CipherLab
User Guide

FORGE Batch Application Generator

For 8 Series Mobile Computers:
8000 / 8200 / 8300 / 8400 / 8600

Version 5.04

CIPHER LAB

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RELEASE NOTES

Version	Date	Notes
5.04	Sep. 02, 2019	▸ Modified: **3.3.5 Allow to Delete Lookup Data** – add descriptions to clarify the deletion of lookup data
		▸ Modified: **7.2.1 Data_Read** – screenshot updated; the Auto Upload Support table updated
5.03	Apr. 06, 2017	▸ Modified: **Appendix II – Symbology Setting Table** – EAN-13 Addon Mode appended, and skip checking quiet zone for Code 93, Plessey, Codabar, UPC/EAN, Code 39, Code 128 appended
5.02	Aug. 05, 2016	▸ Modified: **1.15.1** – descriptions for Fixed Data Length, Add Prefix Code, Add Suffix Code (apply to DAT file only) appended
5.01	Dec. 30, 2015	▸ New: **1.9.24 Image**
5.00	Oct. 01, 2015	▸ Modified: descriptions relating to 'CD-ROM' removed
		▸ Modified: descriptions relating 8500/8700 removed
		▸ Modified: **Installing Forge Batch AG** - replacing AGX_Read with EAGX_Read
		▸ Modified: **Upload Application Templates** - replacing AGX_Read with EAGX_Read
		▸ Modified: **FTP Communication Settings** - 8770/8790 removed from the table
		▸ Modified: **Application Template's Version Info** - note and dialogs added
		▸ Modified: **Menu Bar** – 8770/8790 removed from WLAN Communication Settings
		▸ Modified: **AGX Template Conversion** - 8500/8700 removed from the table
		▸ Modified: **1.3 Font Properties** - wording for 8500/8700 removed
		▸ Modified: **1.9** - the Data Type table updated with 'Compare data'
		▸ New: **1.9.23 Compare Data**
		▸ Modified: **1.15** - Properties screenshot updated
		▸ Modified: **1.15.2** - advanced settings for 'Compare data' added
		▸ Modified: **CH. 3** - Lookup screenshot updated
		▸ Modified: **3.2.4** - 8700 removed
		▸ New: **3.3.4 Allow to Browse Lookup Data**
		▸ New: **3.3.5 Allow to Delete Lookup Data**
		▸ New: **5.1.3 LCD (for 8600 Only)**
		▸ Modified: **5.1.4** - 8500/8700 removed
		▸ Modified: **5.1.6** - AG8500/AG8700 removed from the table
		▸ Modified: **5.1.7** - AG8500/AG8700 removed from the table
		▸ Modified: **5.1.8** - 8500 removed
		▸ Modified: **CH. 6** - Startup screenshot updated
		▸ Modified: **6.2** 8600 supports Latin (Slovak)

		▸ New: **6.4.3 Number of Records per Page**
		▸ Modified: **CH. 7** - replacing AGX_Read with EAGX_Read
		▸ Modified: **7.1.1** - screenshots updated
		▸ Modified: **7.1.1** – 711 removed from AG Load download interface
		▸ Modified: **7.2.2** - screenshots updated
		▸ Modified: **Appendix I** - 8500/8700 removed from the reader type table
		▸ Modified: **Appendix III - Symbology Settings Table (8700)** removed
		▸ Modified: **Appendix V - Download Utilities** - command line syntax revised for DLookup
4.04	Sep. 02, 2015	▸ Modified: **7.2.1** – Import/Export/Reset to default functions added
		▸ Modified: **7.2.1** – Prefix/Suffix added for automatically generated file name added
		▸ Modified: **7.2.1** – Combine all upload files into single file added
4.03	Aug. 20, 2014	▸ Modified: **AGX Template Conversion** – conversion between 8200 and 8600 added
		▸ Modified: **5.1.4** – Mifare login key settings added
		▸ Modified: **5.1.5** – Upload method settings added with FastVPort for 8600 series
		▸ Modified: **5.1.6** – Download method settings added with FastVPort for 8600 series
4.02	Jun. 25, 2014	▸ Modified: **1.15.2** – Trim leading specified character function added
		▸ Modified: **6.2** – LATIN (Multilingual Latin I), SLAVIC (Latin II), POLISH (Central European, Latin II), Latin I (CP_1252) languages added
		▸ Modified: **6.2** – Latin(Slovak) & Windows 1250 fonts are not supported for 8600 series
4.01	Jun. 10, 2014	▸ Modified: **1.13** – Max Length complying with Lookup when the form refers to a lookup file
		▸ Modified: **1.15.1 Field Data** – further details for Comparison Operators
		▸ Modified: **1.15.2** – ENTER option added for Auto ENTER
		▸ Modified: **3.3.1** – checkbox for updating lookup once added
		▸ Modified: **5.1.4** – RFID reader option (data in Hex / length in bytes)
		▸ Modified: **6.2** – Turkish (Windows-1254) added
		▸ Modified: **7.2.1 Data_Read** – notes for 8600 not supported
		▸ Modified: **Appendix II** – add 'Code 39 Security Level', 'EAN8 GTIN-13 format (5 zeros padded)', GS1 Formatting in Symbology Settings Table
		▸ Modified: **Appendix III** – add GS1 Formatting (Symbology Settings Table (8300/8500) & (8700)); add 'Code 39 Security Level', 'EAN8 GTIN-13 format (5 zeros padded)' (Symbology Settings Table (8700))
		▸ Modified: **Appendix IV** – add 'Read Redundancy', 'Mobile Display Mode' in the Reader Settings Table
		▸ Modified: **Appendix IV** – > TLC-39 default changed to 'Disable'

		▸	> GS1 Formatting/Field Separator/Application ID mark added for GS1 DataBar and Composite CC-A/B/C in the Symbology Settings Table
4.00	Jan. 15, 2014	▸	New: 8600 support
		▸	Modified: **FTP File Setting** – refer to Appendix VI Creating a Script File
		▸	New: 1.4 Color Properties (8600 only)
		▸	New: 2.4 Color Properties (8600 only)
		▸	Modified: 6.2 Font Properties – table and pictures added
		▸	New: 6.3 Color Properties (8600 only)
		▸	Modified: **7.3 MobileLink** removed
		▸	Modified: **Appendix I** Scan Engine and RFID Tag Supported tables updated
		▸	Modified: **Appendix V** Command Line Syntax – AG_Load added
		▸	Modified: **Appendix IV** Creating a Script File added
3.23	Jun. 13, 2013	▸	Modified: **3.3.1** – Description for "Show message when data is matched" added
		▸	Modified: **7.3.7** – screenshot & related descriptions for "**Add Delimiter**" and "**Date Style**" UI items updated
3.22	Mar. 13, 2013	▸	Modified: **Appendix V Command Line Syntax** – Data_Read arguments appended
3.21	Feb. 05, 2013	▸	Modified: **Chapter 1** - Form1 screenshot updated
		▸	Modified: **1.2.4 Enable MSQL** - screenshots updated
		▸	Modified: **1.3 Font Size** – Font Size table updated
		▸	Modified: **1.8 Data Type** – screenshot updated
		▸	Modified: **1.8.6 Real** – screenshot updated
		▸	Modified: **Chapter 2** – Menu1 screenshot updated
		▸	Modified: **Chapter 6** – screenshot updated
		▸	Modified: **6.2 Font Properties** – descriptions revised
		▸	Modified: **7.2.1 Data_Read** – screenshot updated
		▸	New: "**Appendix III LR/ELR LASER SCAN ENGINE**" – Symbology Settings Table (8700) added
		▸	Modified: "**Appendix IV 2D Scan Engine**" – "Convert UPC-A to EAN-13" included in "1D Symbologies Table"
3.20	Oct. 18, 2012	▸	New: **1.8.20 Serial** – "Data Type" added with "Serial" option
		▸	New: **1.14.1 Field Data** – "Compare" checkbox added
		▸	New: **1.14 More** – "Decimal symbol" pull-down menu added
		▸	New: **7.2.1 Data Read** – pull-down menus for file selection added
		▸	Modified: **7.3 MobileLink** – launching MobileLink as a Windows service
		▸	Modified: **FTP File Settings** – Lookup file settings
3.11	25th May 2012	▸	New: **Introduction** | **Using FTP Server to Transfer Files** | **WLAN Security Settings** – WPA/WPA2: If entered passphrase falls shorter than 8 characters, a warning dialog pops up when OK button is hit to submit changes.
		▸	New: **1.2.4. Enable MSQI** – "TRACK" input screen can be removed by adjusting key field properties.

		▶ New: **7.3.7. Change Data File Settings** – File-naming rule with new "separator" feature and file extension customization
3.10	Apr. 24, 2012	**MobileLink** supports more communicative interfaces. Updates involved are:
		▶ Modified: Introduction	MobileLink Data Connection.
		▶ Modified: 7.3. **MobileLink**.
3.01	Feb. 07, 2012	▶ Modified: Section 2.5: The option "Save the collected data for each form to separate data files" renamed to "Separate Each Data File and Edit Form Name" on Menu property page.
		▶ Related update: Chapter 2 "Menu" property page screenshot
		▶ Modified: Section 5.2 "Function Key Setting": Data collecting forms aren't supported by keypad shortcuts.
3.00	Dec. 16, 2011	▶ New: 8700 support
		▶ New: Introduction	Getting Started	Localization: Bundled font files
		▶ New: Introduction	"Title Bar"
		▶ New: "Data Type" supports date/time info. Updates involved are:
		▶ 1.5 "Date & Time Stamp" updated
		▶ 1.8.18 "Date" newly inserted.
		▶ 1.8.19 "Time" newly inserted.
		▶ Modified: 5.1.5 "Upload Method"
		▶ 8000, 8200, 8300 & 8400: The interface "Bluetooth SPP" is deleted and replaced by "Bluetooth SPP_Master" and "Bluetooth SPP_Slave".
		▶ Modified: 5.1.6 "Download Method"
		▶ 8000, 8200, 8300 & 8400: The interface "Bluetooth SPP" is deleted and replaced by "Bluetooth SPP_Master" and "Bluetooth SPP_Slave".
		▶ Modified: 7.2.1 Data_Read.exe screenshot updated.
		▶ Modified: 7.2.1 [Options] updated.
		▶ Modified: 7.2.1 [Auto upload and delete Data and Lookup files] updated.
2.28	Jul. 19, 2011	▶ Modified: 7.2.1 Data_Read — update screenshot and settings
2.27	Jun. 03, 2011	▶ Modified: add "Convert to 8200" feature for AG8300
		▶ Modified: 5.1.5 Upload Method — add "USB VCOM_CDC" for AG8200
		▶ Modified: 5.1.6 Download Method — add "USB VCOM_CDC" for AG8200
2.26	May 17, 2011	▶ Modified: Appendix IV — change Code 11 and MSI to "Disable" by default
2.25	Mar. 21, 2011	▶ New: support 8200
		▶ Modified: Using FTP Server to Transfer Files — update screenshots
		▶ Modified: 7.3.7 Change Data File Settings — add log file settings
		▶ Modified: 7.3.8 Manage Devices & 7.3.9 Manage Your Rules — update screenshots
		▶ Modified: Appendix I~II — support UPC-E1 for CCD/Laser
		▶ Modified: Appendix I~II — support Coop 25 for CCD/Laser (8000/8200/8300/8400)
		▶ Modified: Appendix II — add Aiming Duration (8000/8200/8300/8400)
		▶ Modified: Appendix III — add Scan Mode options (8300 Only) and

		Time-out
		▸ Modified: Appendix II~IV — change Time-out range to 0~255 sec.
		▸ Modified: Appendix III~IV — change Aiming Duration range to 1~255 sec.
		▸ Modified: Appendix IV — change Codabar, Code 93 and MSI to "Enable" by default
2.24	Jan. 04, 2011	▸ Modified: 1.8.16 Large Data — for collecting data via 2D scan engine
		▸ Modified: 1.8.17 Read from 2D
		▸ Modified: 7.1.3 ProgLoad — add support for command line
		▸ New: Appendix V Command Line Syntax (for utilities)
2.23	Dec. 15, 2010	▸ New: Introduction — add System Requirements
		▸ Modified: Introduction — Getting Started, add "Using MobileLink to Transfer Files over Network"
		▸ Modified: 5.3 Security Setting
		▸ New: 7.3.8 Manage Devices
		▸ New: 7.3.9 Manage Rules
2.22	Nov. 01, 2010	▸ Modified: Introduction — Getting Started, add "Using FTP Server to Transfer Files"
		▸ Modified: Introduction — Menu Bar, add "FTP Communication Settings", "WLAN Communication Settings" and "FTP File Settings"
		▸ Modified: 1.8.15 Counter
		▸ Modified: 7.3 Mobile Link — update screenshots
		▸ Modified: 7.3.3 View Link Status — 8000/8300 supports Auto Upload
		▸ Modified: 7.3.7 Change Data File Settings — update Auto File Name
		▸ Modified: Appendix II — change Negative Barcode to "Enable" by default
2.21	Sep. 13, 2010	▸ Modified: Getting Started, Upload Data — describe icons indicating support of auto upload
		▸ Modified: 3.2.4 DBF File Location (8400 Only)
		▸ Modified: 3.8 Action When the Format of Record Is Wrong
		▸ New: 7 Utilities
		▸ Modified: 7.4 SD DBF Converter (8400 Only)
		▸ Modified: Appendix I~IV — add more GS1 DataBar symbologies

2.20	Apr. 02, 2010	▶ Modified: Introduction — Getting Started, Menu Bar, Toolbar and Menu Tree
		▶ Modified: Installing FORGE Application Generator — DATA_READ utility also synchronizes date/time on every host connection.
		▶ Modified: Getting Started — (1) add Upload Application Template (2) Download Lookup Files (file path changed to "\AG\DBF" for lookup files)
		▶ Modified: Menu Bar — (1) DBF Converter (file path changed to "\AG\DBF" for lookup files) (2) DATA_READ utility also synchronizes date/time on every host connection.
		▶ Modified: 1.14.1 Field Data — Decimal Places
		▶ Modified: 1.2.4 Enable MSQI
		▶ Modified: 3.3.3 Trim Space When Lookup Data Can Be Uploaded
		▶ Modified: 5.1.6 Download Method — AG8400 (file path changed to "\AG\DBF" for lookup files)
		▶ Modified: 5.2 Function Key Setting — update screenshot, etc.
		▶ Modified: 5.3.1 Upload .AGX — change 6-digit password to 5-digit
		▶ Modified: Appendix IV 2D Scan Engine — update
2.19	Nov. 19, 2009	▶ New: support 8400-2D
		▶ Modified: 5.1.5 Upload & Download Settings — Buzzer Volume changed to LARGE_VOL
		▶ Modified: Appendix IV — Chinese 25, Matrix 25, Picklist Mode, 1D Inverse, 2D Inverse, UPU FICS Postal and USPS 4CB/One Code/ Intelligent Mail
2.18	June. 25, 2009	▶ Modified: 3.2.4 "DBF File Location" and section 6.3.3 "DAT File Location" features are added.
		▶ Modified: 5.1.5 — add DBF Converter, download and upload information
2.17	May. 07, 2009	▶ Modified: "Convert to 8300" and other 8400 supported features are added.
2.16	Jan. 19, 2009	▶ Modified: 8400 supported features are added.
2.15	Nov. 26, 2008	▶ Applied new GUI screen shots and modified the relative contents.
2.14	July 30, 2008	▶ Modified: 6.3 — add "Use Large Font for Data Browsing" for AG8000 and AG8300
		▶ Modified: Appendix II~III support replacement of EAN-128 field separator for all scan engines
2.13	Jun. 26, 2008	▶ Modified: 1.6 Record — add "remove from lookup" and "save & remove" options
		▶ Modified: 3.11 Action When the Input Data Has No Match — add "remove from lookup" and "save & remove" options
		▶ Modified: 4.1.2 RFID Reader — Automatically enabled after initialization (checkbox removed from UI)
		▶ New: Long Range Laser option available for 8300
2.12	Nov. 06, 2007	▶ Modified: 4.1.2 RFID Reader — RFID tags in proximity will be read automatically by 8300/8500 when RFID reader is enabled
2.11	Oct. 18, 2007	▶ Modified: Features
2.10	Sep. 19, 2007	New Word template applied
2.07	June 20, 2006	▶ Company name changed to CIPHERLAB CO., LTD. since April 2006

		▸ Modified: 5.3 Barcode & Parameters
2.06	Apr. 14, 2006	▸ Modified: 1.2.2 — Font_12x12 not supported
		▸ Modified: 5.1 & 5.2.6
		▸ Modified: 6.2, 6.4 & 6.5
2.05	Apr. 10, 2006	AG for CPT-8500 is included

CONTENTS

INTRODUCTION

Easy-to-use and quick-to-apply, FORGE Batch Application Generator designed for CipherLab 8-Series Mobile Computers (8000/8200/8300/8400/8600) enables users to develop the custom templates that work with the AG runtime preloaded on the mobile computers. Users are in the position to define their own application templates on any desktop computer without writing any program code.

