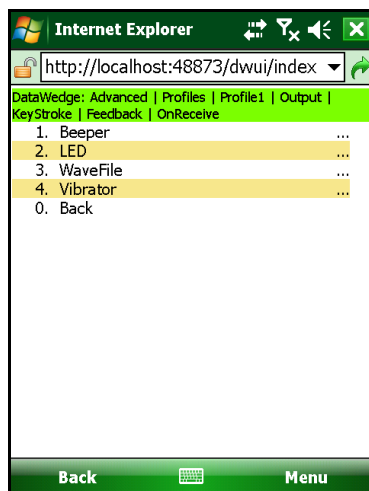
Figure 7-35   *Keystroke Feedback Options*

The feedback configuration options for the output plug-in are the same as those for the input plug-in. See *Barcode Scanner Plug-in Feedback Settings* for additional details.

Clipboard Plug-in Configuration

Select *Clipboard* from the output plug-ins list to move to Clipboard configuration main menu page.
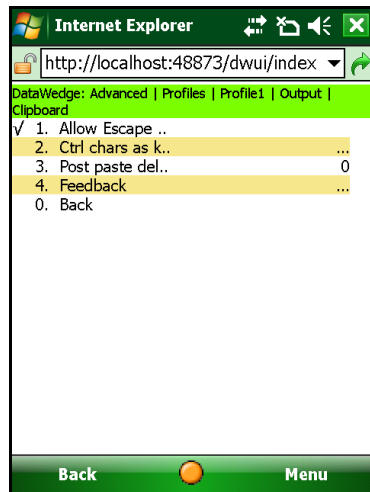
Figure 7-36   *Clipboard Plug-in Configuration Menu*

- Select *Allow Escape chars* to enable DataWedge to recognize escape sequences in the incoming data. A tick (✓) is displayed alongside the menu item when this feature is enabled. To disable this feature, select the menu item again. When disabled, escape sequences are sent as data.

- Select *Ctrl chars as keystrokes* to make clipboard plug-in treat control characters as keystrokes.

- Select *Post paste delay* to specify the delay between consecutive clipboard outputs.

- Select *Feedback* to configure feedback settings for the clipboard output plug-in.

Handling Control Characters in Clipboard Plug-in

Select *Ctrl chars as keystrokes* to move to the page where control characters can be specified to the clipboard plug-in.
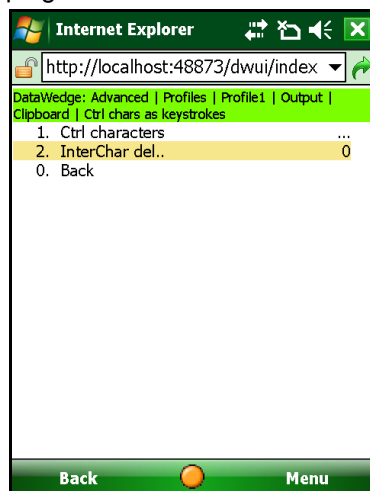
Figure 7-37   *Ctrl chars as keystrokes Page*

ASCII characters within the range 0x00 - 0x1F are classified as control characters. Control characters received within a data stream cannot be decoded normally by the clipboard plug-in because the clipboard is only a mechanism available in the mobile device for holding data until it is "pasted" to the output device. As solution to this issue, clipboard plug-in uses a keymap setting to treat control characters as keystrokes.

When a stream of data arrives, clipboard plug-in sends the data to the output device until a control character is found in the data. Upon detecting a control character, DataWedge uses the keymap to decode the those characters and sends them as key strokes to the output device. This setting allows DataWedge to send given control characters as keystrokes and send other data using the clipboard.

Defining Control Characters for Clipboard Plug-in

Select *Ctrl characters* to move to a page where all control characters are listed.
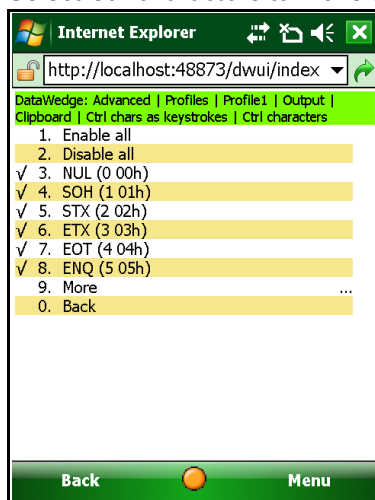
Figure 7-38   *Control Characters List*

- Select *Enable all* to enable decoding of all control characters.

- Select *Disable all* to disable decoding of all control characters.

- Select/deselect any of the individual control character menu items to customize clipboard plug-in. The characters which are disabled are treated as normal data by DataWedge and is sent directly to the output device via clipboard without decoding.

Defining Inter Character Delay for Clipboard Plug-in

Select *InterChar delay* from the Ctrl chars as keystrokes page to specify the delay between two control characters.

Enter the preferred value (in milliseconds) in the text entry field and press **Save**.

The default value for inter character delay for Clipboard plug-in is 10ms.

Defining Postpaste Delay

The postpaste delay is the time duration between two "paste" actions when data is going through the clipboard plug-in to the output device.

Set the value (in milliseconds) in the text entry field and press **Save**.

The default value for post paste delay is 10ms.

Configuring Clipboard Plug-in Feedback Settings

Select Feedback from the clipboard plug-in configuration page to access the feedback settings.
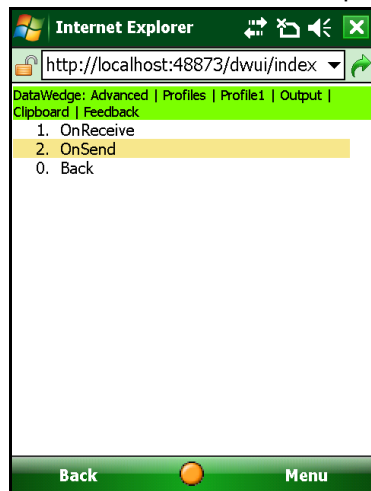
Figure 7-39   *Event List for Feedback*

- Select *OnReceive* to configure feedback settings for data receive events which occur when clipboard plug-in receives data.

- Select *OnSend* to configure the feedback settings when the clipboard plug-in sends data.