FORGE Batch Application Generator develops the templates for various applications such as the following:

▶ Receiving in Retail
▶ Price Check
▶ Product labeling & Tracking
▶ Shelf Product Replenishment
▶ Mobile Point of Sale (POS)
▶ Mobile Inventory Management
▶ Order Picking & Staging
▶ Work-In-Process Tracking
▶ Material Flow Control
▶ Transportation & Distribution
▶ Warehousing
▶ Asset Management

FORGE Batch Application Generator simulates the program's running sequences on the actual mobile computer and allows you to design a new application template on your personal computer in minutes. Offload the application template you have designed and your lookup file(s) to the mobile computer so the data collection can commence immediately.

This manual provides users with a comprehensive guide to FORGE Batch AG for 8-Series Mobile Computers by relating the approaches while interspersing the examples for various applications. We recommend that you read the document thoroughly before use and keep it at hand for quick reference.

Thank you for choosing CipherLab products!

SYSTEM REQUIREMENTS

To run the program, one of the Windows operating systems is required:

▶ Windows 2000
▶ Windows XP
▶ Windows Vista
▶ Windows 7

INTENDED PURPOSE

Data collection mainly consists of three elements: input (scanning or key-in), data processing, and output (or updating database). FORGE Batch Application Generator for 8000/8200/8300/8400/8600 Series Mobile Computers is specifically designed to deal with the sequences of data processing inside the mobile computers.

The Batch AG program and runtime package can be working with a wireless mobile computer even if you don't want to use its wireless connectivity. In particular, when you use a Bluetooth mobile computer, say 8062 or 8330, you will be able to use Bluetooth SPP for download and upload by selecting "RS-232/IrDA/USB VCOM".

FEATURES

▶ Definition of program flow
▶ Editing of screens and data
▶ Managing barcode reader and RFID reader
▶ Font size options and program localization
▶ Simple program simulation for debugging
▶ Password-protected user settings to prevent unauthorized user intervention
▶ Hot key selection for tasks or user settings' menus
▶ Definition of system initial settings for a quick start
▶ Easy cloning by downloading the template file
▶ Integrated interface for downloading lookup files and uploading data
▶ FTP client configuration for wireless mobile computers, as well as for 8200/8400 used with Ethernet Cradle

INSTALLING FORGE BATCH AG

Double click the provided installer. Install FORGE Batch AG to the prompted *"C:\CipherLab\Forge\Batch\"* directory if you don't change the path to somewhere else.

▶ Shortcuts to the AG program is created and placed in **Start** | **All Programs** | **CipherLab** | **Forge** | **Batch** | **Application Generator**.

▶ Shortcuts to the Remote Console utility is created and placed in **Start** | **All Programs** | **CipherLab** | **Forge** | **Batch** | **Remote Console**. Refer to the Remote Console user guide.

▶ Shortcuts to the utilities are created and placed in **Start** | **All Programs** | **CipherLab** | **Forge** | **Batch** | **Utilities**. Refer to Utilities.

Shortcut Name of Utility	Program Name	Usage
Remote Console	RemoteConsole.exe	To receive data from the mobile computer via Remote Console utility.
AG_Load	AG_Load.exe	To download the current application template to the mobile computer.
EAGX_Read	EAGX_Read.exe	To upload the current application template from the mobile computer.
Data_Read	Data_Read.exe	To receive data via Data_Read utility. It also synchronizes date/time on every host connection.
DLookup	DLookup.exe	To download associated lookup file(s) to the mobile computer
Prog_Load	ProgLoad.exe	To download the AG runtime or font file (.SHX) to the mobile computer.
Simulator	Simulator.exe	To launch the simulator.
DBF_Converter	DBF_Converter.exe	To convert text file into DBF file.

GETTING STARTED

The 8 series mobile computers have to be preloaded with files as follows to commence data collection:

▶ an AG runtime (U8*.SHX)

▶ an application template (*.AGX)

▶ some other files such as lookup files

The 8 Series Batch Application Generator enables the data exchange between a mobile computer and a host computer such as your PC. The aforesaid files the mobile computer required are deliverable through such Batch AG. Please follow the instructions below to proceed.

1)   Run the 8 Series Batch AG program on your PC.

The work area appears as the picture shown below:
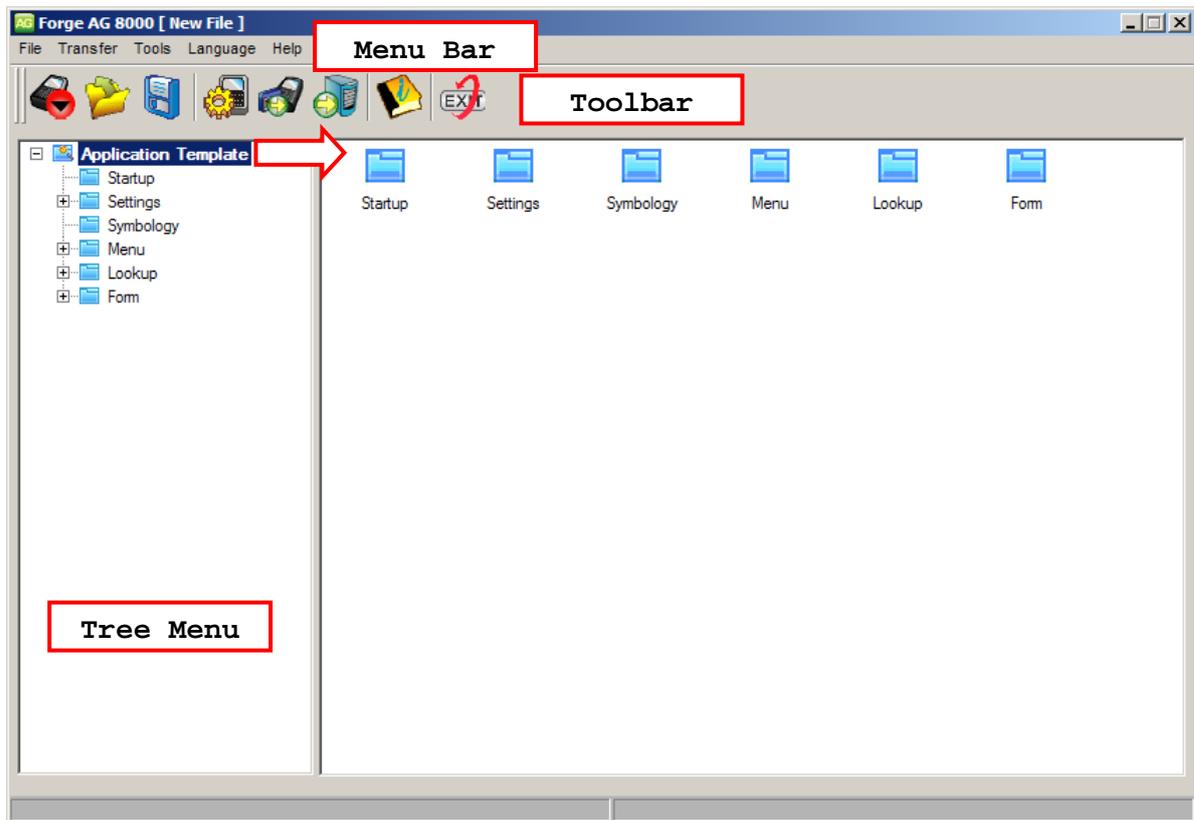
DOWNLOAD AG RUNTIME

2)   On the mobile computer, press [7] + [9] + [Power] simultaneously to enter **System Menu**. Select **Load Program** and then select the transmission interface to receive the AG runtime program from your computer.

3)   On your PC, click **Transfer** | **Send Program** on the Batch AG menu bar to bring up the [Program download] dialog box. Configure the communication settings that are consistent with the settings on the mobile computer. Select the AG runtime program (U8*.SHX) corresponding to the specific model to send.

Note: If you have installed the Batch AG to the default directory prompted by the installation wizard, the AG runtime programs for 8 series models can be accessed in the "C:\CipherLab\Forge\Batch\8 Series\RunTime\" directory. If not, browse to where you have installed the Batch AG.

4) Click the OK button and then your PC starts sending the selected U8*.SHX file.

Note: To send a font file to the mobile computer, see Localization.

DOWNLOAD APPLICATION TEMPLATES

After the downloaded runtime (U8*.SHX) is set up in the mobile computer, a user's application template (*.AGX) is further needed to enable the mobile computer to collect data. Such template carrying application menus and data collecting forms makes it possible for users to collect data and edit/manage data.

In order to have an "application template" for the mobile computer, you need to customize/design one by the Batch AG on your PC.

DESIGN APPLICATION TEMPLATES

5) From the menu bar of the Batch AG, click **File** | **New** or **File** | **Open** to open a new or an existing application template. An application template is composed of six groups of properties.

6) In the left pane of the Batch AG, click on the plus sign of the "**Application Template**" to see the drop-downs. From the drop-downs, click [Startup] to start your customization of a new or a lately edited application template.

Warning: The reader type information is essential for sending the template file to the mobile computer. Select **Settings** -> **Initial** -> **Reader Option**, and then click the Reader Type drop-down menu to specify the barcode reader type that is consistent with the reader actually integrated with the mobile computer; otherwise you will be alerted with the "wrong reader type" message.
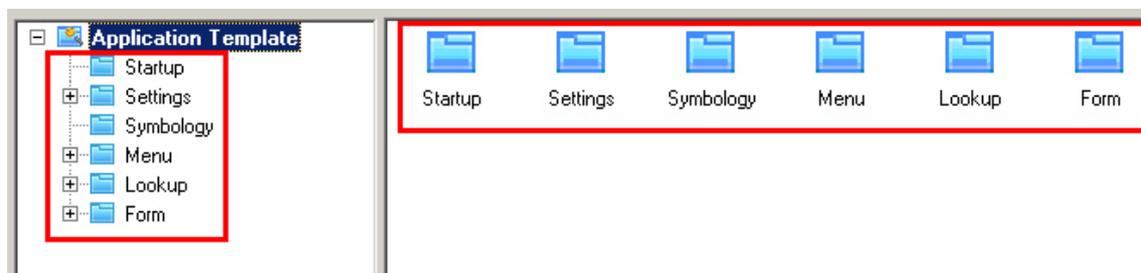
Property Groups	Descriptions
Startup	Configures the program sequences and customizes the user interface that are to be presented on the mobile computer.
Settings	Configures system settings so that they work when the mobile computer is initializing.
Symbology	Configures reader settings, symbologies and barcode parameters.
Menu	Customizes the hierarchical menus to be accessed under the main menu of the user's application, e.g. **1. Collect Data**	**Menu 1**	**(Menu 2)**	**Form 1**.
Lookup	Configures the data structures for the lookup files to be referred to by user's applications. Up to 3 lookup files are supported.
Form	A data collecting form covers multiple input fields that accept the data input by the user. It may be arranged following up a menu. For example: **1. Collect Data**	**(Menu 1)**	**Form 1**.

7) When completing template customization, click **File** | **Save** or **File** | **Save As** to save the currently edited template to an .AGX file. You may run program simulation by selecting **Tools** | **Simulator** from the menu bar to verify if the program sequences meet your requirements. Refer to <u>7.4 Program Simulation</u>.

PROCEED TO DOWNLOAD

With the application template file created, follow steps below to send it to the mobile computer:

8) Establish a proper connection between the mobile computer and the host computer such as your PC.

9) Power on the mobile computer to have the AG runtime main menu show up.

10) On the mobile computer, select the appropriate download interface by **3. Utilities** | **1. Program Settings** | **2. Download Program Interface**. Press the Enter key to confirm.

11) Go back to the previous menu, and then select **3. Utilities** | **6. Load Application**. The mobile computer will enter connecting mode.

12) On your PC, run Batch AG. Select **Transfer** | **Send Application** from the menu bar. A [Download AG] dialogue box displays. Configure the transmission interface that is consistent with the download interface set on the mobile computer. Click the OK button and then the Batch AG will proceed to send the template file (*.AGX) to the mobile computer.

13) When the mobile computer finishes the download, the main menu of the new user application will display on the screen of the mobile computer.

Note: (1) As the template file includes the settings of the mobile computer's upload/download interface, those on the mobile computer will be overwritten after the template file is sent to the mobile computer.
(2) SD Card option is provided from which the 8200/8400/8600 mobile computers can download template files (.AGX). The default import directory automatically created on SD card is "\AG\IMPORT".
(3) When your Batch AG is a version of 1.00.0005 or later, you are able to retrieve the template file from the mobile computer. Refer to Upload Application Template and 5.3.2 Upload .AGX.

DOWNLOAD LOOKUP FILES

If you have assigned a lookup file to which the application template will refer, the mobile computer needs to have that lookup file (Refer to 1.5 Lookup (File) and Chapter 3. Lookup). Follow steps below for the mobile computer to download lookup files from your PC:

14) On the mobile computer, select **3. Utilities** | **8. Load Lookup File**. The mobile computer enters download lookup mode.

Note: If an application template doesn't refer to any lookup file, the command **8. Load Lookup File** is absent from the **3. Utilities** submenu.

15) Run Batch AG on your PC, click **Transfer** | **Send Lookup** (or run the "DLookup.exe" utility). You can send up to three lookup files to the mobile computer.

16) Upon the completion of download, the main menu displays.

Note: (1) Users need to resend their lookup files every time they renew the application templates even if the lookup files are the same.
(2) Lookup files can be stored on the SD Card of 8200/8400/8600 mobile computers. The default directory is "\AG\DBF", which is automatically created on the SD card. Refer to 7.3 SD DBF Converter (8200/8400/8600 Only).
(3) Use the DBF Converter tool to convert lookup files to DBF format (.DB0) before sending them to the mobile computer. Run DBF converter by selecting **Tools** | **DBF Converter** from the menu bar of the Batch AG. In the DBF converter tool window, you can select to copy the converted lookup files either to the SRAM of the mobile computer or the directory "\AG\DBF" on the SD card inserted in the mobile computer.

COLLECT & EDIT DATA

17) To collect data with the mobile computer, select **1. Collect Data** from user's application main menu on the mobile computer.

18) To edit the collected data, select the following submenus from user's application main menu on the mobile computer –

3. Utilities | **2. Browse Data**

3. Utilities | **3. Delete Data** (Refer to 5.1.1 Data Manipulation.)

UPLOAD DATA

To upload the data collected by the mobile computer to your PC:

19) On the mobile computer, select **2. Upload Data**. The following options will be presented when lookup files are used.

   ‣ Data file(s)

   ‣ Lookup file(s), if any in use

   ‣ All (one by one)

   ‣ All (append), that is, all-in-one

20) On your PC, from the menu bar of the Batch AG, select **Transfer | Direct-Link Data Transfer** or **Transfer | Remote Console Data Transfer**.

   See 7.2.1 Data_Read for **Direct-Link Data Transfer**.

   Refer to the Remote Console user guide for **Remote Console Data Transfer**.

Note: (1) Batch AG supports automatically uploading data to a host computer when the upload interface is properly configured. Once the mobile computer is seated in the cradle or connected via the RS-232 or USB Virtual COM cable, a running dot or a hourglass icon displays on the upper-right corner of the screen indicating the mobile computer is ready for auto upload. Refer to 7.2.1 Data_Read.
(2) SD Card option is provided for 8200/8400/8600 to store DAT files and DBF files in the SD card. The files will be saved to the default directory "\AG\EXPORT" on the SD card that is created automatically.

UPLOAD APPLICATION TEMPLATES

To output the mobile computer's application template to a host computer such as your PC:

1) Establish a connection between your mobile computer and your PC.

2) For the transmission interface, make consistent settings on both your PC and the mobile computer. On the mobile computer, go by **3. Utilities | 1. Program Settings | 1. Upload Interface** to configure the interface.

3) On your PC, run Batch AG. Select **Transfer | Receive Application** from the menu bar. The [EAGX_Read] dialog box displays. Make related settings in this dialog box and fetch the application template from the mobile computer.

Note: In the [EAGX_Read] dialogue box, type in the password that is previously set up when the template file is created by Batch AG (version 1.00.0005 or later) on a host computer. Refer to 5.3.2 Upload .AGX

4) Once the OK button is clicked, your PC will start to receive the template file (*.AGX) from the mobile computer.

5) If your Batch AG is a version of 1.00.0005 or later, you are able to retrieve the template file from the mobile computer. Refer to 5.3.2 Upload .AGX.

LOCALIZATION

If you feel the need to localize the entire application of the mobile computer, you must: 1) translate the text on the UI of Batch AG, 2) translate the menu prompts/messages of the application template, 3) Send a font file (*.SHX) to the mobile computer.

1) to localize the user's interface of the Batch AG

   1. Go to the directory where the Batch AG is installed on your PC. Find the language folder.

   2. If you haven't selected an alternative directory when installing the Batch AG, the language folder can be found inside C:\CipherLab\Forge\Batch\8 Series.

   3. In [Language] folder, save the original language file (.lng) as a new file. Open the newly saved language file with a text editor, and translate the text (the text of Batch AG's user interface) from English into another language.

   4. Run Batch AG on your PC. From the menu bar of the Batch AG, select **Language** to drop down the commands that present the available languages. You will see the newly saved language included in the submenu.

   5. Select the new language. The user's interface of the Batch AG shifts to the new language.

2) to re-define/translate the menu (prompts and messages) of the template file

   1. The template can only be re-defined / translated in the Bath AG.

   2. Run the Batch AG on your PC. In the left pane, unfold [Application Template]. Find Startup property page among the drop-downs.

   3. On Startup property page, re-define or translate the menu prompts/messages of the template file.

   4. Send the re-defined / translated template file (*.AGX) to the mobile computer. See Download Application Templates > Proceed to Download to send the template file to your mobile computer.

   5. Restart the mobile computer to apply the new application template.

Note: For 8000/8300, to apply double-byte characters such as Japanese, Chinese, etc., the menu prompts/messages of template file need to be re-defined / translated in the **Form** and **Menu** property pages by Batch AG, so that characters can display properly on the screen of the mobile computers. And note, for an input field, the elements other than menu prompts and messages can only display in alphanumeric characters.

3) Send a font file (*.SHX) to the mobile computer.

   A set of font files are bundled with the Batch AG to support a few languages on 8000, 8200, 8300, 8400, and 8600 models. If you haven't selected an alternative directory when installing the Batch AG, these font files are accessible in the "C:\CipherLab\Forge\Batch\8 Series\Font Files" directory.

   To send a copy of the desired font file to the mobile computer:

1. On the mobile computer, press [7], [9] and [Power] simultaneously to boot the mobile computer into **System Menu**. Select **6. Load Program**. And select a download interface.

2. Run Batch AG on your PC. From the menu bar, select **Transfer** | **Send Program** to send a desired font file (.SHX) to the mobile computer.

Note: Be sure to make consistent settings for the transmission interface on both your PC and the mobile computer.

USING FTP SERVER TO TRANSFER FILES

Creating template files by the Batch AG version 1.00.0008 or newer, a remote FTP server is readily available to which the mobile computer is allowed to log in and transfer files whether wirelessly through Wi-Fi or wired by Ethernet Cradle.

FTP stands for File Transfer Protocol and is built on a client-server architecture. The mobile computer accesses an FTP server to carry out the following:

▶ Update the script file
▶ Upload or download lookup files (featuring version control)
▶ Upload data files

Note: If you don't make FTP communication settings in the template file, you can still do it later on the mobile computer's user application main menu. Select **3. Utilities** | **1. Program Settings** | **10. FTP Settings**.

FTP COMMUNICATION SETTINGS

Run Batch AG on your PC. Select **Transfer** | **FTP Communication Setting** from the menu bar to have the [FTP Communication Setting] dialogue box:

In this dialog box, make the settings one by one as detailed below:

Server IP or Name

Specify the IP address or the name of the FTP server.

Port

Specify the port number of the remote FTP server.

▶ By default, TCP port 21 is used on the server for the control connection.

User Name

Specify the user name for logging onto the remote FTP server. (64 characters maximum)

Password

Specify the password for logging onto the FTP server. (64 characters maximum)

FTP Communication Interface

Among 8-Series mobile computers, their communication with FTP servers are supported through the following interfaces:

Options	8071	8200	8230	8330	8370	8400	8470	8630
WLAN	✓	✗	✓	✓	✓	✗	✓	✓
Ethernet Cradle	✗	✓	✓	✗	✗	✓	✓	✗

FTP FILE SETTINGS

After completing the configuration of an FTP server, you need to configure which files should be copied to and from the mobile computer.

From the menu bar of the Batch AG, select **Transfer** | **FTP File Setting** to bring up the [FTP File Setting] dialogue box. This dialogue box features the following settings:

Download Script File

Tick this checkbox to enable the mobile computer to download, from the FTP server, any update to the script file "`FTP.dat`".

Create a Script File (FTP.dat)

Tick this checkbox to create a script file "`FTP.dat`" on your PC and save the other FTP-related settings into this file.

▶ The file name "`FTP.dat`" is reserved for the script file. The file name must be uppercase while the file extension is lowercase.

Please refer to Appendix VI Creating a Script File on how to create a script file for further details.

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Data File Settings

In this group box, select which data files will be uploaded to the FTP server. Instead of using the default file name "DATAF1~DATAF10", you may change it if necessary.

▶ The length of the file name plus the full directory path on the FTP server is maximum 255 characters.

▶ When no directory path is specified, the data file will be uploaded to the root directory of the FTP server.

Lookup File Settings

Select if to download or upload any lookup files.

▶ When a "Download" checkbox is ticked for a particular lookup file, the "Upload" checkbox is then ticked automatically. You can remove the tick if necessary. Note that there is only one set of Download and Version Control boxes for SRAM lookup file settings.

▶ When the "Download" checkbox is selected for a particular lookup file, you may apply version control by ticking the "Version Control" checkbox if necessary. The system will show a message dialog box to prompt you whether to check the lookup file only when the lookup file is downloaded to the terminal for the first time.

▶ The uploads will be saved in the root directory of the FTP server with file names of "DBF1.txt~DBF3.txt" respectively.

▶ The downloads will be saved to the SRAM or SD Card in DBF format, depending on the Lookup settings.

WLAN COMMUNICATION SETTINGS

Some of CipherLab's 8-Series models support Wi-Fi networking. The configuration of Wi-Fi connection is necessary for the mobile computer to log in to a WLAN network.

Run Batch AG on your PC. Select **Transfer** | **WLAN Communication Setting** from the menu bar. A [WLAN Communication Setting] dialogue box displays:
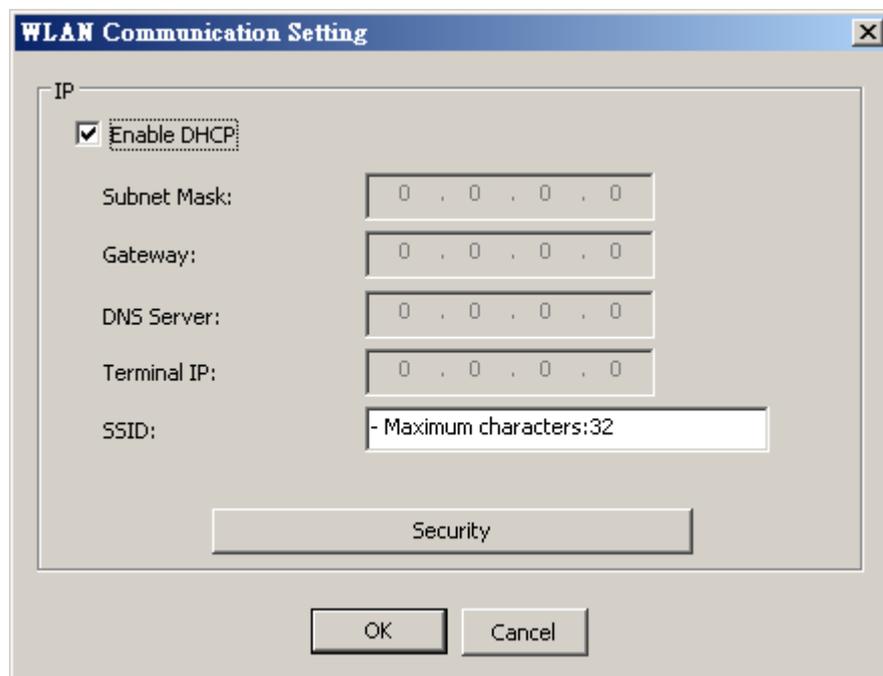
In this dialogue box, make the following settings:

Enable DHCP

DHCP server is enabled by default and all settings can be obtained from it. If DHCP server is disabled, you must provide the following information —

▶ Subnet Mask
▶ Gateway
▶ DNS Server
▶ Terminal IP

SSID

"SSID" refers to "Service Set Identifier", which is the name of a wireless local network (WLAN) to uniquely identify a group of wireless network devices used in a given "Service Set". For example, you need to specify the SSID being used by the access points so that the mobile computer can associate to the access points.

▶ SSID can be made up of 32 characters maximum.

Security

Authentication and encryption help provide data protection on the 802.11b/g network (802.11b/g/n for 8600). Refer to WLAN Security Settings.

WLAN SECURITY SETTINGS

In order to prevent information theft, IEEE 802.11 standard has defined two authentication processes to provide Wi-Fi security. They are "Open System Authentication" (OSA) and "Shared Key Authentication (SKA)". Make valid security settings here to enable the mobile computer to access a WLAN network.

Click the **Security** button in the [WLAN Communication Setting] dialogue box. The [WLAN Security Setting] dialogue box displays. Make the following settings:
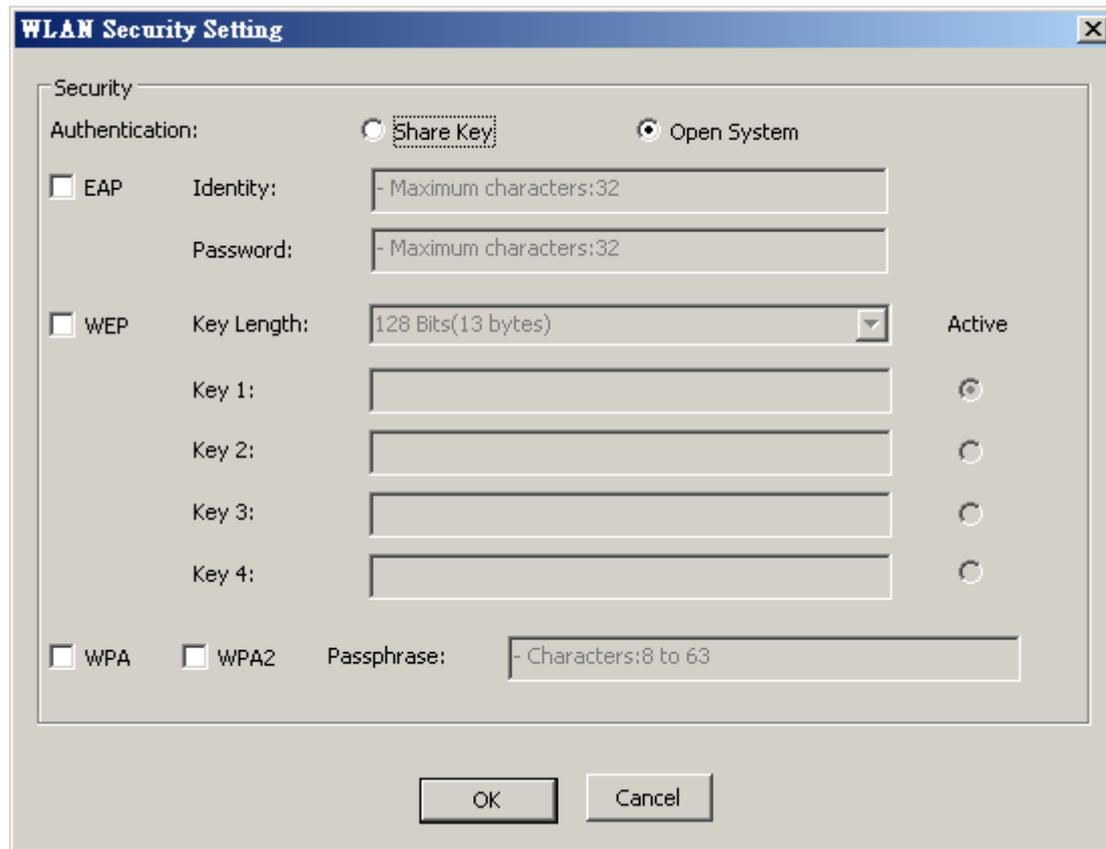
Authentication

Selects between **Open System** and **Shared Key**.

Setting	Remark
Open System	By "Open System Authentication", any wireless device can access any WEP network and receive files that are not encrypted. When a client computer attempts to connect to a WLAN AP, it sends out an authentication request to that AP. The AP authenticates the request and the client gets to connect to the network. ▶ "Open System Authentication" allows any device network access. If no encryption is enabled on the network, any device that has the SSID of the access point can gain access to the network.
Shared Key	By "Shared Key Authentication", when a client computer attempts to connect to a WLAN AP, it sends out an authentication request to that AP. Then a

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	challenge-response handshake by encrypting/decrypting a challenge text using the pre-configured WEP keys takes place between the client computer and the AP. If the AP finally justifies the challenge text it decrypts, it will send back a positive response to the client computer. Then the client gets to connect to the network.
	▶ "Shared Key Authentication" requires a static WEP key configured in the mobile computer. The mobile computer's access request can only be granted when it passed the challenge based authentication of the access point.

Note: For "Shared Key Authentication", the active WEP key is used for authentication.

EAP

Select it to activate the authentication of Extensible Authentication Protocol (EAP). It requires user name and password so that the mobile computer can be identified when connecting Cisco® access points.

Setting	Remark
Identity	Specify a user name. (32 characters maximum)
Password	Specify a password. (32 characters maximum)

WEP Key

Select it to apply Wired Equivalent Privacy or Wireless Encryption Protocol (WEP) for the mobile computer's data encryption.

Setting	Remark
Key Length	Encryption type can be 64 bits (5 bytes) or 128 bits (13 bytes). ▶ Using 64-bit encryption, the password phrase can be 5 characters long. ▶ For 128-bit encryption, the password phrase can be 13 characters long.
Key 1 ~ 4	Up to four WEP keys can be configured. Up to 5/13 characters (ASCII codes) for the WEP key can be specified in a particular key field depending on the key length you selected.
Active	Only one key (the active one) can be used at a time.

Note: Make sure the settings are consistent with those of the devices of the wireless network to which the mobile computer is connecting, e.g. the access points..

WPA-PSK/WPA2-PSK Passphrase

WPA-PSK supports to enhance security over wireless networks. It is a Pre-Shared key for authentication that requires a passphrase to access the network. The passphrase must be 8 to 63 characters (ASCII codes) to auto-generate a WEP key. If the entered passphrase falls shorter than 8 characters, a warning dialog pops up when OK button is clicked to submit changes.

▶ For 8200/8400/8600, WPA2-PSK is also supported.

REMOTE CONSOLE DATA TRANSFER

Remote Console harnesses a Windows-based PC (host) to one or more mobile computers (clients) so the host is able to retrieve data files from the client(s) and exchange lookup files with them. Please see the Remote Console user guide for more details.

Remote Console is capable of data connection through various interfaces, especially Local Area Network (TCP/IP).

REMOTE CONSOLE SETTINGS

To be able to launch **Remote Console**, make the following settings in Batch AG:

1) From Batch AG menu bar, select **Transfer | Remote Console Setting**.

   A **Remote Console Settings** dialog opens.
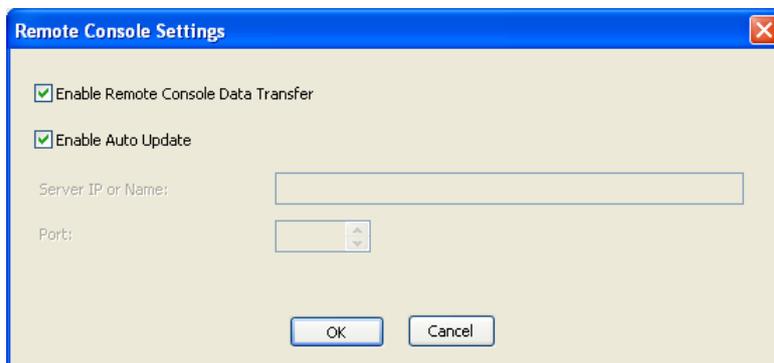
2) Make suitable settings by referencing the following:

Setting	Description
Enable Remote Console Data Transfer	Tick to make **Remote Console** available.
Enable Auto Update	Tick to make client mobile computer(s) auto-start outputting data to host computer once connection is up.
	‣ This item is selected by default.
	‣ To offload a lookup file to the client(s), assign the lookup file by selecting **System** | **Rule Maintenance** in the menu bar of the **RemoteConsole** utility. Refer to the Remote Console user guide.
Server IP or Name	Specify the destination Server IP or Name (8630 only)
Port	Specify the port number (8630 only)

TITLE BAR

Batch AG displays its version information on Title Bar. And the version information of the Batch AG that created the application template file displays while opening the template file.

SOFTWARE VERSION INFO

When Batch AG is launched without opening any application template file, Title Bar shows information with Batch AG's name and the software version.

Delivers the software's version info.

Without any application template opened, the software version delivered on the Title Bar agrees with the info given by clicking **Help** from menu bar. See also Menu Bar.

The software's version info delivered by the Help Menu.

APPLICATION TEMPLATE'S VERSION INFO

After the Batch AG opens an application template file (*.AGX), the Title Bar shows the version information about the Batch AG that created the application template file.

Delivers the version of the Batch AG that created the currently opened application template file.