The configuration process of the feedback modules is similar to configuring feedback modules of the barcode scanner plug-in. See *Barcode Scanner Plug-in Feedback Settings* for details.

Chapter 8 Configuring Process Plug-ins

This chapter describes how to configure the process plug-ins associated with a profile.

See *Defining Process Plug-ins for Data Route* for information on how to add a process plug-in to the route of a profile.

Configuring ADF Plug-in

Select *Advanced (ADF)* from the list of process plug-ins to move to the main configuration menu for the Advanced Data Formatting plug-in.
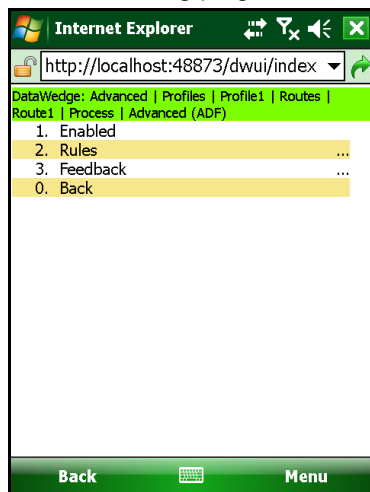
Figure 8-1 *Advanced (ADF) Plug-in Page*

- Select *Enabled* to enable or disable the ADF process plug-in.

- Select *Rules* to add rules to the ADF process plug-in.

- Select *Feedback* to configure the feedback settings for the ADF plug-in.

Enabling the ADF Process Plug-in

From the ADF configuration main menu, select Enabled to enable the ADF process plug-in. When enabled, a tick (✓) is displayed alongside Enabled. Perform the same action again to disable the ADF process plug-in i.e. selecting Enabled while the plug-in status is set as enabled toggles the enabled status.

Specifying Rules to ADF Plug-in

Select *Rules* from the ADF configuration menu to move to the list of defined ADF rules.
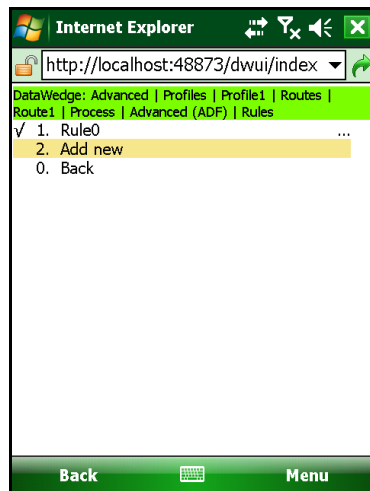
Figure 8-2   *ADF Rules List*

- Select *Rule0* to access the configuration page of the default ADF rule.

- Select *Add new* to add a new rule to the list. Enter the name for the new rule (For example, Rule1) and press **Save** to save.

Configuring ADF Rules

To configure ADF rules, select an option from the ADF rule menu.
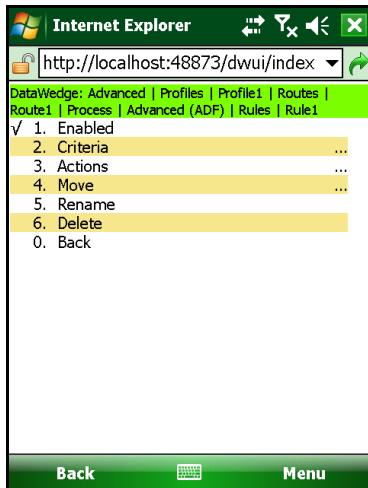
Figure 8-3   *ADF Rule Configuration Page*

- Select *Criteria* to define the criteria for the rule.

- Select *Actions* to specify the actions to be performed when the criteria for the rule have been met.

- Select *Move* to move the current ADF rule up or down the list of defined rules. The rules are processed in top-down order. Therefore, rules that are on top of the list are processed first.

- Select *Rename* to rename a rule. A form is displayed allowing the name of the rule to be changed. After entering a new name, press **Save** to rename the rule.

- Select *Delete* to remove the current ADF rule from the list.

Defining Criteria

Select *Criteria* from the ADF rule configuration menu to move to the page where criteria for the selected rule can be specified.
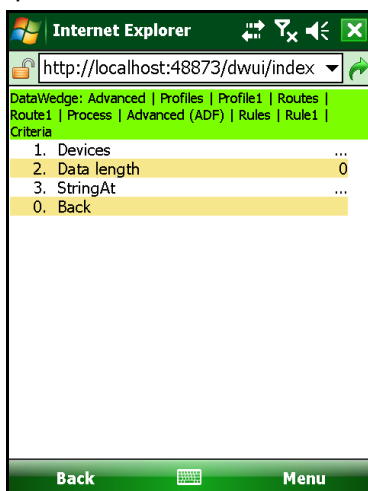
Figure 8-4   *ADF Rules Criteria Page*

- Select *Devices* to associate an input device to the ADF rule. The rule is only applied to data coming from the specified input device.

- Select *Data length* to specify a length for the received data. The ADF rule is only applied to data with that specified length.

- Select the *StringAt* option to specify a string that must be present in the data and its position within the data. The ADF rule is only applied if this condition is met.

Input Device Criteria

From the ADF rule criteria definition page select the *Devices* option to specify the device for the ADF rule.
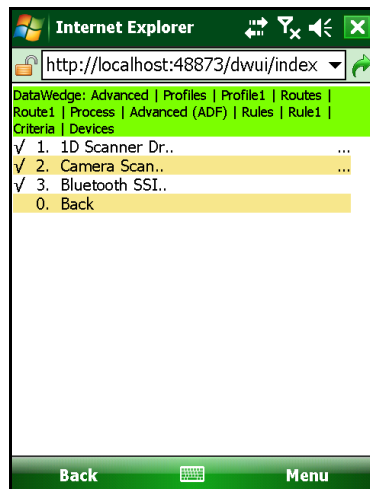
Figure 8-5   *Device List for ADF Rules*

Select the input device from the list to move to the configuration page for the input device. DataWedge filters the data from the specified input device and applies the rules defined in the ADF process plug-in.
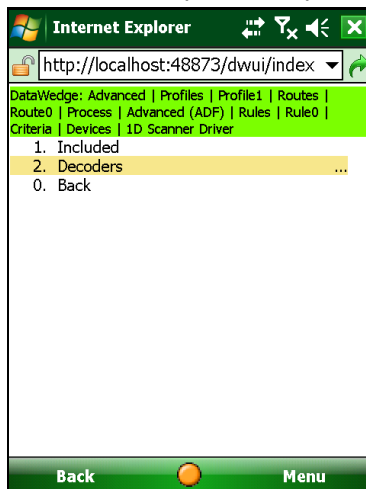
Figure 8-6   *Device Properties for ADF Page*

Select *Included* to include/exclude use of the selected device as a data filtering criteria. When included, tick (✓) is displayed alongside Included. If it is selected again while the input device is included, DataWedge disables use of that input device as a data filtering criteria.