Note when the opened application template file is too dated to carry the creator's version information, the Title Bar shows the software's version info.

Note: Starting from version number v2.00.0000, Batch AG creates application template files (*.AGX) in encrypted format. Those encrypted application templates (*.AGX) can only be opened by Batch AG v2.00.0000 or later versions.

If you are opening an application template created by Batch AG of 1.xx.xxxx versions, a warning dialog will show up asking you whether to upgrade the template to an encrypted one (the original template will then be saved as a *.BAK file) as the picture shown below.
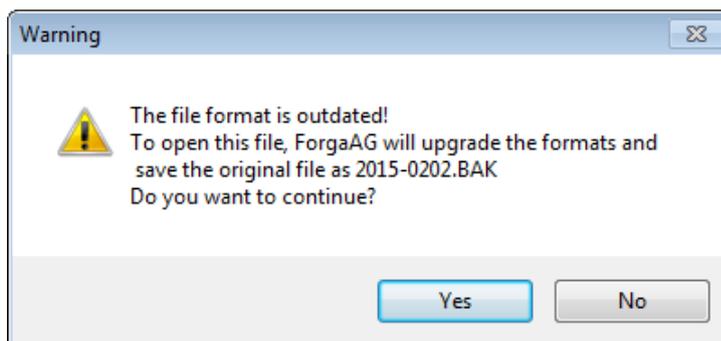
If you don't upgrade the file, click the No button. A dialog will show up telling you the file has to be opened by Batch AG of 1.xx.xxxx versions.
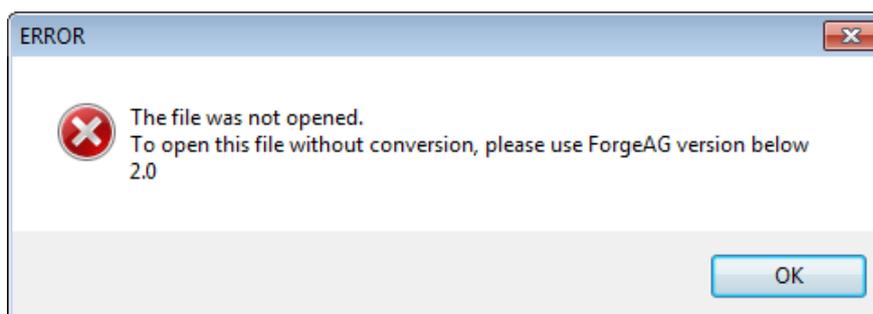
MENU BAR

The Menu Bar contains a number of menus that specify which task you want the system to perform. Each menu contains a list of commands and sometimes sub-menus. For the provided tools, refer to Utilities.

AG Forge AG 8000 [New File]
File Transfer Tools Language Help

Menu	Command	Action...
File	*New*	Creates a new application template by selecting model name.
	Open	Opens an existing template file. Browse where the file locates on the local disk.
	Save	Saves the currently edited template file.
	Save As	Saves the currently edited template file to a new one.
	Preference	Configures how the Batch AG will act whenever it is used. Refer to Preference.
	Convert to 8xxx	Converts the currently edited template file to another 8-series model. Refer to AGX Template Conversion.
	Recent File List	Opens the recently opened template files. Refer to Recent File List.
	Exit	Quits the Batch AG.
Transfer	*Send Program*	Sends an AG runtime or font file (.SHX) to the mobile computer.
	Send Application	Sends the currently opened template file to the mobile computer.
	Receive Application	Fetches the application template flies from the mobile computer. A password needs to be provided. Refer to Upload Application Templates and 5.3.2 Upload .AGX.
	Send Lookup	Sends associated lookup file(s) to the mobile computer.
	Direct-Link Data Transfer	Fetches data via Data_Read utility. It also synchronizes date/time on every host connection.

	Remote Console Data Transfer	Fetches data from the mobile computer via the Remote Console utility.
	FTP Communication Settings	Assigns the IP and port number of a remote FTP server as well as the username and password for the mobile computer to log in. Refer to FTP Communication Settings.
	WLAN Communications Settings	Specifies the wireless networking settings for 8071, 8230, 8330/8370, 8470, or 8630. Refer to WLAN Communication Settings.
	Remote Console Settings	Specifies if to enable Remote Console Data Transfer and if to enable Auto Update.
	FTP File Settings	Specifies the files to be copied to and from the mobile computer. Refer to FTP File Settings.
Tools	Simulator	Launches the simulator of the mobile computer.
	DBF Converter	Converts text file to DBF format that is used on the SD card on 8200/8400/8600.
Language		Selects a preferred language for the Batch AG's user's interface. Refer to Language.
Help	About Forge Batch AG	Shows the information about the Batch AG.

FILE MENU

Batch AG's **File** menu contains the commands relating to the handling of files, such as open, save, save as, etc. It also includes a list of recently opened files and the **Exit** command to quit the Batch AG.

The **File** menu and its commands are detailed in the following content of this section.

PREFERENCE

Select **File** | **Preference** from the menu bar to pop up the [Preference] dialog box, which configures how the Batch AG acts each time it is launched. The featured selections are detailed as follows. Make the settings that meet your needs.
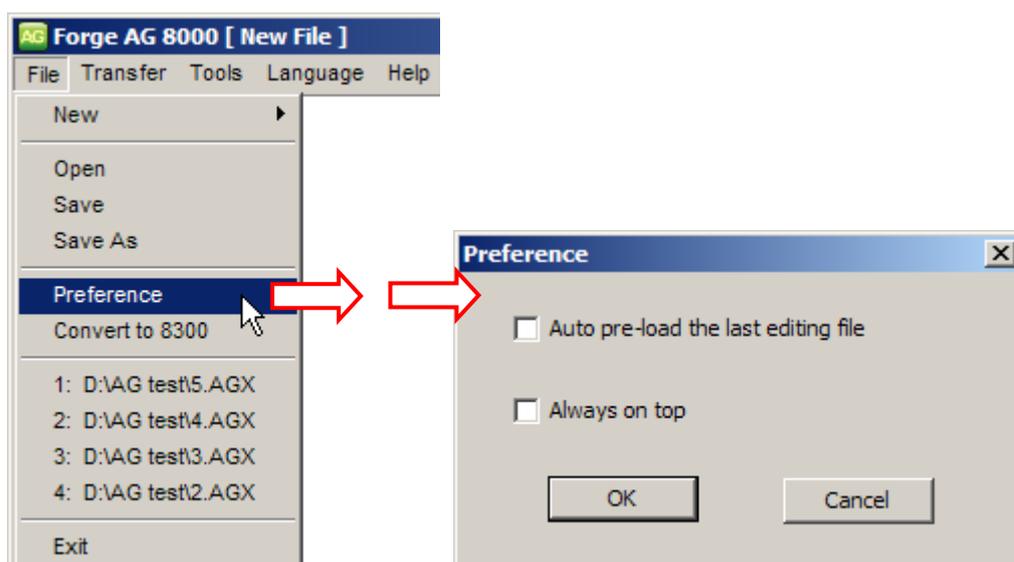
Auto pre-load the last editing file

Select this item to load the last edited template file as soon as the Batch AG is run.

Always on top

Select this item to have the Batch AG (*ForgeAG.exe*) and the utilities remain on the top of any other windows opened.

AGX TEMPLATE CONVERSION

This command converts the currently edited template file to a template for another 8-series model. Select **File** | **Convert to 8xxx** from the menu bar of the Batch AG to achieve the conversion.
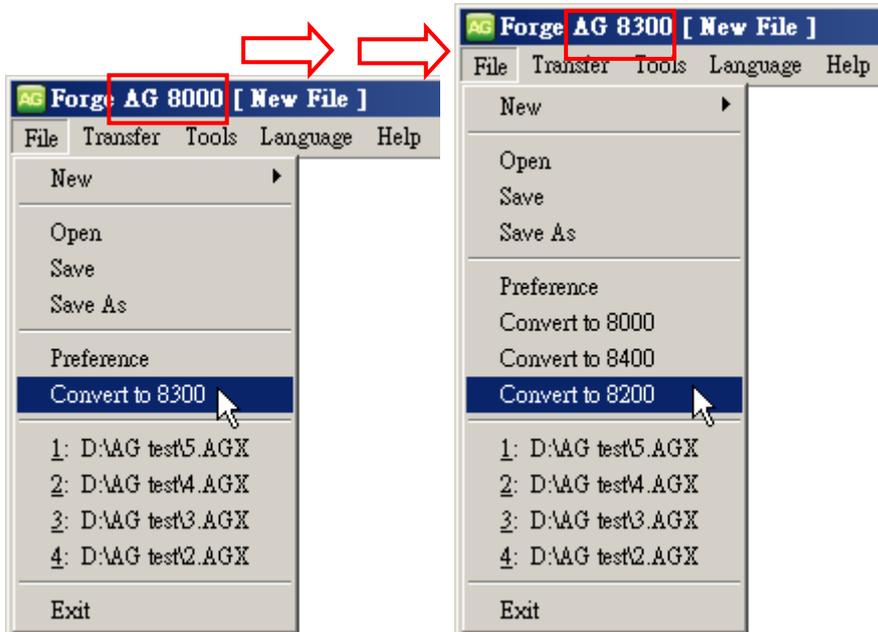
The template conversion involves the change of these 2 elements of a template:

▶ The changes of upload/download interface.
▶ The changes of the prompts & messages.

The following table gives an account of the upload/download interface conversion between 8-series models. The table only lists models when the target device doesn't have the same upload/download interface as the original one.

Conversion between Devices		Upload Interface		Download Interface	
Original	Target	Original	Target	Original	Target
8200	*8600*	Modem	RS232	Modem	RS232
		Ethernet Cradle			
8300	*8000*	Direct-RS232	Cradle IR	Direct-RS232	Cradle IR
		Keyboard Wedge			
	8400	Direct-RS232	RS232	Direct-RS232	RS232
		Cradle IR		Cradle IR	
		IrDA		IrDA	
		Keyboard Wedge	USB HID		
	8200	Direct-RS232	RS232	Direct-RS232	RS232
		Cradle IR		Cradle IR	
		IrDA		IrDA	
		Keyboard Wedge	USB HID		
	8600	Direct-RS232	RS232	Direct-RS232	RS232
		Cradle IR		Cradle IR	
		IrDA		IrDA	
		Keyboard Wedge	USB HID		
8330/8370	*8071*	Direct-RS232	Cradle IR	Direct-RS232	Cradle IR
		Keyboard Wedge			
	8470	Direct-RS232	RS232	Direct-RS232	RS232
		Cradle IR		Cradle IR	
		IrDA		IrDA	
		Keyboard Wedge	USB HID		
	8630	Direct-RS232	RS232	Direct-RS232	RS232
		Cradle IR		Cradle IR	
		IrDA		IrDA	
		Keyboard Wedge	USB HID		
8400	*8600*	Modem	RS232	Modem	RS232
		Ethernet Cradle			

The prompts/messages conversion between 8-series models are summarized as follows:

Prompts/Messages Conversion

▶ The prompts of upload/download ports are reset to the defaults of the target device. Check it up on the **Startup** property page.
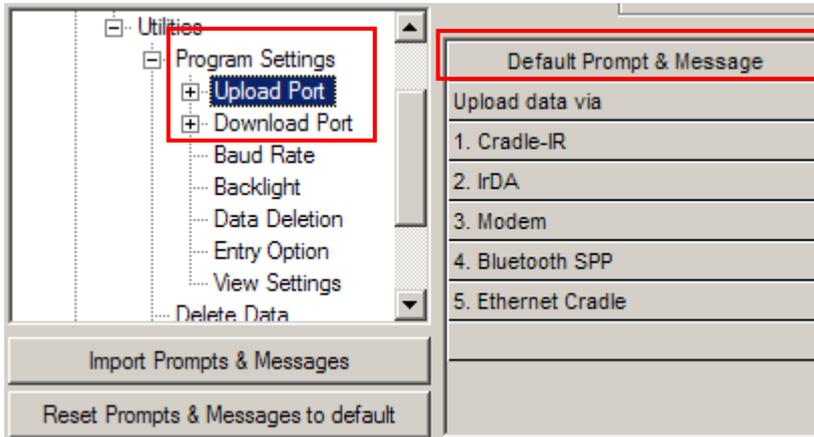
▶ If you convert an 8300 template file to an 8000 template file, the prompts which are considered too long will be truncated automatically.

Note: For the prompts on **Form** property page and Menu Caption/Item Name on **Menu** property page, long strings will be truncated when the template file is converted from 8300 to 8000.

RECENT FILE LIST

The **File** menu shows the recently opened templates when it is dropped down. Up to 4 recently opened template files are displayed for your quick access. The most recently opened one is placed on the top.

Click **File** from the menu bar to see them.
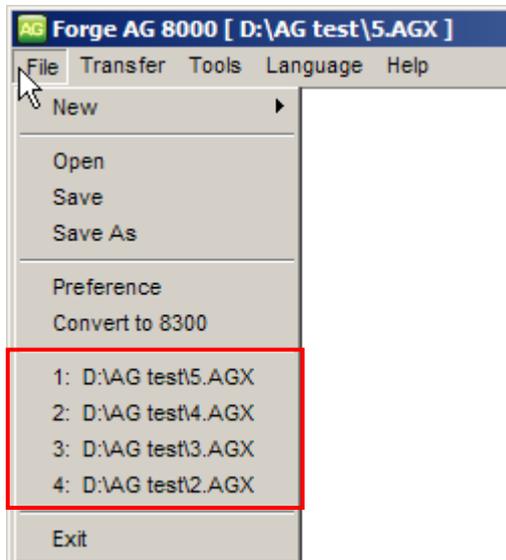
LANGUAGE

When there is any language file (*.lng) saved into the directory where the Batch AG is installed, it will be added to the commands in the **Language** menu and becomes available. In the menu bar of the Batch AG, select **Language** and then select the language you prefer for the Batch AG's user interface. Refer to Localization.

TOOLBAR

The toolbar offers most of the functions provided in the menu bar. An icon is a button clicked to trigger Batch AG to take an action.

Icons	Command	Description
	New	Creates a new application template.
	Open	Opens an existing application template. File path needs to be specified.
	Save	Saves the current editing template.
	Send Application	Sends the currently edited template file to the mobile computer.
	Send Lookup	Sends associated lookup file(s) to the mobile computer.
	Get File via Direct-Link	Fetches data from the mobile computer.
	About	Shows the information about the Batch AG program.
	Exit	Quits the Batch AG.

TREE MENU

In the work area of the Batch AG, a tree menu is featured in the left pane for user's navigation through various theme-grouped property pages that enable user's configuration for an application template.

▶ Click on the "+" sign to expand the tree menu or the "-" sign to collapse it.

▶ Click on an expanded item from the tree menu. The configuration it features will display on the right pane.

Chapter 1

FORM

A form means a data collecting form that covers a series of input fields for users to enter the data. One or more data collecting forms can be arranged in a menu, and multiple menus are definable for an application template. Forms and menus can be set to connect to each other for user's data collecting needs.

Each input field in a data collecting form will occupy one line on the screen of the mobile computer when the data collecting form is run on the mobile computer. Once all the input fields on a data collecting form are completed, the input data will be kept as a transaction record and saved into a "data file" on the mobile computer. The transaction record can be added to the lookup database that the form refers to, or directly output to a printer, etc.

The Batch AG enables users to customize their own data collecting forms. To customize one of your own:

Run the Batch AG on your PC. In the left pane, expand the [Application Template] tree menu. From the expanded items, select **Form**. You will see:

▶ Up to 10 forms definable.
▶ Maximum eight input fields supported by each form (12 input fields for 8600 due to the screen size).

In the following content of this chapter, you will be guided to how data collecting forms are customized by the **Form** property pages.

IN THIS CHAPTER

1.1 SELECT A FORM

▶ Ten forms are definable, Form 1 ~ 10. Select one to start with, usually "Form 1".

▶ Each **Form** property page carries a certain amount of group boxes in the upper half for configuring attributes of a particular data collecting form, including [Properties], [Font Properties], [Lookup], [Date & Time stamp], [Branch], [Color Properties] (8600 series only), and a Reset Current Form button.

▶ In the bottom half of the **Form** property page, an eight-row table (12 for 8600 series) presents. Such table is designed for users to configure settings of the eight input fields of a data collecting form respectively.

1.2 PROPERTIES

[Property] group box covers the configurations labeled with **Esc**, **Next**, **Record** and **Enable MSQI**. Together they specify how a data collecting form behaves when it is run on the mobile computer. The following contents of this section will walk you through these configurations one by one.

1.2.1 ESC

Click the **ESC** drop-down item to determine a form/menu to display when the [ESC] key is pressed to the form running on the mobile computer. Options available are:

▶ Main Menu
▶ Form 1 ~ 10
▶ Menu 1 ~ 10

For the "Menu" options, refer to the Menu property page.

Note: Normally, the [ESC] key is used to return to a previous form or menu.