Use the *Decoders* menu item to select the decoders for the current input scanner device.
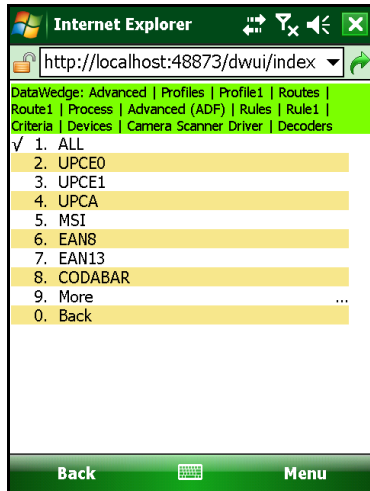
Figure 8-7   *Decoder List*

By default all decoders are enabled for the input device. This allows all the decoders that are configured for the input plug-in to be used by the rule.

To enable specific decoders, disable the "*ALL*" option and select the desired decoders.

NOTE   DataWedge only uses the decoders that are enabled in the input plug-in i.e. even if all decoders are selected from the criteria definition pages, DataWedge cannot use them unless the decoders were enabled while configuring the barcode scanner input plug-in (See *Configuring Scanner Decoders*).

Data Length Criteria

Select *Data length* from the ADF rule criteria definition page to specify the length of the incoming data. DataWedge configuration displays a dialog where the length of the data can be specified. DataWedge only applies the rule when the incoming data matches the length specified.
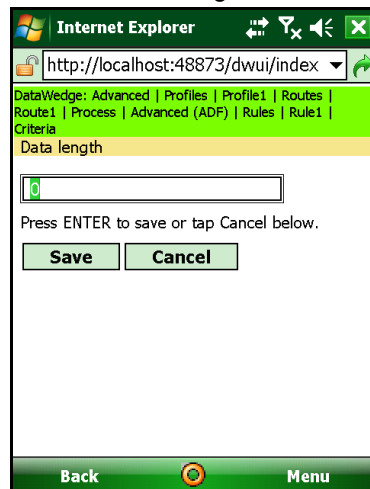
Figure 8-8   *Data Length Definition Page*

After entering the value, press **Save**.

Data Content Criteria

From the ADF rule criteria definition page select *StringAt* to move to the StringAt configuration page.
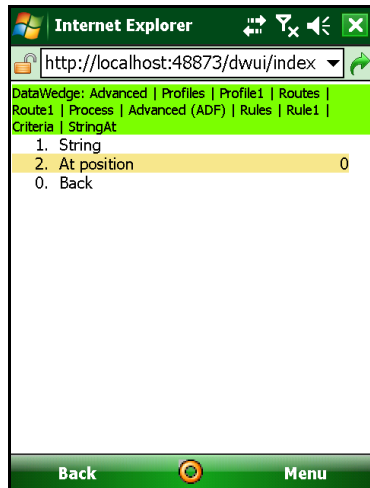
Figure 8-9   *StringAt Definition Page*

Use this page to define a data content criterion for the ADF rule plug-in.

- Select *String* to define a string that must be contained within the data. Use the form displayed to specify the string and press **Save**.

- Select *At position* to specify the position of the above defined string within incoming data. Use the form to enter the position (i.e. 1st, 2nd or n^{th} occurrence) of the string in the data packet and press **Save**.

Defining Actions

Select *Actions* from the ADF rule configuration menu to move to the page where actions can be added for data manipulation. DataWedge uses the actions to process the data.
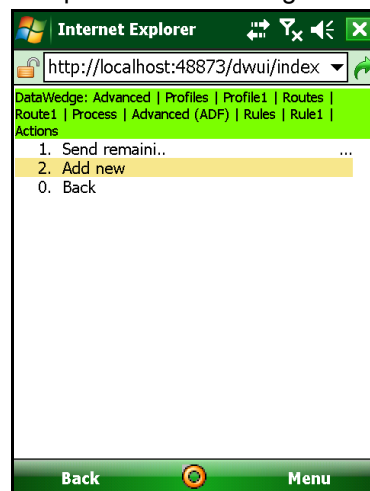
Figure 8-10   *Actions Page*

- By default, the *Send remaining* action is added to the ADF rule to enable sending of data which is processed via the ADF plug-in. This action can be deleted if required.

• Add a new action by selecting *Add new* option.
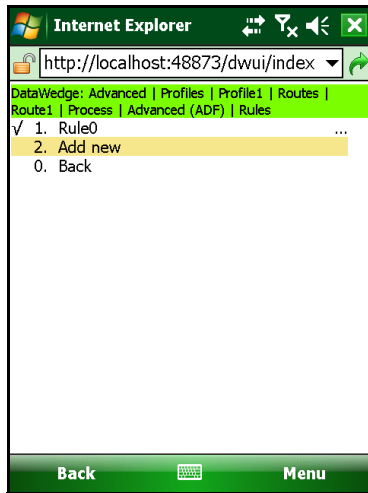
Figure 8-11   *ADF Actions List Page*

Using this menu one or more data processing actions can be defined. Select an action from the list to add that action to the ADF rule. When an action is selected from the actions list, it is automatically added to the list of defined actions. To configure an action, select the corresponding action from the actions list. See *ADF Supported Actions* for configurable options.

ADF Supported Actions

Table 8-1 *ADF Supported Actions*

	Symbol ADF	Description
Cursor Movement	Skip ahead	Move cursor forward by a specified number of characters
	Skip back	Move cursor back by a specified number of characters
	Skip to start	Move cursor to the beginning of the data
	Move to	Move cursor forward until the specified string is found
	Move past a	Move cursor forward past the specified string
Data Modification	Crunch spaces	Trim spaces between words to one and remove all spaces at the beginning and end of the data
	Stop space crunch	Stops space crunching. This disables the last Crunch spaces action.
	Remove all spaces	Remove all spaces in the data.
	Stop space removal	Stop removing spaces. This disables the last Remove all spaces action
	Remove leading zeros	Trim all zeros at the beginning of data
	Stop zero removal	Stop removing zeros at the beginning of data. This disables the previous Remove leading zeros action
	Pad with zeros	Left pad data with zeros to meet the specified length
	Stop pad zeros	Stop padding with zeros. This disables the previous Pad with zeros action
	Pad with spaces	Left pad data with spaces to meet the specified length
	Stop pad spaces	Stop padding with spaces. This disables the previous Pad with spaces action
	Replace string	Replace a specified string with a new string
	Stop replace string	Stop replacing a string with a specified string. This disables the previously set Replace string action
Data Sending	Send next	Send the specified number of characters from the current cursor position
	Send remaining	Send all data that remains from the current cursor position
	Send up to	Send all data up to a specified string
	Send pause	Pause the specified number of milliseconds before continuing the next send action
	Send string	Send a specified string
	Send char	Send a specified ASCII/ Unicode character

ADF Examples

Example 1 - Auto Parts Distribution (Processing two types of barcodes)

An auto parts distribution center encodes the manufacturer ID, part number, and destination code into their Code 128 bar codes. The distribution center also has products that carry UPCA bar codes, placed there by the manufacturer.

The Code 128 bar codes have the following format:

MMMMMPPPPPDD

Where: M = Manufacturer ID

P = Part Number

D = Destination Code

The first five characters of the UPCA barcode is the Manufacturer code, with the remainder being the part number.

The distribution center uses a mobile computer application which has three fields for Manufacturer ID, Part Number and destination code in the main window. The application fills relevant fields using starting control character. Starting Control characters are;

<CTRL M>, Manufacturer id

<CTRL P>, part number

<CTRL D>, destination code

The application needs two rules to process Code 128 and UPCA barcodes.

Rule 1

Create a rule titled "*CODE128Rule*"

Configure the rule by going to *CODE128Rule > Criteria > Devices > SCN1 > Decoders* and selecting *Code 128.*

Then, go to *CODE128Rule > Actions* and add the following new actions;

1. SendChar <Ctrl+M>

2. Send Next 5

3. SendChar <Ctrl+P>

4. Send Next 5

5. SendChar <Ctrl+D>

6. Send Remaining

Rule 2

Create a rule titled "*UPCARule*"

Configure the rule by going to *UPCARule > Criteria > Devices > SCN1 > Decoders* and selecting *UPCA*.

The go to *UPCARule > Actions* and define the actions for the rule as follows;

1. SendChar <Ctrl+M>

2. Send Next 5

3. SendChar <Ctrl+P>

4. Send Remaining

Example 2 - UCC/EAN-128 Serialized Shipping Container Symbol

An Airline serves two main freight services and a few others. They need to sort the cargo of their two main clients separately from the others.

To sort the cargo, they use EAN-120 shipping container barcodes which conform to the following format.

####<6 Digit Company Code><9 digit reference number>

Company Codes for two companies are;

Company 1 - 801111, and

Company 2 - 801322

Their application needs the company name, or the string "Other", followed by the ref number excluding any leading zeros. The company name and ref number should be separated with a TAB character.

Rule 1

Create a rule titled "*Company 1*"

Configure the rule by going to *Company 1 > Criteria > String At* and configure the settings for that rule.

String: 801111

At position: 4

Then go to *Company 1 > Actions* and add the following new actions;

1. Send String: Company 1\t

2. Skip Ahead 10

3. Remove Leading Zeros

4. Send Next 9

Rule 2

Create another rule titled "*Company 2*"

Configure that rule by going to *Company 2 > Criteria > String At* and define the settings as follows.

String: 801322

At position: 4

Then define the actions for the rule by going to Company 2 > Actions and setting the following.

1. Send String: Company 2\t

2. Skip Ahead 10

3. Remove Leading Zeros

4. Send Next 9

Rule 3

Create another rule for the remaining clients titled "*Other*".

The criteria settings need not be set. DataWedge only needs to differentiate the two main companies from the rest of the companies and the preceding rules have already defined those criteria.

Set the action for this rule by going to *Other > Actions* and set the parameters as follows;

1. Send String: Other \t

2. Skip Ahead 10

3. Remove Leading Zeros

4. Send Next 9

Configuring Feedback Settings for ADF Plug-in

Select *Feedback* from the ADF main menu page to configure the feedback settings for the ADF plug-in.
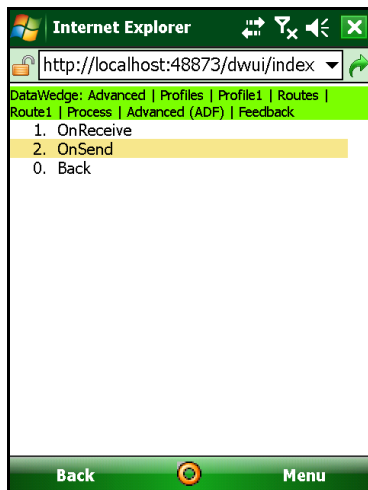
Figure 8-12   *ADF Plug-in Feedback Menu Page*

• Select *OnReceive* to configure feedback settings for data receive events which occur when ADF plug-in receives data.

• Select *OnSend* to configure the feedback settings when the ADF plug-in sends data.

The configuration process of the feedback modules is similar to configuring feedback modules of the barcode scanner plug-in. See *Barcode Scanner Plug-in Feedback Settings* for details.