1.2.2 NEXT

Click the **Next** drop-down item to determine a form/menu to display when the last input field of the data collecting form is completed. Options available are:

▶ Main Menu
▶ Form 1 ~ 10
▶ Menu 1 ~ 10

For the menu options, refer to the Menu property page.

The mobile computer takes the action of "**Next**" as soon as the key value of [Enter] is sent to report the completion of the last input field. However, how [Enter] key value is produced depends on the input device that does the last data entry. See 1.11 Input Type for details.

The following table summarizes how the completion of the last input field is reported to the system when the input devices are different:

Last Field Input Device	Last Input Field Completion Report
Reader	The [Auto Enter] item in the More properties of the input field must be set to "Scan + ENTER". Refer to <u>1.15 More</u>.
Keypad	The [Enter] key on 8000/8200/8300/8400/8600 models needs to be pressed.
Both of the above	See the two above.
RFID	The [Enter] key on 8300/8600/ models needs to be pressed.
All	See all of the above mentioned.

1.2.3 RECORD

Record configures which action to take when all the input fields of a form is completed.

Options	Action...
Save	Saves the record to a sequential data file.
Update lookup	Updates the lookup file associated with the form.
Save & update	Saves the record to a sequential data file, and updates the lookup file.
Pass down	Combine the data with the one of the next form or menu as a single record of data without saving.
Output record	Outputs the record directly to a printer through COM port instead of saving it to a file.
Output screen	Similar to "output record". This option outputs what is displayed on the screen such as the prompts and data collected.
Save & output record	Saves the record to a sequential data file and outputs it directly to a printer through COM port.
Save & output screen	Saves the record to a sequential data file and outputs what is displayed on the screen.
Remove from lookup	Removes the record from the lookup file.
Save & remove	Saves the record to a sequential data file and removes it from the lookup file.

Note: Instead of saving all the collected data to a single data file, you may select to save the collected data for each form to separate data files on the Menu property page.

By the **Record** item on **Form** property page and the **Lookup data can be uploaded** checkbox on **Lookup** property page, you can select if to upload the data file(s) or lookup file(s), or both files ("All, one by one") to a host computer. You can also select to merge them to a new file ("All, append") for the upload. See also <u>3.3.2 Lookup Data Can Be Uploaded</u>.

Note: The uploaded file is a sequential file.

The files retrievable from the mobile computer are:

▶ Data file:

Such "data file" is generated on the mobile computer only when you have selected "Save", "Save & update", "Save & output record", "Save & output screen", or "Save & remove" options from the **Record** drop-down menu.

▶ Lookup file:

A lookup file would be available on the mobile computer when you have chosen to use a lookup file for your data collection and have allowed it to be uploaded.

When there is collected data on the mobile computer to be uploaded to a host computer, select **2. Upload Data** from the user application main menu on the mobile computer after a connection is established between the mobile computer and your PC to follow through the uploading.

Warning: If you select "output record" or "output screen" for the **Record** mode, **2. Upload Data** on the mobile computer will become unavailable.

1.2.4 ENABLE MSQI

Multiple Scan Quantity Incrementing (MSQI) enables a form to be performed repeatedly, whereupon the data collected is saved to a data file until the [ESC] key is pressed.

With **MSQI** selected in a **Form** property page, the first 2 input fields of the data collecting form are set to the following status:

▸ The 1st input field data type is set to "Text". In the **Lookup** group box, the available lookup options rely on how many lookup files you have configured in the **Lookup** property page.

▸ The 2nd input field data type is set to "MSQI" by which the input value increases to the next higher value (normally increases by 1) when the same barcode is continuously scanned.

The initial value/text of an MSQI field is set to "0" by default. Users can click the More button to bring up the dialog box and then specify a value instead. And if the MSQI field is set to fetch any lookup value, the lookup value applies.

With MSQI enabled, if you choose to use a lookup file, the input fields of the 3rd and up will become available for you to import more information from the lookup file.

By the example of the screenshot above, the data collecting process will repeat as long as you shall go on scanning barcodes. Such **Form 1** also features the following:

▶ When a barcode is repeatedly scanned, the value in the "Qty" field whose data type is set to MSQI will increase to the next higher value each time the barcode is scanned.

▶ When you change over to scanning another barcode, the quantity starts over to accumulate for the new barcode scanned. Data for the previous barcode scanned will be saved as a transaction record.

How MSQI works:

I) The input field that is set to "key field" admits a piece of data (line #1 on the screen of the mobile computer).

2) The succeeding MSQI input field fetches the corresponding lookup value as the initial quantity value (line #2 on the screen of the mobile computer). If no lookup file is assigned, the pre-defined initial value will be applied.

3) The input field set to "key field" admits the same barcode again. The value in the MSQI input field increases to the next higher value; say increasing by "1".

4) The input field set to key field admits a different data. Repeating step 2 and step 3.

   Data for the previous item will be saved automatically. Take step 3 for example, data for the quantity field saved with this transaction record is the value displayed on the screen, say "3" for this case.

5) Press [ESC] to quit scanning and exit the MSQI-enabled data collecting form. Right before exit, a screen shows up to present a "TRACK" input field for your better documentation of track number.

   If you don't feel the need for such "TRACK" input screen, disable it by deselecting **Save Track** from the key field's **Properties** dialog. Click the **More** button of the key field to open its **Properties** dialog. See the screenshots below:

Key field

Click the **More** button to bring up the Properties dialog box.

Properties dialog opens.

Deselect to disable "TRACK" input screen

Note: If there are a large number of barcodes of the same item, you may manually input the quantity to override the previous scanned quantity.

1.3 FONT PROPERTIES

In [Font Properties] group box, select between the small and large font sizes for the data colleting form. Large font is only applicable to the double-byte languages such as Chinese, Japanese, etc.

For a data collecting form, configure the font size for various models as tabulated below. And see also Localization and 2.3 Font .

Mobile Computer	Small Font (6x8)	Large Font (8x16)
8000 Series	16 characters by 8 lines (default)	12 characters by 8 lines
8300 Series	20 characters by 8 lines (default)	15 characters by 8 lines

Mobile Computer	Small Font (10x20)	Large Font (12x24)
8600 Series	24 characters by 12 lines (default)	20 characters by 12 lines

Mobile Computer	Small Font (8x16)	Large Font (12x16)
8200/8400 Series Single-byte	20 characters by 8 lines (8x16)	13 characters by 8 lines (12x16)

Mobile Computer	Character Type	Small Font (8x16, 16x16)	Large Font (10x20, 20x20)
8200/8400 Series Double-byte	Alphanumeric	20 characters by 8 lines (8x16)	16 characters by 7 lines (10x20)
	Double-byte Language Characters	10 characters by 8 lines (16x16)	8 characters by 7 lines (20x20)

1.4 COLOR PROPERTIES (8600 ONLY)

This group box is available only for 8600 series. Click the drop-down menus to determine background & foreground colors of the form for 8600 mobile computer.

1.5 LOOKUP (FILE)

In [Lookup] group box of a form, select if the data collecting form should refer to a lookup file, i.e. a database array, so that when that form runs on the mobile computer, it is able to fetch values from that lookup file. To refer to one or more lookup files listed in the [Lookup] group box, you need to provide further details about the data structure of the lookup file(s) in the **Lookup** property page. See Chapter 3. Lookup for details.

A lookup file is a database. Select whether or not a lookup file is associated with the form. If a lookup file is used, its data format must be defined on the Lookup property page.

Note: The associated lookup file(s) must be duplicated to the mobile computer as well.

For a data collecting form, as long as a lookup file is assigned in the [Lookup] group box, the "Lookup" option of **Data Type** and the **Field** item will be activated for the input fields. See 1.9.8 Lookup and 1.14.1 Field for more details.

1.6 DATE & TIME STAMP

The [Date & Time Stamp] group box encloses a set of options that control affixing date/time info to a form's transaction entry. By and large, the date/time info helps you with better analysis of the collected data.

Options provided are [No Time Stamp], [Add to front of record], and [Append to end of record]. [No Time Stamp] is selected by default, which means the software disables the date/time info if users don't select an alternative.

Writing date/time info to lookup files relies on the data types [Date] and [Time]. Update your Batch AG (for the host) and the AG Runtime (for the mobile computer) to the latest version available to get your hands on the support. See 1.9.16 Date and 1.9.17 Time for more details.

▶ Stamp Position

[Add to front of record] and [Append to end of record] set whether the date/time info appear to the left or right of a transaction entry. The comma "," is the default character that separates the date info and time info.

▶ Date & Time Format

When the Date/Time stamp is enabled, the [Date & Time Format] button becomes available. Click it to pop up the [Date & Time Stamp settings] window to define the appearance you want for the date/time info in the data file.

All options on the [Date & Time Stamp settings] window are selected by default. Deselect one to disable a piece of date/time info element.

1.7 BRANCH

On 8-series mobile computers, a data collecting form is usually followed by either another form or menu. The [Branch] group box features the options required for a data collecting form that is designed to lead to more than one other form. It also configures the keypad shortcut for the mobile computer to switch between the forms and menus. Up to four shortcuts can be configured.

Branch	
Function key :	Branch to :
FN + 1	Disable ▼
FN + 2	Disable ▼
FN + 3	Disable ▼
FN + 4	Disable ▼
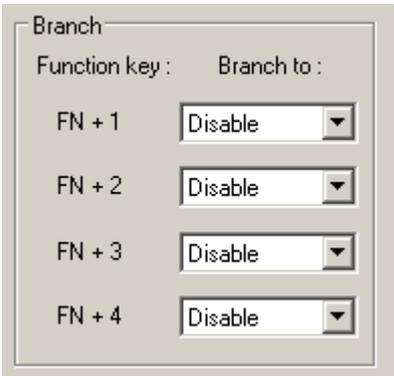
Take the following illustration for example.
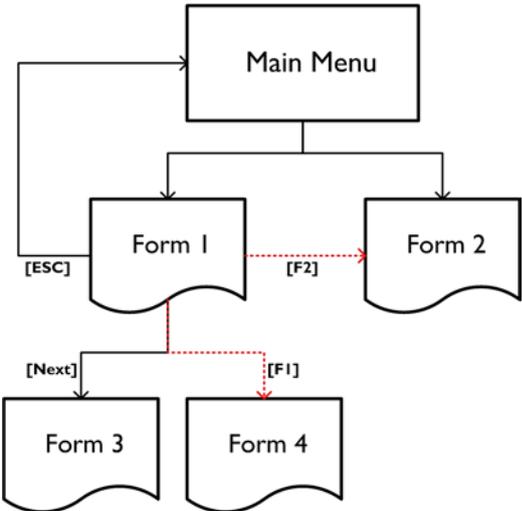
Note: Data cannot be passed down through branches.

1.8 RESET CURRENT FORM

The "Resent Current Form" button brings the current form back to default state when it is clicked.

Reset Current Form

1.9 DATA TYPE

A datagrid at the bottom half of a form page configures the elements of the input fields in a data collecting form. Every row constitutes an input field while each column represents an element of an input field that needs to be configured.

The available selections for input data type:

Data Type	Prompt		Input Source	Length	Lookup	Properties
	on-screen	saved in record		Min / Max	Field	More…
Nil						

Text	✓		✓	✓	✓	✓
Integer	✓		✓	✓	✓	✓
Real	✓		✓	✓	✓	✓
Letter	✓		✓	✓	✓	✓
Auto (+/-)	✓		✓	✓	✓	✓
Boolean	✓		✓		✓	✓
Lookup	✓	User-definable			✓	✓
Fixed data	✓	✓				✓
Prompt	✓					
Counter	✓					
Pass down	✓					
Extension						
Pause	✓					
Alphameric	✓		✓	✓	✓	✓
Read from 2D	✓			✓		✓
Date	✓					✓
Time	✓					✓
Serial	✓					
Large data	✓			✓	✓	✓
GPS Latitude	✓	✓				
GPS Longitude	✓	✓				
Compare data	✓		✓	✓		✓
Image	✓				✓	✓

The following contents of this section will walk you through all the data types supported for an input field in a data collecting form.

1.9.1 NIL

When "Nil" is set to the data type of an input field, the input field doesn't accept any data whatever the format is.

▸ "Nil" is the default setting. An input field set to "Nil" in a data collecting form would present a totally blank area (line) on the screen of the mobile computer.

1.9.2 TEXT

When "Text" is set to the data type of an input field, the input field accepts any ASCII character. For example, `$1a2b3c=-*/`…

1.9.3 INTEGER

When "Integer" is set to the data type of an input field, the input field accepts the whole numbers such as … `-2, -1, 0, 1, 2` … but not `3.5`.

1.9.4 REAL

When "Real" is set to the data type of an input field, the input field accepts any number that features a decimal whether it is rational or irrational. For example, `4.56`.

The following contents of this section will describe how a data collecting form interacts with the specified lookup file when either "**Real**" or "**Integer**" is selected as the "Data Type" for an input field.

▶ In a data collecting form that refers to a lookup file, when an input field is set to **integer/real** and associated with a certain lookup field (by the "Field" element), it will first fetch the value in the associated lookup file when the data collecting form runs on the mobile computer. However, you can choose to ignore such fetched value and input your data into the input field.

▶ In the case you choose to input your own data, if the **Record** mode of the data collecting form is set to "**Save & Update**", the value you input will trigger different arithmetic performed to the lookup values depending on the "**Field**" element setting. The following table summarizes the arithmetic performed:

Field Setting (Lookup File)	Arithmetic Performed
Field 1 ~ 8	The input value will overwrite the associated lookup value. No arithmetic would be performed.
+Field 1 ~ 8	The value you input will be added to the value in the associated lookup field automatically.
- Field 1 ~ 8	The value you input will be deducted from the value in the associated lookup field automatically.

Hereunder is an example:

```
Product Code:9950

Description:Coke

Bin:A1B01

Quantity:4000
```

```
Product Code:9950

Description:Coke

Bin:A1B01

Quantity:5
```

The input field first fetches the associated lookup value, say "4000".

You can proceed to input your own data, say "5".

By this example, when different "**Field**" element is set, the arithmetic performed would be:

"Field" Setting	Arithmetic performed
field (no arithmetic sign)	If you input "5", the value "5" will be saved in the transaction record on the mobile computer and overwrite the value in the associated field of the specified lookup file. The value saved in the lookup file will be "5". You can check the updated lookup file by selecting **3. Utilities** | **2. Browse Data** from the user application main menu.
+field (with a plus sign)	If you input "5", the value "5" will be saved in the transaction record on the mobile computer, and 5 will be added to the associated lookup value. The value saved into the lookup file will be 4005. You can check the updated lookup file by selecting **3. Utilities** | **2. Browse Data** from the user application main menu.
-field (with a minus sign)	If you input 5, the value "-5" will be saved in the transaction record on the mobile computer, and 5 will be deducted from the value in the associated field of the specified lookup file. The value saved into the lookup file will be 3995. You can check the updated lookup file by selecting **3. Utilities** | **2. Browse Data** from the user application main menu.

1.9.5 LETTER

When "Letter" is set to the data type of an input field, the input field accepts any letter, either upper or lower case (from `Aa` to `Zz`).

1.9.6 AUTO (+/-)

When "**Auto (+/-)**" is set as the data type of an input field, it produces similar arithmetic as the "**Integer**" or "**Real**" does when a lookup file is specified. However, "**Auto (+/-)**" distinguishes from "**Integer**" and "**Real**" by showing the lookup value ahead of the input field. Depending on the "Field" element setting, a plus sign (+) or a minus sign (-) will display ahead of the input field.

Similar to "**Integer**" and "**Real**", for an input field set to "**Auto (+/-)**", when you input your data, the arithmetic performed differs by the "Field" setting. The following example shows the arithmetic performed when different "Field" element is set:

"Field" Setting	Arithmetic Performed	
field (no sign)	Product Code:9950 Description:Coke Bin:A1B01 Quantity:`1000` ▮	If input value is 5, the value saved in transaction record is 5, and the value saved to the lookup file is 5 too.
+field	Product Code:9950 Description:Coke Bin:A1B01 Quantity:`1000` +▮	If input value is 5, the value saved in transaction record is 5, and the value saved to the lookup file is 1005.
-field	Product Code:9950 Description:Coke Bin:A1B01 Quantity:`1000` -▮	If input value is 5, the value saved in transaction record is -5, and the value saved to the lookup file is 995.
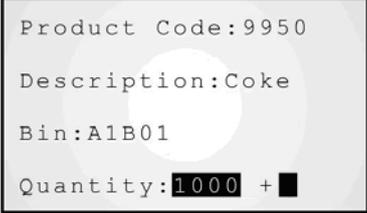
1.9.7 BOOLEAN

When "**Boolean**" is set to the data type of an input field, the input field accepts only one of the following sets: "0 or 1", "Y or N" and "T or F".

If you input any value other than the above, a message will display on the mobile computer indicating "Data type is wrong!"

1.9.8 LOOKUP

When "**Lookup**" is set to the data type of an input field, the input field doesn't accept data input but fetches the associated lookup value.