Configuring Basic Format Process Plug-in

Select *Basic format* from the process plug-in selection menu (See *Defining Process Plug-ins for Data Route*) to configure the basic format process plug-in. When selected, DataWedge configuration moves to the basic format plug-in main menu page.
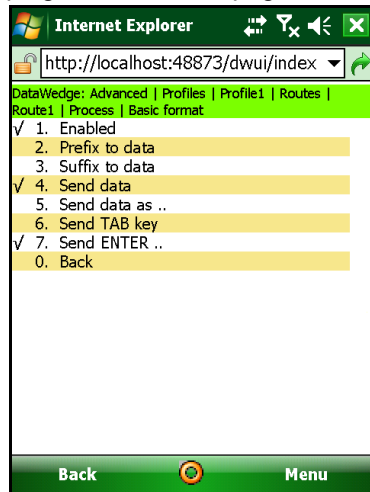
Figure 8-13   *Basic Format Process Plug-in Configuration Menu*

- Select *Enabled* option to enable or disable the Basic format process plug-in. When enabled, a tick (✓) is displayed alongside Enabled menu item. To disable, select the menu item again to toggle the state.

- Select *Prefix to data* to add a string to the beginning of the data.

- Select *Suffix to data* to add a string to the end of the data.

- Select *Send data* to transfer the captured data to the foreground application. This option is enabled by default. Disabling this option prevents the actual data from been transmitted. However, the prefix and suffix strings, if present, are still transmitted even if this option is disabled.

- Select *Send data as hex* to send the data in hexadecimal format.

- Select *Send ENTER key* to append an enter character to the processed data. This property is enabled by default.

- Select *Send TAB key* to append a tab character to the processed data.

Special Characters Supported by Basic format

The Basic format process plug-in supports the following special characters.

- Standard Escape Characters (See- *Escape Sequences Supported by DataWedge*)

- Virtual Keys (See - *Virtual Key Codes*)

- Hex representation of ASCII characters (See - *ASCII Table*)

- Unicode Characters

- Sticky Keys (See *Sticky Key Definitions*)

Sticky Keys

The format for sticky keys is defined as follows;

\S(C|A|S)x[0..*]\E(C|A|S)

The definitions of the sticky keys are described below.

Table 8-2   *Sticky Key Definitions*

Key Code	Description
\S, \s	Start sticky key
(C|c)	C = CTRL
(A|a)	A = ALT
(S|s)	S = SHIFT
x[0..*]	0 or more character keys
\E, \e	End Sticky key.

When using sticky keys, use lower case characters to define key combinations. The key combination meanings may change the result depending on the characters used. For example, to depict CTRL+a, use \Sca or \SCa. If \SCA is used DataWedge emulates the key combination as CTRL+SHIFT+A which does not yield the required result.

✓ **NOTE**   In order to allow the escape characters to be supported, enable the "*Allow Escape chars*" option in the Keystroke output plug-in.

Basic Format Examples

Example1 - Displaying output data Line-by-line

The example below describes how to configure the Basic format process plug-in to alter the output data to be displayed line-by-line as shown.

Start

1234567890

End

For the Prefix, the word "Start" is followed by \r which inserts a carriage return before the data.
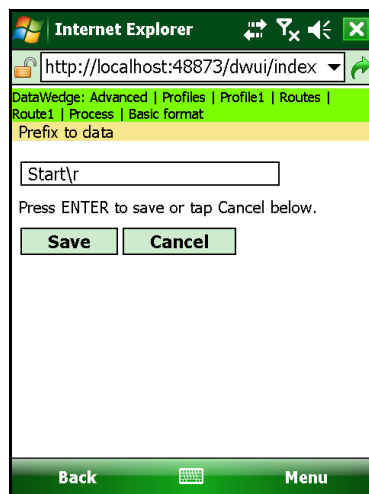
Figure 8-14   *Prefix Setting*

For the Suffix a \r is set before the word "End" which means the data is followed by a carriage return and then the word "End".
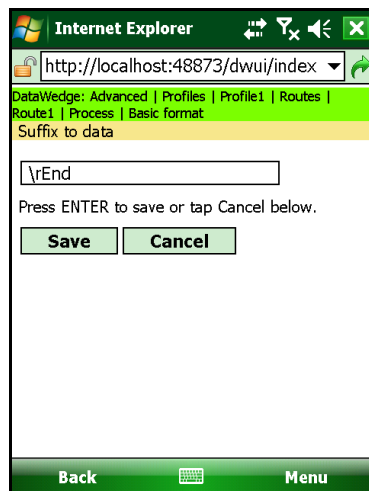
Figure 8-15   *Suffix Setting*

Example2 - Sending a linefeed after Data

A linefeed can be generated by typing CTRL+j on a keyboard. To emulate this in DataWedge, enter the Suffix string as \Scj\Ec.

Example3 - Fill a text field & press the OK button in a form

Where a form consists of a text input box and a submit button, DataWedge can be set to populate the text input box, then set focus to and press the button. This achieved by setting the Suffix as \Scim\Ec to simulate Tab and Enter.

Example4 - Make all characters uppercase

If the input data consists purely alpha characters (i.e. a-z), these can be converted to upper case simply by holding down the SHIFT keys while sending the characters. To achieve this effect in DataWedge, set the Prefix as \Ss and Suffix as \Es. This converts all lower case alpha characters in the data to uppercase.

Example5 - Open an MS Word document on a remote computer and print the data

Connect to a remote PC via Remote Desktop and launch MS Word. Set the prefix as \Safn\Es. This opens a new MS Word document and enter the data into the document.

To enter the data and automatically print that data afterwards, set the suffix as \Safp\Ea\Scm\Ec. After entering the data this invokes the MS Word File menu, selects Print and presses the enter key causing the document to be printed.

Chapter 9 DataWedge Remote Configuration

This chapter provides information on how to configure DataWedge remotely using ActiveSync, Windows Mobile Device Center (WMDC) or over a Wi-Fi/WWAN network.

DataWedge can be remotely configured using the Remote Configuration option available in the DataWedge programs group. DataWedge Remote Configuration uses Internet Explorer on the PC to render the DataWedge User Interface instead of the Mobile Internet Explorer on the device, thus providing the same configuration interface.

Setting Mobile Device for Remote Configuration

DataWedge Remote Configuration can be done in several ways.

Configuring through ActiveSync/WMDC

This option can be used for both Windows Mobile and Windows CE based devices.

Place the mobile device in the cradle and ensure that the mobile device and PC are connected via ActiveSync (or WMDC in the case of Vista).