"**Lookup**" data type is particularly applicable to the case as exemplified below:

An input field #2 is preceded by an input field #1 that contains the data matching the "key field", i.e. the "indexed" field, of the associated lookup file. Then the input field #2 will fetch the value in the corresponding field in that lookup file.

Note: By default the fetched lookup value won't be saved into the transaction record unless you enable "**Save field data**" in the advance property page (by clicking the **More** button). See 1.15 More for details.
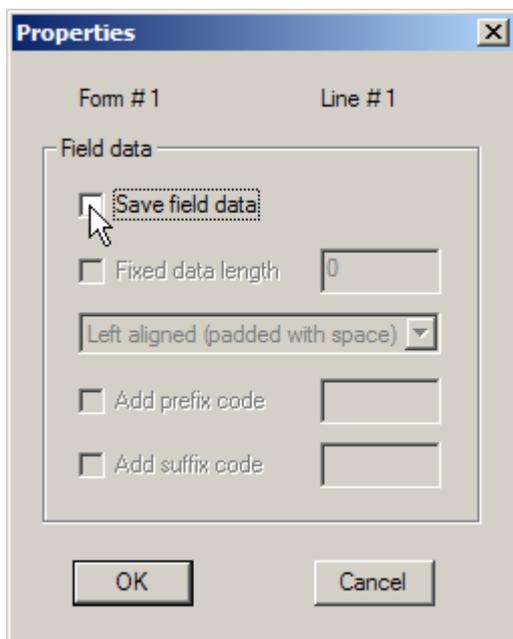
Note: The lookup value is fetched for reference. No change is allowed.

1.9.9 FIXED DATA

When "**Fixed Data**" is set to the data type of an input field, the line it occupies on the screen of the mobile computer doesn't accept data input but shows a pre-defined data string to the data collectors and needs to be included into the data file. Define the data string in the "**Prompt**" element setting.

▶ "**Fixed Data**" will be saved as part of the transaction record.

1.9.10 PROMPT

When "**Prompt**" is set to the data type of an input field, the line it occupies on the screen of the mobile computer doesn't accept data input but shows a pre-defined prompt string on the screen of the mobile computer. Define the prompt string in the "**Prompt**" element setting.

▶ It distinguishes "**Prompt**" from "**Fixed Data**" that "**Prompt**" won't be saved as part of the transaction record.

1.9.11 COUNTER

When "**Counter**" is set to the data type of an input field, the line it occupies on the screen of the mobile computer doesn't accept data input but registers the count of user's data collecting process. It counts each time the "**Counter**" field is executed.

Normally, the record count starts from 0000000 (7 digits for 8000, 8200, 8300, 8400, and 8600). However, when a menu is arranged before a form, and you have configured to save the menu caption, the count will start from "1" instead of "0".

To save the count record to the data file, click the "**More**" button of the input field for the advanced settings.

You may find the record count in other places:

▶ The record count also displays at the bottom of user's application main menu (next to date and time).

▶ The record count also displays upon the completion of data input. Refer to 5.1.1 Data Manipulation for "Entry Options".

8000

For 8000, when a field (a line on the screen of the mobile computer) is set to show counter, the current count will be saved and displays in the format of seven digits starting from 0000000. However, due to the space constraint, the counter displaying in user application main menu would appear slightly different from the one in a field of a data collecting form and in the data file. The following example shows what difference it makes:

Record Count Range:	Record Count Range:	Record Count Range:
0000 ~ 9999	10000 ~ 99999	>0000 ~ (= 100000 ~)

8200

For 8200, when a field (a line on the screen of the mobile computer) is set to show counter, the current count will be saved and displayed in the format of seven digits starting from 0000000. The counter is displayed on the user application main menu as the picture shown below:
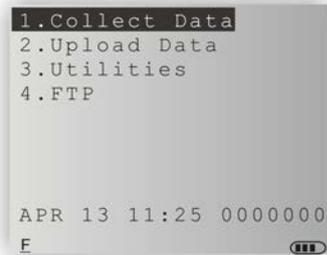
8300

For 8300, when a field (a line on the screen of the mobile computer) is set to show counter, the current count will be saved and displayed in the format of seven digits starting from 0000000. The counter is displayed on the user application main menu as the picture shown below:
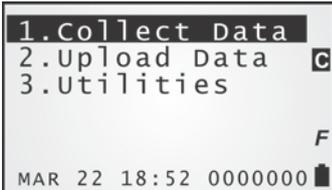
8400

For 8400, when a field (a line on the screen of the mobile computer) is set to show counter, the current record count will be saved and displayed in the format of seven digits, starting from 0000000. The counter is displayed on the user application main menu as the picture shown below:
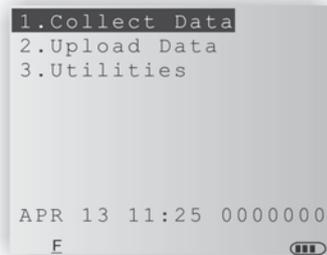
8600

For 8600, when a field (a line on the screen of the mobile computer) is set to show counter, the record count is saved and displayed by seven digits, starting from 0000000. The counter is displayed on the user application main menu as the picture shown below:
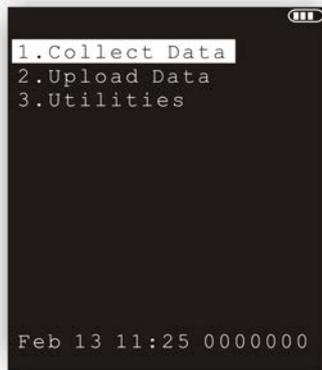
1.9.12 PASSDOWN

When "**Passdown**" is set to the data type of an input field, the input field doesn't admit manual data input but imports the data collected by the previous form that is set to "Pass down" for the **Record** mode.

▶ When one line isn't enough to display the imported data, the input field needs one or more input fields succeeding it set to "**Extension**".

▶ A "Pass down" input field also imports the data from a menu. See also <u>2.5.3 Pass Down</u>.

Note: An input field set to "**Pass down**" is able to combine the data collected by multiple preceding forms to one record.

1.9.13 EXTENSION

When "**Extension**" is set to the data type of an input field, the input field doesn't accept data input but reserves field space for an input field above it that is so extended as to require additional field space of a second input field to completely display on the screen of the mobile computer.

Note: How many extension fields are required depends on the maximum length of your data and the screen size of the mobile computer.

Taking a mobile computer with the screen that allows 20 small-font characters per line for example:

No	Data Type	Prompt	Input Type	Min Length	Max Length	Field	More
1	Nil		Both	0	160	Nil	More
2	Text	Description_:	Both	0	15	Field1	More
3	Extension		Both	0	160	Nil	More

13 characters   15 characters

Max. 8 Lines

Description_:1234567890ABCDE

Max. 20 Characters
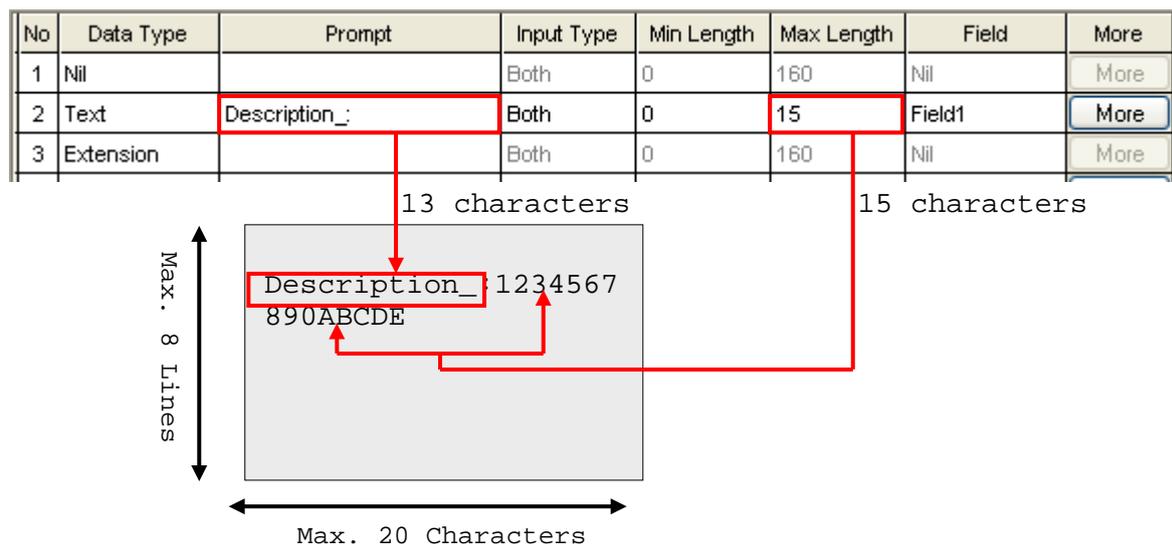
▶ Now the prompt string ("Description_:" in line 2) takes up the space of 13 characters, and the data length is maximum 15 characters…

▶ Together they make the length reaching 28 characters, which requires the field space of more than one line.

▶ As a result, the data type of line 3 needs to be set to "**Extension**" if you want to fully display the input data.

1.9.14 PAUSE

When "**Pause**" is set to the data type of an input field, the line it occupies on the screen of the mobile computer doesn't accept data input but shows an alert string to call the attention of the data collectors to something. Define the alert string in the "**Prompt**" element setting.

▶ The prompt string will not be saved. However, it will be highlighted and blink constantly on the mobile computer.

1.9.15 ALPHAMERIC

When "Alphameric" is set to the data type of an input field, the input field accepts any alphabetic, numeric, or alphanumeric characters. For example, ABC123xyz.

1.9.16 DATE

The "Data Type" starts to support date info. Update both the Batch AG on your PC and the AG Runtime on the mobile computer to the latest version available to have this new feature – the data type "**Date**".

The data type "**Date**" depends on the mercy of the "**Date & Time stamp**" settings. Disable the "**Date & Time stamp**" to have the "**Date**" listed in the "Data Type" selections. Likewise, selecting "**Date**" data type leaves the "**Date & Time stamp**" settings unavailable.

When "**Date**" is set to the data type of an input field, the line it occupies on the mobile computer's screen doesn't accept data input but imports date info. The date info is saved into a form's transaction entry and stored in the data file.

To further write the date info into lookup files, set the **Record** mode of a form to "Save & update". (See also 1.2.3 Record.) Note a corresponding field must be assigned for the lookup file to admit the time info.

A **More** button is available to set whether the date info shows on the mobile computer's screen and how it manifests itself (the output format).

1.9.17 TIME

The "Data Type" starts to support time info. Update both the Batch AG on your PC and the AG Runtime on the mobile computer to the latest version available to have this new feature – the data type "**Time**".

The data type "**Time**" depends on the mercy of the "**Date & Time stamp**" settings. Disable the "**Date & Time stamp**" to have the "**Time**" listed in the "Data Type" selections. Likewise, selecting "**Time**" data type leaves the "**Date & Time stamp**" settings unavailable.

When "**Time**" is set to the data type of an input field, the line it occupies on the mobile computer's screen doesn't accept data input but imports time info, with time resolution configurable down to seconds granularity. The time info is saved into a form's transaction entry and stored in the data file.

To further write the time info into lookup files, set the **Record** mode of a form to "Save & update" (See also 1.2.3 Record.). Note a corresponding field must be assigned for the lookup file to admit the time info.

A **More** button is available to set whether the time info shows on the mobile computer's screen and how it manifests itself (its output format).

1.9.18 SERIAL

This data type is used to keep information with the serial number of a particular terminal, indicating the data record was created by some terminal according to the serial number.

1.9.19 LARGE DATA

When an input field is set to "**Large Data**", it accepts data of maximum 2048 characters collected by 2D scan engines.

This data type is only available when the reader type is set to 2D reader for 8200 and 8400 mobile computers by the "**Initial**" page under "**Setting**" property page. Refer to 5.1.5 Reader Option.

▶ Each form can have one input field set to read large data.

▶ The maximum field length is set to 160 characters by default. To extend the field length up to 2048 characters, you need to manually configure the "Max. Length" setting.

▶ Note, for "**Large Data**", the "**Read partial barcode**" is enabled by default whereby only a short piece of the scanned barcode will be read, from the 1st character to the 20th character by default. If you need the whole extended data to be read, be sure to disable "**Read partial barcode**" in the advanced setting of the input field. Click the "**More**" button of an input field to pop up a [Properties] dialogue box. See 1.15.2 Barcode Input.

No	Data Type	Prompt	Input Type	Min Length	Max Length	Variables	More
1	Large data	Data:	Reader	0	2048	Nil	More
2	Nil		Both	0	160	Nil	More
3	Nil		Both	0	160	Nil	More

Note: The setting of "**Variable**" / "**Field**" element isn't available when both of the conditions are met: (1) More than 160 characters are set for the maximum field length, and (2) the "**Read partial barcode**" is disabled.

1.9.20 READ FROM 2D

"**Read from 2D**" data type is available only when the following conditions are met: (1) 2D scan engine is selected for 8200/8400 mobile computers, and (2) one of the preceding input fields is set to "**Large data**".

When "**Read from 2D**" is set to the data type of an input field, the line it occupies on the screen of the mobile computer doesn't accept data input but displays a short piece extracted from the preceding "**Large Data**" field.

▸ For each data collecting form, after having set one input field to "**Large Data**", you can set as many input fields to "**Read from 2D**" as you need.

▸ "**Read from 2D**" supports to extract a partial piece reaching up to 160 characters from the extended data in the preceding "**Large Data**" field. Refer to 1.15.2 Barcode Input.

1.9.21 GPS LATITUDE (8600 ONLY)

When "**GPS Latitude**" is set to the data type of an input field, the line it occupies on the mobile computer's screen doesn't accept data input but gets the latitude coordinates where the mobile computer is. The latitude info is saved into a form's transaction entry and stored in the data file.

1.9.22 GPS LONGITUDE (8600 ONLY)

When "**GPS Longitude**" is set to the data type of an input field, the line it occupies on the mobile computer's screen doesn't accept data input but gets the longitude coordinates where the mobile computer is. The longitude info is saved into a form's transaction entry and stored in the data file.

1.9.23 COMPARE DATA

When an input field is set to "**Compare Data**", its value will be compared with the nearest one above it. The comparable data types include Text, Integer, Real, Letter, Lookup, Fixed data, and Alphameric.

"**Compare Data**" won't display in the drop-down menu of an input filed if there are no input fields above it set to comparable data types mentioned above.

1.9.24 IMAGE (8600 ONLY)

This data type is available only when the data collecting form refers to lookup files by which JPEG files can be fetched to display on the screen. Each data collecting form can only have an input field set to "**Image**".

The JPEG files whose file names can be up to eight characters have to be stored in the *AG\IMG* directory or its subdirectories on the SD card. Users can specify the absolute path like *A:\AG\IMG\TEST\example.jpg* or the relative path as *\TEST\example.jpg* in the lookup file so that the system can locate the JPEG files.

For example, assume a scenario with a data collecting form referring to a lookup file in which each data record contains three data fields – ID, Quantity, and Image file path.

As the pictures illustrated below, the lookup file field property and elements of the input fields in a data collecting form are specified accordingly.

1st Lookup File				
Field property				
Number of fields : 3	No	Offset	Max Length	Key Field
	1	1	5	●
○ Fixed length	2	7	5	○
● Delimiter 44 .	3	13	20	○
	4	1	1	○
DBF File ● SRAM ○ SD Card	5	1	1	○

specifying the lookup file property

No	Data Type	Prompt	Input Type	Min Length	Max Length	Field	More
1	Prompt	ID:	Both	0	240	Nil	More
2	Text		Both	0	5	Field1	More
3	Prompt	Quantity:	Both	0	240	Nil	More
4	Integer		Both	0	5	Field2	More
5	Prompt	Image file path:	Both	0	240	Nil	More
6	Image		Both	0	20	Field3	More
7	Nil		Both	0	240	Nil	More
8	Nil		Both	0	240	Nil	More
9	Nil		Both	0	240	Nil	More
10	Nil		Both	0	240	Nil	More
11	Nil		Both	0	240	Nil	More
12	Nil		Both	0	240	Nil	More

configuring the elements of the input fields in a data collecting form

A lookup file, to be downloaded to the mobile device, may consist of data records as follows.

ID	Quantity	Image File Path
001	10	PIC001.JPG
002	200	A:\AG\IMG\PIC002.JPG
003	99	A:\AG\IMG\TEST\PIC003.JPG
004	3	\TEST\PIC004.JPG
⁝ ⁝	⁝ ⁝	⁝ ⁝

Also, image files specified in the Image File Path field are supposed to be downloaded to the correct directories respectively on the mobile device.

Make sure that the application template, lookup files, and images are downloaded to the mobile device.

Then on the mobile device, type '001' in the ID input field followed by pressing Enter. The first data record will be fetched from the lookup file and displayed on the screen as the picture shown below. Beneath the data fields, the image which is actually located in the A:\AG\IMG\ directory will also be displayed ranging from lines 8 ~ 12 for small font settings while lines 7 ~ 12 are reserved for large font settings.