Go to *Start Menu > Programs > Motorola DataWedge > Remote Configuration over ActiveSync* to launch the Remote Configuration over ActiveSync application on the PC. Once launched the DataWedge icon appears in the notification area of the Windows taskbar. Click this icon to popup a menu.

Navigate through the menu and select an option.

- Select *Basic Configuration* to launch Basic Configuration UI on Internet Explorer or bring the existing Basic Configuration UI window to the foreground.
- Select *Advanced Configuration* to launch Advanced Configuration UI on Internet Explorer or bring the existing Advanced Configuration UI window to the foreground.
- Select *Start local server* to start the embedded web server in the DataWedge Remote Configuration application.
- Select *Stop local server* to stop the embedded web server in the DataWedge Remote Configuration application.
- Select *About* to view DataWedge Remote Configuration information.

- Select *Exit* to terminate the DataWedge Remote Configuration application.

Use this configuration window on the PC to configure DataWedge in the same way as on a Mobile Device.

Windows Vista

In Windows Vista, non-admin user accounts should follow below given steps to use DataWedge Remote Configuration via ActiveSync.

1. Run Command prompt as Administrator

2. Enter the following commands on the prompt

    a. netsh http add urlacl url=http://*:48873/ user=BUILTIN\Users listen=yes

    b. icacls "C:\Program Files\Motorola DataWedge\v3.1\Remote Config" /grant BUILTIN\Users:(W,M) /T

✓   *NOTE* The above command is given according to the default installation path of DataWedge. By default, DataWedge is installed to C:\Program Files folder. This path can change depending on the path DataWedge is installed.

Configuring over WLAN

This option could be used for both Windows Mobile and Windows CE based devices.

Remote Configuration requires the mobile device to have DataWedge installed and invoked at least once. Power on the mobile device and place it in the cradle and make sure that the mobile device does not go in to suspend mode. If a cradle is not available, ensure that the mobile device does not suspend until DataWedge configuration is completed.

✓   *NOTE* If DataWedge Remote Configuration is performed on a device which is not cradled, make sure the Wi-Fi radio does not go in to power save mode.

Go to *Start Menu > Programs > Motorola DataWedge > Remote Configuration over WLAN* to open the Remote Configuration start page in Internet Explorer which provides preliminary instructions for setting up the connection. Remote Configuration over WLAN makes use of pop-ups, cookies and scripts, so these must be enabled/permitted on the PC for the remote configuration to function. Optional proxy configuration details are provided.

Enter the IP address of the mobile device in the *IP Address* text box and add an appropriate comment to identify the device in the *Description/Comment* text box. Click the **Add New** button to add the mobile device to the list. Now click either the **Basic** or **Advanced** buttons corresponding to the newly added device to invoke Basic or Advanced Configuration.

To delete an entry from the list click the corresponding **delete** link.

✓   *NOTE* If the mobile device does not have a touch screen, use Microsoft PowerToys to enable the device wireless connectivity.

Appendix A Useful Information

Mass Deployment of DataWedge Configurations

Once DataWedge configuration is completed, the settings and profile information can be cloned to other mobile devices.

✓ **NOTE** The configurations done on a mobile device can ONLY be deployed on an identical mobile device (i.e. same hardware and operating system). Attempting to deploy the same configurations on a different mobile device may not yield the expected results.

To deploy DataWedge settings on multiple mobile devices copy the *\Program Files\DataWedge\Config* folder from the source mobile device (mobile device on which DataWedge was configured) and save that folder in the same location on the other devices.

Run or restart DataWedge on the cloned mobile devices for the settings to take affect.

Special Scenarios

Disabling the Barcode Scanner

On a Windows Mobile Phone Edition device or on a SmartPhone device, if a barcode is scanned, with the DataWedge default configuration, while the Today screen is in foreground, the output is captured by the phone dialer. This can result in an unwanted phone call.

This behavior can be disabled by the following;

1. Create a new profile

2. Disable the profile by making sure that *Enabled* is not ticked

3. In that profile, go to *Applications* and add a new application. For Windows mobile enter the application name as "*shell32.exe*". If the device is Windows CE based, enter "*explorer.exe*".

4. Save the profile by going back to the Profiles menu and press **OK** when the save settings confirmation appears.

5. Go back to the main menu and select *Settings*

6. Set *Profile Selection* to "*Auto*"

7. Exit Settings and select **OK** when the save settings confirmation appears.

This profile disables scanning while the Today screen is in foreground.

Preventing Data Loss in Remote Desktop

When using the Remote Desktop application to run an application on a remote Windows server, certain conditions (such as a slow connection) can cause occasional keystrokes to be ignored by Remote Desktop or the application it is running.

In this case, specify a value of 20ms or more for the *InterChar delay*.

Similarly, some application may have trouble dealing with large amounts of rapidly occurring keystrokes, as might be generated when scanning barcodes such as PDF417. Setting a suitable InterChar delay can mitigate this problem.

Auto Trigger & Presentation Mode

Auto Trigger is a feature introduced for laser based Micro Kiosk devices, such as the MK500, and enables continuous scanning. When used on battery powered mobile devices continuous scanning can have a significant effect on battery life.

Presentation mode is an Aim Type Reader Parameter introduced for imager based barcode scanners starting with the MK500 (Micro Kiosk). It enables the imager to automatically turn on illumination, as required, when motion is detected directly beneath it.

Although Auto Trigger and Presentation mode can be enabled simultaneously within DataWedge, care should be taken not to do so, especially in MK500 Imager devices where both modes are currently supported, as it can cause significantly increased CPU usage, resulting in the device appearing to be sluggish. Both Auto Trigger and Presentation mode provide similar functionality, it is therefore recommended to select the one most appropriate for the device e.g. Auto Trigger for laser based MK500 or Presentation mode for imager based MK500 devices.

Virtual Key Codes

The following table lists virtual key codes for a generic keyboard.

Key	Hex Virtual Key Code	Key Code (No Modifier)	Key Code (SHIFT+Key)	Key Code (CTRL+Key)	Key	Hex Virtual Key Code	Key Code (No Modifier)	Key Code (SHIFT+Key)	Key Code (CTRL+Key)
0	30	48	304	560	=	BB	187	443	699
1	31	49	305	561	,	BC	188	444	700
2	32	50	306	562	-	BD	189	445	701
3	33	51	307	563	.	BE	190	446	702
4	34	52	308	564	/	BF	191	447	703
5	35	53	309	565	`	C0	192	448	704
6	36	54	310	566	[	DB	219	475	731
7	37	55	311	567	\	DC	220	476	732
8	38	56	312	568	]	DD	221	477	733
9	39	57	313	569	'	DE	222	478	734
A	41	65	321	577	F1	70	112	368	624
B	42	66	322	578	F2	71	113	369	625
C	43	67	323	579	F3	72	114	370	626
D	44	68	324	580	F4	73	115	371	627
E	45	69	325	581	F5	74	116	372	628
F	46	70	326	582	F6	75	117	373	629
G	47	71	327	583	F7	76	118	374	630
H	48	72	328	584	F8	77	119	375	631
I	49	73	329	585	F9	78	120	376	632
J	4A	74	330	586	F10	79	121	377	633
K	4B	75	331	587	F11	7A	122	378	634
L	4C	76	332	588	F12	7B	123	379	635
M	4D	77	333	589	Page Up	21	33	289	545
N	4E	78	334	590	Page Down	22	34	290	546
O	4F	79	335	591	End	23	35	291	547
P	50	80	336	592	Home	24	36	292	548
Q	51	81	337	593	Left	25	37	293	549
R	52	82	338	594	Up	26	38	294	550
S	53	83	339	595	Right	27	39	295	551
T	54	84	340	596	Down	28	40	296	552
U	55	85	341	597	Insert	2D	45	301	557
V	56	86	342	598	Delete	2E	46	302	558
W	57	87	343	599	Backspace	08	8	264	520
X	58	88	344	600	Tab	09	9	265	521
Y	59	89	345	601	Print Screen	2C	44	300	556
Z	5A	90	346	602	Shift	10	16	272	528
Space	20	32	288	544	Ctrl	11	17	273	529
Escape	1B	27	283	539	Caps Lock	14	20	276	532
;	BA	186	442	698	Enter	0D	13	269	525

Figure A-1   *Virtual Key Codes*

ASCII Table

Decimal	Hex	Keystroke(s)	ASCII Char	Virtual Key Code	Unicode Char
0	0	SHIFT+CTRL+2	(null)	818	
1	1	CTRL+A	(soh)	577	
2	2	CTRL+B	(stx)	578	
3	3	CTRL+C	(etx)	579	
4	4	CTRL+D	(eot)	580	
5	5	CTRL+E	(enq)	581	
6	6	CTRL+F	(ack)	582	
7	7	CTRL+G	(bel)	583	
8	8	Backspace	Backspace (bs)	8	Backspace
9	9	Tab	Tab (tab)	9	Tab
10	0A	Enter	Enter (lf)	10	Enter
11	0B	CTRL+K	(vt)	587	
12	0C	CTRL+L	(np)	588	
13	OD	CTRL+M	Enter (cr)	13	Enter
14	0E	CTRL+N	(so)	590	
15	0F	CTRL+O	(si)	591	
16	10	CTRL+P	(dle)	592	
17	11	CTRL+Q	(dc1)	593	
18	12	CTRL+R	(dc2)	594	
19	13	CTRL+S	(dc3)	595	
20	14	CTRL+T	(dc4)	596	
21	15	CTRL+U	(nak)	597	
22	16	CTRL+V	(syn)	598	
23	17	CTRL+W	(etb)	599	
24	18	CTRL+X	(can)	600	
25	19	CTRL+Y	(em)	601	
26	1A	CTRL+Z	(eof)	602	
27	1B	Esc	Escape (esc)	27	Esc
28	1C	CTRL+\	(fs)	732	
29	1D	CTRL+]	(gs)	733	
30	1E	SHIFT+CTRL+6	(rs)	822	
31	1F	SHIFT+CTRL+-	(us)	957	
32	20	Space	Space	32	Space
33	21	SHIFT+1	!	305	!
34	22	SHIFT+'	"	478	"
35	23	SHIFT+3	#	307	#
36	24	SHIFT+4	$	308	$
37	25	SHIFT+5	%	309	%
38	26	SHIFT+7	&	311	&
39	27	'	'	222	'
40	28	SHIFT+9	(	313	(
41	29	SHIFT+0	)	304	)
42	2A	SHIFT+8	*	312	*
43	2B	SHIFT+=	+	443	+
44	2C	,	,	188	,
45	2D	-	-	189	-
46	2E	.	.	190	.
47	2F	/	/	191	/
48	30	0	0	48	0
49	31	1	1	49	1
50	32	2	2	50	2
51	33	3	3	51	3
52	34	4	4	52	4
53	35	5	5	53	5
54	36	6	6	54	6
55	37	7	7	55	7
56	38	8	8	56	8
57	39	9	9	57	9
58	3A	SHIFT+;	:	442	:
59	3B	;	;	186	;
60	3C	SHIFT+,	<	444	<
61	3D	=	=	187	=
62	3E	SHIFT+.	>	446	>
63	3F	SHIFT+/	?	447	?