On the data collecting form, a **More** button on the right-hand side of the grid control is available to set properties of the datatype. Click it to bring up the dialog.
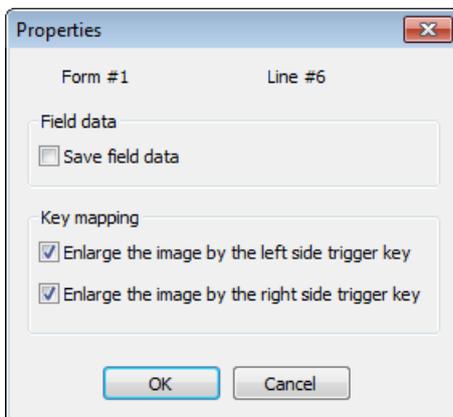
Field data

Select the checkbox to take the image path as data to be saved.

Key mapping

Select the checkboxes to enlarge the image using the side trigger keys of the 8600 mobile device. A 240x300 image is recommended when it is enlarged to fill the whole screen.

▶ Enlarge the image by the left side trigger key: When selected, users can press the left side trigger to switch the image between enlarged and normal states.

▶ Enlarge the image by the right side trigger key: When selected, users can press the right side trigger to switch the image between enlarged and normal states.

1.10 PROMPT

"**Prompt**" is the label or the name of an input field. Specify a prompt string for an input field, if necessary.

Note: Prompt strings won't be saved in a transaction record except for "**Fixed Data**".

1.11 INPUT TYPE

The "**Input Type**" configures the source that data is collected from.

Depending on the models of the mobile computer, the options available are:

▶ Reader
▶ Keypad
▶ Both
▶ RFID   (only applicable to 8300, 8600 Series)
▶ All   (only applicable to 8300, 8600 Series)

After the required information is entered into one input field, it takes to press the [Enter] key on the mobile computer to complete the input field. Then the cursor will move either to the next input field, or to the next form or menu.

When "**Reader**" is selected for the "**Input Type**", you need to enable "**Auto Enter**" in the input field property by clicking the **More** button. See 1.15 More.

Note: When "**RFID**" is selected, you may still press the [ESC] or [Enter] key on the mobile computer to cancel or confirm a task. However, the other keys on the keypad won't work.

1.12 MINIMUM LENGTH

The "**Min Length**" specifies the minimum length of the input data.

▶ If the input data is shorter than specified, it is considered unacceptable. A warning message will display indicating "Data is too short!"

1.13 MAXIMUM LENGTH

The "**Max Length**" specifies the maximum length of the data input. 8000/8300 allow maximum 80 characters, 8200/8400 up to 160 while 8600 up to 240.

‣ When the form refers to a lookup file, "Max Length" specified here will be compared with the length setting specified in the lookup file. If "Max Length" exceeds the length specified in lookup, it is changed to be equal to the lookup field length.

You can facilitate data input by showing input marks in the input field. Click the **More** button to pop up the [Properties] dialog box. In [Field data] group box, tick the "**Show input mark**" checkbox and assign a mark or symbol. The input field will be highlighted by a succession of the assigned input mark that is equally long as the maximum length specified.

‣ If the input data is longer than specified maximum, it is considered unacceptable.

1.13.1 INPUT VIA BARCODE/RFID READER

For the data input from the barcode or RFID reader, a warning message will display when the data is too long.

1.13.2 INPUT VIA KEYPAD

As long as the length falls within the scope specified, a data input by the keypad is always acceptable even if it is longer than the screen can display.

Taking the scenario below for example, when:

‣ the screen of the mobile computer displays 20 characters per line for small font, and
‣ the prompt string configured takes up 12 characters.

No	Data Type	Prompt	Input Type	Min Length	Max Length	Variables	More
1	Text	Description:	Both	1	10	Nil	More
2	Nil		Both	0	80	Nil	More
3	Text	Description:	Both	1	10	Nil	More
4	Extension		Both	0	80	Nil	More
5	Text	Description:	Both	1	15	Nil	More
6	Extension		Both	0	80	Nil	More
7	Text	Description:	Both	1	30	Nil	More
8	Extension		Both	0	80	Nil	More

The transaction between the data input, the on-screen indication and the record saved would be in the relationship as tabulated below:

Line	Input from Keypad	Screen Reading	Transaction Record
#1	12345678	12345678	12345678
	1234567890	34567890	1234567890
	123456789OABCDE	3456789E	123456789E
#3, 4	123456789OA	123456789A	123456789A
#5, 6	1234567890LEMONADE	1234567890LEMOE	1234567890LEMOE
#7, 8	1234567890ORANGE_JUICE	1234567890ORANGE_JUICE	1234567890ORANGE_JUICE

1.14 VARIABLES/FIELD

"**Variables**" / "**Field**" are both the elements of an input field that decides whether the input field should admit a data read or import some other data. "**Variables**" and "**Field**" are exclusive against each other. When a data collecting form refers to a lookup file, the element available is "**Field**" while otherwise "**Variables**".

Refer to 1.5 Lookup (File).

No	Data Type	Prompt	Input Type	Min Length	Max Length	Field	More
1	Text	ID:	Both	0	160	Nil	More
2	Counter	Counter	Both	0	160	Nil	More
3	Nil		Both	0	160	Nil	More

1.14.1 FIELD

"**Field**" element is only available when the data collecting form is set to refer to a lookup file. For "**Field**" element, you set an input field to either admit the data read or fetch lookup value.

A lookup file usually contains a list of key fields (i.e. the indexed fields) and other associated fields. Normally, the "key field" is kept as Field #1. When an input field refers to the key field and finds its data matching, the following input fields will proceed to import the data from the remaining associated fields of that lookup file.

The following screenshots show you the "**Field**" options available when the input data type is selected as **Integer/Real/Auto(+/-)**, or otherwise:

▸ For the input data types other than **Integer**, **Real**, and **Auto (+/-)**, see left below.

▸ For the input data types of **Integer**, **Real**, and **Auto (+/-)**, see right below.

Note: For the field options with a prefixed arithmetic sign (+, -), the input data will be added or deducted from the lookup value.

```
Lookup Field for data type
other than
integer,
real,
auto (+/-)
```

```
Lookup Field for data type:
integer,
real,
auto (+/-)
```
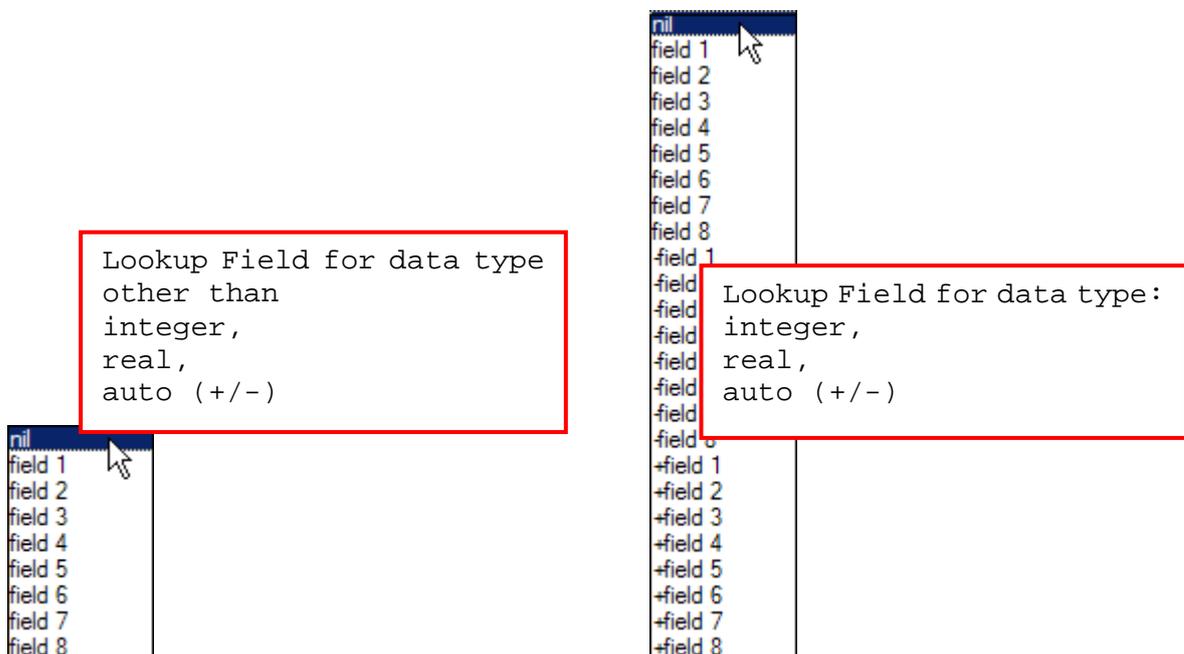
1.14.2 VARIABLES

"**Variables**" element is only available when the data collecting form isn't referring to any lookup file. For "**Variables**" element, you set an input field to either admit the data read or fetch some other data collected by the proceeding form.

The following describes how "**Variables**" function:

▶ When an input field is set to "**set V1**", the data admitted can be fetched by an input field set to "**get V1**" in the succeeding form.

▶ When an input field is set to "**get V1**", it fetches the value in the input field set to "**set V1**" in the direct preceding form.

▶ When an input field is set to "**get&set V1**", it fetches the value from an input field set to "**set V1**" in the preceding form and sets the fetched value to the new variable that is to be fetched by the succeeding from. This selection is applicable when a data needs to pass over to the next form.

Examples:

▶ Select "**set v1**" for input field #1 of form 1, and its input data will be saved in the first character array.

▶ Select "**get v1**" for input field #3 of form 2, it will fetch the data in field #1 of form 1 automatically.

▶ Select "**get&set v1**" for input field #3 of form 2, it will fetch the data in field #1 of form 1 and is set to a new variable that can be fetched by the direct succeeding form.

1.15 MORE

To every data collecting form, every input field features a "**More**" button by which the advance settings of the input field is configured.

Click the "**More**" button of an input field to pop up a [Properties] dialogue box as below:

1.15.1 FIELD DATA

The [Field Data] group box features the following configuration:

Fixed Data Length

Select this item and enter a value to confine the data length within the specified value. Note this setting only applies to the DAT file rather than the lookup file.

▶ If the input data is longer than specified, it will be truncated and saved to transaction record. When the data is browsed on the mobile computer, it would display in a truncated manner.

▶ If the input data is shorter than specified, "space" or "0" can be selected to add ahead or after the data based on either "Left" or "Right" alignment.

Below are some examples:

Fixed data length	Alignment	Input data	Transaction record
4	Left aligned / space	123456789	1234
4	Right aligned / space	123456789	6789
10	Left aligned / 0	7654321	7654321000
10	Right aligned / 0	7654321	0007654321

Initial Value or Text

Select this item and enter a value or text that is up to 9 characters to have it show in the input field on the screen of the mobile computer. Such value or text will be replaced by the data input. It functions to provide the prompt of an initial value of quantity for example.

Note: When an input data is set to a "variable" for the following data collecting form to fetch, the Initial Value/Text won't be available.

Add Prefix Code

Select this item to prefix the input data with a code. Click the text box to pop up a [Grid Control] dialogue box. Select one or more codes from the ASCII codes presented. For example, a dollar sign ("$") can be added ahead of the data input for price. Note this setting only applies to the DAT file rather than the lookup file.

Add Suffix Code

Select this item to suffix the input data with a code. Click the text box to pop up a [Grid Control] dialogue box. Select one or more codes from the ASCII codes presented. Next to delimiters (section 6.4 Data Field Properties), prefix and/or suffix codes can also function to separate each data piece. Note this setting only applies to the DAT file rather than the lookup file.

Note: You may use prefix/suffix code to enclose the input data.

Show Input Mark

Select this item and enter a specific mark or symbol, such as underline (_) or asterisk (*), into the text box. Such mark or symbol will show in a succession to highlight the input field. However as soon as any data is input, such mark/symbol succession will be replaced by the data. The number

of input marks shown on the screen equals to the maximum length of data specified in 1.13 Maximum Length.

Decimal Places

This drop-down menu is available only when the Data Type field is set to **Real**. "Decimal places" defines how many decimal digits after the decimal point.

‣ The "Decimal places" is set to **variable** by default meaning any real numbers are acceptable.

When "Decimal places" is set to '4', for example, and the data input has only 2 decimal places like "8.12", the system will save the input data as "8.1200". If you try to input a number "8.12345" via the keypad, the fifth decimal digit will be discarded. Only "8.1234" is considered acceptable and saved to file.

If the barcode "8.12345" is scanned via the barcode reader, a warning message "Incorrect decimal input" will display on the screen of the mobile computer, and the system will automatically clear the input data and wait for new entry.

Decimal Symbol

This drop-down menu is available only when the Data Type field is set to **Real**. "Decimal symbol" allows users to designate ',' or '.' as the decimal point symbol.

‣ The "Decimal symbol" is set to '**.**' by default.

Compare

This function is available only when the Data Type field is set to **Integer** or **Real**. Tick the "Compare" checkbox to enable the "Comparison Operators Settings" button and then click the button to bring up the settings window. With this comparison function enabled, the field value will be compared with the comparison condition (If the form refers to a lookup file, the field value comes from the lookup file). You can determine the behaviour in reaction to results not matched, by selecting the radio buttons as follows:
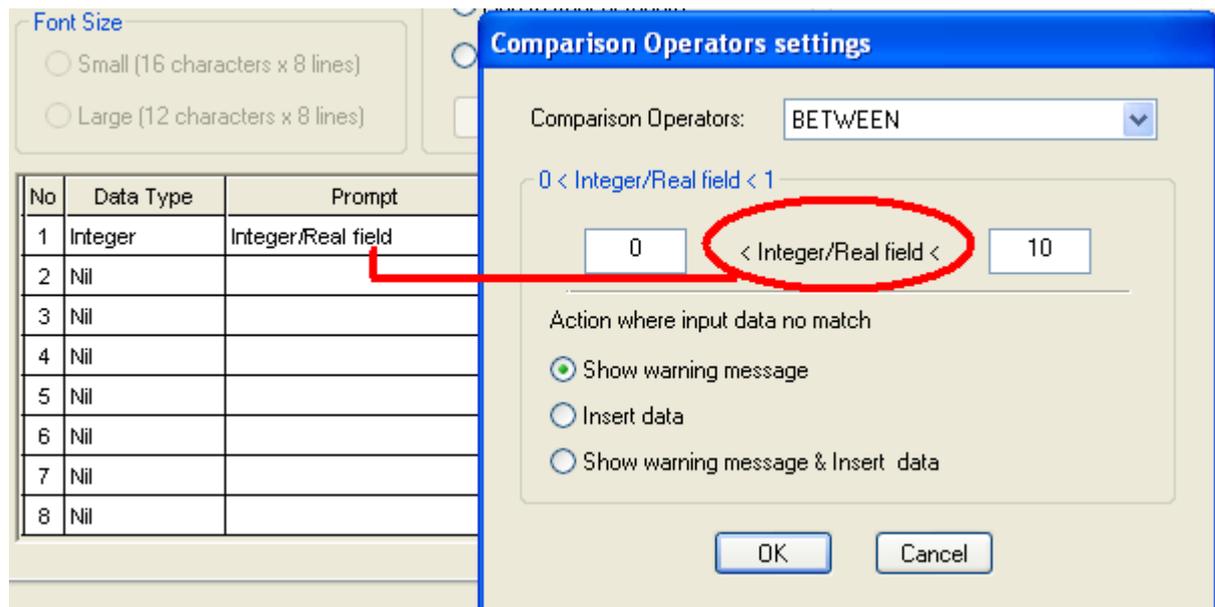
‣ Show warning message: Show message for notification. The scanned data will be discarded.

‣ Insert data: The scanned data will be inserted.

‣ Show warning message & Insert data: Show message for notification and the scanned data will also be inserted.

1.15.2 BARCODE INPUT

The [Barcode Input] group box features the following configuration:

Trim leading specified

Here you can specify one character to be removed that matches the leading character(s) of the barcode.

For example, if it is specified to remove the character "0", one or more zeros will be stripped off the barcode data "012345" and "00012345". However, for barcode data "010333", only the first zero will be stripped off. Note that if the specified character can't be located in the starting position, the data will be kept unchanged.

Examples:

Original Data	Specified character(s) to be removed	Data with specified character(s) removed
012345	0	12345
0012345	0	12345
010333	0	10333
100330	0	100330 (unchanged)

Read Partial Barcode

To collect only a short piece of the barcode scanned, select this item and configure which character to start with and how long the data should be.

Examples:

Start position	Max. length	Barcode scanned	Transaction record
2	10	9876543210	876543210
2	3	9876543210	876

Check Leading Code

Select this item to enable the check against the leading characters of a barcode scanned. When the leading characters don't match the specified code (up to 6 characters), the barcode will be rejected.