Decimal	Hex	Keystroke(s)	ASCII Char	Virtual Key Code	Unicode Char
64	40	SHIFT+2	@	306	@
65	41	SHIFT+A	A	321	A
66	42	SHIFT+B	B	322	B
67	43	SHIFT+C	C	323	C
68	44	SHIFT+D	D	324	D
69	45	SHIFT+E	E	325	E
70	46	SHIFT+F	F	326	F
71	47	SHIFT+G	G	327	G
72	48	SHIFT+H	H	328	H
73	49	SHIFT+I	I	329	I
74	4A	SHIFT+J	J	330	J
75	4B	SHIFT+K	K	331	K
76	4C	SHIFT+L	L	332	L
77	4D	SHIFT+M	M	333	M
78	4E	SHIFT+N	N	334	N
79	4F	SHIFT+O	O	335	O
80	50	SHIFT+P	P	336	P
81	51	SHIFT+Q	Q	337	Q
82	52	SHIFT+R	R	338	R
83	53	SHIFT+S	S	339	S
84	54	SHIFT+T	T	340	T
85	55	SHIFT+U	U	341	U
86	56	SHIFT+V	V	342	V
87	57	SHIFT+W	W	343	W
88	58	SHIFT+X	X	344	X
89	59	SHIFT+Y	Y	345	Y
90	5A	SHIFT+Z	Z	346	Z
91	5B	[	[	219	[
92	5C	\	\	220	\
93	5D	]	]	221	]
94	5E	SHIFT+6	^	310	^
95	5F	SHIFT+-	_	445	_
96	60	`	`	192	`
97	61	A	a	65	a
98	62	B	b	66	b
99	63	C	c	67	c
100	64	D	d	68	d
101	65	E	e	69	e
102	66	F	f	70	f
103	67	G	g	71	g
104	68	H	h	72	h
105	69	I	i	73	i
106	6A	J	j	74	j
107	6B	K	k	75	k
108	6C	L	l	76	l
109	6D	M	m	77	m
110	6E	N	n	78	n
111	6F	O	o	79	o
112	70	P	p	80	p
113	71	Q	q	81	q
114	72	R	r	82	r
115	73	S	s	83	s
116	74	T	t	84	t
117	75	U	u	85	u
118	76	V	v	86	v
119	77	W	w	87	w
120	78	X	x	88	x
121	79	Y	y	89	y
122	7A	Z	z	90	z
123	7B	SHIFT+[	{	475	{
124	7C	SHIFT+\			476		
125	7D	SHIFT+]	}	477	}
126	7E	SHIFT+`	~	448	~
127	7F	CTRL+Backspace	⌂	520	

Figure A-2 *Regular ASCII Table (Character 0-127)*

Decimal	Hex	Keystroke(s)	ASCII Char	Virtual Key Code	Unicode Char
128	80	None	Ç	0	€
129	81	None	ü	0	
130	82	None	é	0	‚
131	83	None	â	0	ƒ
132	84	None	ä	0	„
133	85	None	à	0	…
134	86	None	å	0	†
135	87	None	ç	0	‡
136	88	None	ê	0	ˆ
137	89	None	ë	0	‰
138	8A	None	è	0	Š
139	8B	None	ï	0	‹
140	8C	None	î	0	Œ
141	8D	None	ì	0	
142	8E	None	Ä	0	Ž
143	8F	None	Å	0	
144	90	None	É	0	
145	91	None	æ	0	'
146	92	None	Æ	0	'
147	93	None	ô	0	"
148	94	None	ö	0	"
149	95	None	ò	0	•
150	96	None	û	0	–
151	97	None	ù	0	—
152	98	None	ÿ	0	˜
153	99	None	Ö	0	™
154	9A	None	Ü	0	š
155	9B	None	¢	0	›
156	9C	None	£	0	œ
157	9D	None	¥	0	
158	9E	None	Pts	0	ž
159	9F	None	ƒ	0	Ÿ
160	A0	None	á	0	
161	A1	None	í	0	¡
162	A2	None	ó	0	¢
163	A3	None	ú	0	£
164	A4	None	ñ	0	¤
165	A5	None	Ñ	0	¥
166	A6	None	ª	0	¦
167	A7	None	º	0	§
168	A8	None	¿	0	¨
169	A9	None	⌐	0	©
170	AA	None	¬	0	ª
171	AB	None	½	0	«
172	AC	None	¼	0	¬
173	AD	None	¡	0	-
174	AE	None	«	0	®
175	AF	None	»	0	¯
176	B0	None	░	0	°
177	B1	None	▒	0	±
178	B2	None	▓	0	²
179	B3	None	│	0	³
180	B4	None	┤	0	´
181	B5	None	╡	0	µ
182	B6	None	╢	0	¶
183	B7	None	╖	0	·
184	B8	None	╕	0	¸
185	B9	None	╣	0	¹
186	BA	None	║	0	º

Decimal	Hex	Keystroke(s)	ASCII Char	Virtual Key Code	Unicode Char
192	C0	None	└	0	À
193	C1	None	┴	0	Á
194	C2	None	┬	0	Â
195	C3	None	├	0	Ã
196	C4	None	─	0	Ä
197	C5	None	┼	0	Å
198	C6	None	╞	0	Æ
199	C7	None	╟	0	Ç
200	C8	None	╚	0	È
201	C9	None	╔	0	É
202	CA	None	╩	0	Ê
203	CB	None	╦	0	Ë
204	CC	None	╠	0	Ì
205	CD	None	═	0	Í
206	CE	None	╬	0	Î
207	CF	None	╧	0	Ï
208	D0	None	╨	0	Ð
209	D1	None	╤	0	Ñ
210	D2	None	╥	0	Ò
211	D3	None	╙	0	Ó
212	D4	None	╘	0	Ô
213	D5	None	╒	0	Õ
214	D6	None	╓	0	Ö
215	D7	None	╫	0	×
216	D8	None	╪	0	Ø
217	D9	None	┘	0	Ù
218	DA	None	┌	0	Ú
219	DB	None	█	0	Û
220	DC	None	▄	0	Ü
221	DD	None	▌	0	Ý
222	DE	None	▐	0	Þ
223	DF	None	▀	0	ß
224	E0	None	α	0	à
225	E1	None	ß	0	á
226	E2	None	Γ	0	â
227	E3	None	π	0	ã
228	E4	None	Σ	0	ä
229	E5	None	σ	0	å
230	E6	None	µ	0	æ
231	E7	None	τ	0	ç
232	E8	None	Φ	0	è
233	E9	None	Θ	0	é
234	EA	None	Ω	0	ê
235	EB	None	δ	0	ë
236	EC	None	∞	0	ì
237	ED	None	φ	0	í
238	EE	None	ε	0	î
239	EF	None	∩	0	ï
240	F0	None	≡	0	ð
241	F1	None	±	0	ñ
242	F2	None	≥	0	ò
243	F3	None	≤	0	ó
244	F4	None	⌠	0	ô
245	F5	None	⌡	0	õ
246	F6	None	÷	0	ö
247	F7	None	≈	0	÷
248	F8	None	°	0	ø
249	F9	None	·	0	ù
250	FA	None	·	0	ú

Figure A-3 *Extended ASCII Table (Character 128-255)*

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MOTOROLA