Examples:

Leading code	Barcode scanned	Transaction record
9	9876543210	9876543210
2	9876543210	(Error message: Wrong leading code!)
98765	9876543210	9876543210
978	9876543210	(Error message: Wrong leading code!)

When "Read partial code" and "Check leading code" are both enabled:

Start position	Max. length	Leading Code	Barcode scanned	Transaction record

2	7	8	9876543210	8765432
2	7	9	9876543210	(Error message: Wrong leading code!)

Check Digit Verification

The "check digit" refers to the digit at the end of a barcode derived from a simple formula to validate the barcode scanned. Select this item to enable the check against the barcode's check digit. From the drop-down menu, select one formula for the checksum examination. Modulus 10 and 11 are available. When the check digit isn't validated, the barcode scanned will be rejected.

```
MOD 10 Double-Add-Double (next high)
MOD 10 Add-Double-Add (next high)
MOD 10 Triple-Add-Triple (next high)
MOD 11 Repeat Arithmetic (next high)
MOD 10 Double-Add-Double (next low)
MOD 10 Add-Double-Add (next low)
MOD 10 Triple-Add-Triple (next low)
MOD 11 Repeat Arithmetic (next low)
```
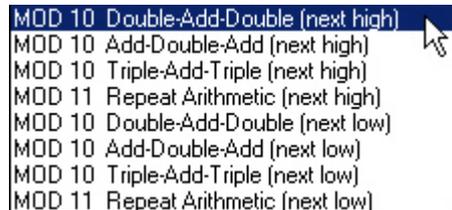
Compare input data with Line #?

When an input field's data type is set to 'Compare Data', users can determine the occasion for showing warning message and the reaction. Please click the 'Compare Data Settings' button to proceed to configuration dialog.

▶ Show warning message when

   ▶ the data is mismatched (default)

   ▶ the data is matched

▶ Action after showing warning message:

   ▶ Clear the input data and stay at the current input field (default).

   ▶ Accept the input data and continue to next.

Auto ENTER

Normally, [Enter] key needs to be pressed on the mobile computer to complete one input field, so that the on-screen cursor will proceed to the next input field, or the next form/menu configured. From the drop-down menu, select if to trigger a carriage return before or after the barcode is scanned, or simply to trigger a carriage return without scanning.

▶ For barcode scanning, it proves to save time when Scan+ENTER is enabled.

▶ For a typical application of continuous scanning, it is efficient by making use of ENTER+Scan.

▶ For a specific field over which users want to skip.

MENU

A menu is a list of commands for users to access various forms defined for the mobile computer to collect data. With Batch AG, up to ten menus are definable. Forms and menus can be set to connect to each other for user's data collecting needs.

A "**Menu**" property page covers the settings as the picture shown below:
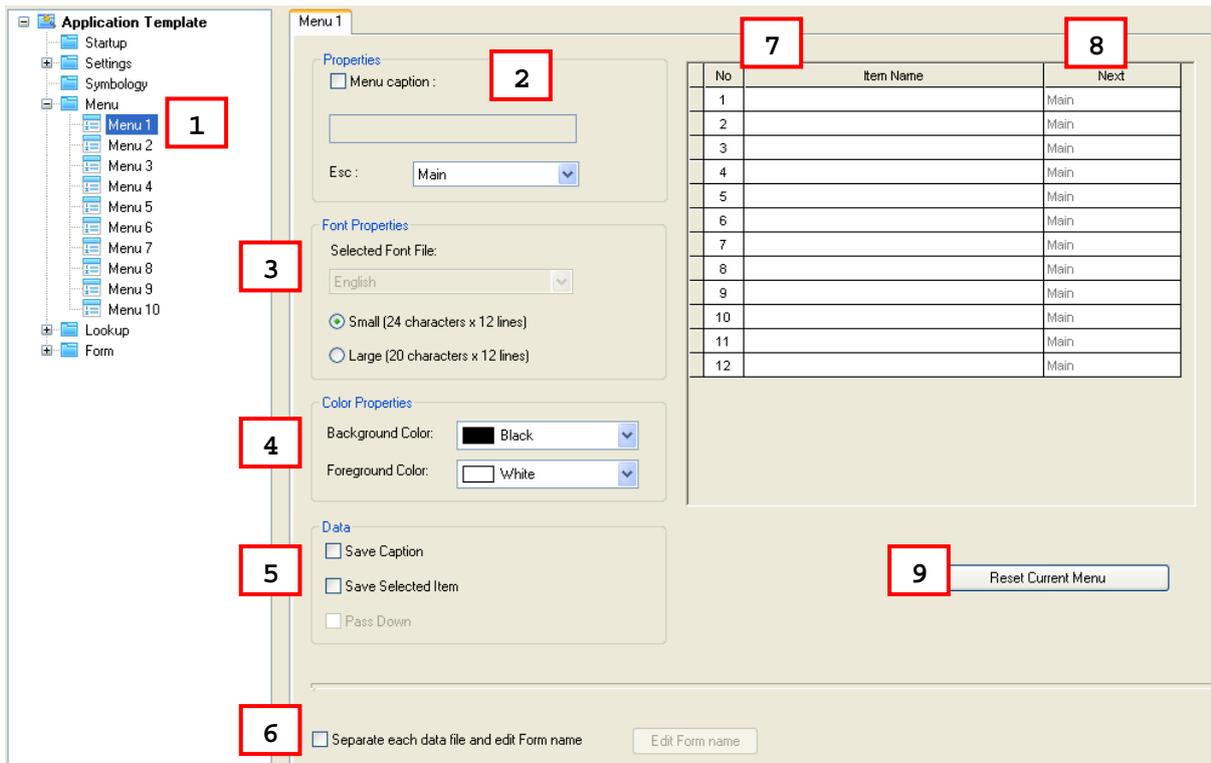
In the following contents of this chapter, you will be guided to how menus can be defined through the **Menu** property pages.

IN THIS CHAPTER

2.1 SELECT A MENU

▶ **Menu** 1~10 are available. Select one to start with, usually "Menu 1".

▶ Each **Menu** carries these group boxes: the [Properties], [Font Properties], [Color Properties] (8600 only), [Data], a command name editing table, a checkbox to enable the **Edit Form Name** button, and a **Reset Current Menu** button.

2.2 PROPERTIES

[Property] group box features the settings of **Menu caption** and **Esc**. The former specifies the title of the menu while **Esc** configures the data collecting form or any other menu to succeed the menu.

In the following content of this section, you will be walked through said settings one by one.

2.2.1 MENU CAPTION

Select "**Menu Caption**" to be able to specify a title for the menu if necessary.

2.2.2 ESC

Select a form or menu to display when the [ESC] key is pressed to the menu. Options available are:

▶ Main Menu

▶ Form 1 ~ 10

▶ Menu 1 ~ 10

Note: Normally, the [ESC] key is used to return to a previous form or menu.

2.3 FONT PROPERTIES

Large font is only applicable to the double-byte languages such as Chinese, Japanese, etc. For a menu, font size needs to be configured according to the font in use on the mobile computer.

Refer to Localization and 1.3 Font .

2.4 COLOR PROPERTIES (8600 ONLY)

Click the drop-down menus to determine background & foreground colors of the menu for

8600 mobile computer.

2.5 DATA

[Data] group box features a few actions for the mobile computer to take when the menu is selected on the mobile computer

2.5.1 SAVE CAPTION

Select "**Save Caption**" to save the menu caption to the transaction record as long as the menu is selected and run.

2.5.2 SAVE SELECTED ITEM

Select "**Save Selected Item**" to save the name of the selected item to the transaction record.

2.5.3 PASS DOWN

As long as either of the aforesaid items is selected, the option "**Pass Down**" would become available. Select if to pass the enabled information to the next form or to affix the enabled information to a transaction record entry.

By the options in the [Data] group box, the combinations available are:

▶ Save caption & pass down
▶ Save selected item & pass down
▶ Save both & pass down

Note: The selected data will be passed down to an associated form or menu.

2.6 SEPARATE EACH DATA FILE AND EDIT FORM NAME

When a menu leads to more than one form, select this item to save the data collected from each form to individual data files.

As soon as this item is selected, the "**Pass down**" in [Data] group box is selected automatically, which means the menu caption and/or the selected item name will be affixed to each transaction data entry and saved into the data file of the due form.

2.7 ITEM NAME

In the upper right of the **Menu** property page, there is a table that can configure up to ten items for a menu. Each row in this table sets up a menu item that will occupy one line on the screen of the mobile computer while each column configures an element of a menu item.

For the "**Item Name**" setting, specify the names of the items to be featured by the menu.

For example, you may specify "1. Goods In" or simply "Goods In" as the first item name (See below).

Note: Whether you have included a number in an item or not, you can press [1] on the mobile computer to enter the first menu item, say the "Goods In" menu as exemplified by the screenshot above.

2.8 NEXT

For the "**Next**" setting, sets a menu or a form for the menu item to lead to when the menu item is selected. Options available are:

▶ Main Menu
▶ Form 1 ~ 10
▶ Menu 1 ~ 10

The selection of an item is executed by one of the following operations performed on the mobile computer -

▶ Press the shortcut key (Item No.) of a menu item, e.g. press [2] to select the second menu item. The form or menu you specified here in the "**Next**" element column will display.
▶ Press the navigation keys [Up/Down] to move between the menu items, and press [Enter] to select it.

2.9 RESET CURRENT MENU

Click the "**Reset Current Menu**" button to load the default settings.

Note: The settings of current menu will be cleared.

Chapter 3

LOOKUP

A lookup file is a database created for information reference. Up to three lookup files are supported by the mobile computer and definable with the Batch AG. If the settings on a **Lookup** property page are improperly made, it may go wrong when an input field of a form refers to a lookup field.

The **Lookup** property page makes it possible for users to provide information about data structure of the lookup file(s) they are going to use and to configure the related parameters.

Therefore, to collect data with the help of lookup file(s), the following settings are needed in addition to the "**Lookup**" property page:

▶ The [Lookup] group box featured on the **Form** property page. See <u>1.5 Lookup (File)</u>.

▶ The setting of "**Data Type**" of an input field on the **Form** property page. See <u>1.9.8 Lookup</u> (Data Type).

▶ The setting of the "**Field**" element of an input field on the **Form** property page. See <u>1.14.1 Field</u>.

Users need to apply an application template that refers to lookup files to be able to send the lookup files to the mobile computer; otherwise the command **3. Utilities** | **8. Load Lookup File** will be absent from the user application main menu.

IN THIS CHAPTER

3.1 SELECT A LOOKUP FILE

Up to 3 lookup files are definable. Select one to start with, usually the "1st Lookup File".

Each **Lookup** property page carries these elements: the group boxes [Field property], [Lookup data], [Action when input data no match], [Action when record format is wrong] and a table that enables users to provide the data structure of their lookup file(s).

In the following contents of this chapter, you will be walked through the said elements one by one:

3.2 FIELD PROPERTY

[Field property] group box features the settings of "**Number of fields**", "**Fixed length**", "**Delimiter**" and "**DBF file location**". Together with the data structure table, users are able to provide the information about the data structure of their lookup file(s) at hand.

3.2.1 NUMBER OF FIELDS

In the "**Number of fields**" box, configure the number of fields in the lookup file you are using. Set a number up to eight (up to 12 for 8600) that is no smaller than the lookup file's actual field amount. Refer to 1.14.1 Field.

3.2.2 FIXED LENGTH

Fixed Length is the default setting. When **Fixed Length** is selected, users are able to define the length of the information pieces in a lookup file, so that a data collecting form is able to look up in a database that has no express matrix or grid structure.

The following settings are necessary:

▶ Number of fields
▶ Offset
▶ Length

3.2.3 DELIMITER

"**Delimiter**" setting lets users to define an ASCII character to separate the data fields. Proceed to define related settings as follows:

▶ Number of fields
▶ Max. Length

If the maximum length of each field is set improperly, you will receive a warning message when the mobile computer is downloading the lookup file. Whether the download will fail or not depends on the action you want the mobile computer to take when the data format is wrong. Refer to the settings of 3.8 Action When Record Format Is Wrong.

3.2.4 DBF FILE LOCATION (8200/8400/8600 ONLY)

The setting of "**DBF file location**" is only available for 8200, 8400 and 8600 since currently only these models support the memory extension with an SD card.

By the setting of "**DBF file location**", you may specify where the lookup file is located. The options are:

▶ SRAM

▶ SD Card

Normally, the lookup files are stored in the SRAM of the mobile computer. The original lookup files (.TXT) will be automatically saved to DBF format when being sent to the mobile computer.

8200/8400/8600 support to save files to the SRAM, to the SD card or to the SRAM through the SD card.

Before the lookup files are sent to the SD card of the mobile computer, they need to be converted to DBF format (.DB0) by the DBF converter tool. You must save the lookup files (.TXT) to DBF format first. Refer to <u>7.3 SD DBF Converter (8200/8400/8600 Only)</u>.

The following table details how a DBF file can be sent to the mobile computer when the destined locations are different:

File Location	Sending Method
SRAM	(1) Send the lookup file to 8200/8400 SRAM. ▶ The sending is carried out by the lookup sending utility featured by the Batch AG. Click **Transfer** | **Send Lookup** on the menu bar of the Batch AG to run the utility. (2) Send the lookup file to 8200/8400/8600 SRAM through the SD card. ▶ The sending is carried out by the DBF converter featured by the Batch AG. Click **Tools** | **DBF Converter** from the menu bar of the Batch AG to run the utility. In the DBF tool window, be sure to enable **Distribute**. ▶ Note the mobile computer's application template must have the **Lookup** property's **DBF file location** set to "SRAM".
SD Card	Send the DBF file to the SD card in 8200/8400/8600. ▶ Such sending is only feasible when the mobile computer installed with the SD card runs as a removable disk. It requires the mobile computer with SD card connected to a host computer with a USB cable. ▶ Such sending is carried out by the DBF converter featured by the Batch AG. Click **Tools** | **DBF Converter** from the menu bar of the Batch AG to run the utility. In the DBF tool window, be sure to enable **Distribute**. ▶ Note the mobile computer's application template must have the **Lookup** property's **DBF file location** set to "SD Card".

Note: It takes less time to send lookup files to SRAM via SD card than send to SRAM directly.

3.3 LOOKUP DATA

[Lookup data] group box features the settings about how the data in the lookup file should be handled.

3.3.1 ONLY READ DATA ONCE

When this checkbox is not ticked, each time the key value of an incoming data will be compared with entries read from the referenced lookup file. And the matched value will be brought up.

If you tick the checkbox, the following details how a data collecting form deals with the incoming data:

Lookup data found matching...

An input field value will be rejected when it can be found matching an entry in the lookup file. The input field will then be cleared automatically by default.

▶ **Show message when the data is matched**: For the event of rejecting an input field value, you can decide to show a warning message before the input field is cleared by ticking this checkbox. In this case, press any key on the mobile computer to clear the input field.

▶ **Allow to update lookup data once if the data is matched**: Ticking this checkbox means that the lookup file is updated just once for the first time the incoming data is found in the lookup file.

No lookup data found matching...

As long as the **Only read data once** checkbox is ticked, the action for a data collecting form to take would be set to **Insert to lookup file** automatically (see 3.4 Action When the Input Data Has No Match). Then the incoming data will be written into the lookup file when no data in the lookup file is found matching the incoming data, i.e. new data.

▶ Another action available for the data collecting form to take is **Show Warning Message & Insert**. It supports to show a warning message before the incoming data is accepted into the lookup file.

3.3.2 LOOKUP DATA CAN BE UPLOADED

This is the default setting. It enables the exchange of a lookup file between the mobile computer and a host computer (such as your PC). On the mobile computer, select **2. Upload Data** from the user application main menu after you have the data collected and have the connection established between your PC and the mobile computer.

Refer to 1.2.3 Record.

3.3.3 TRIM SPACE WHEN LOOKUP DATA CAN BE UPLOADED

This option is only available when the **Delimiter** option is selected in the [Field property] group box. Select this option to remove the spaces in a lookup file that has delimiters to separate the data fields when it is uploaded to your PC.

3.3.4 ALLOW TO BROWSE LOOKUP DATA

Selecting the checkbox allows users to browse the lookup data on the mobile computer. This function is enabled by default.

3.3.5 ALLOW TO DELETE LOOKUP DATA

Selecting the checkbox ONLY allows users to MANUALLY delete the lookup data on the mobile computer.

Don't confuse this function with the [**Auto upload and delete Data and Lookup files**] checkbox, refer to 7.2.1 Data_Read, which controls the AUTO transaction tasks.

3.4 ACTION WHEN THE INPUT DATA HAS NO MATCH

The [Action when input data no match] group box features a few actions for the data collecting form to take when the incoming data finds no match in the key fields of the lookup file. See 3.7 Key Field for reference.

3.4.1 CONTINUE

When "**Continue**" is selected, the data collecting form goes on and allows the incoming data to input into its field when the incoming data finds no match in the key fields of the lookup file. No message will display.

▶ With "**Continue**" selected, if the "**Record**" mode of the data collecting form is set to "Save", "Save & update", "Save & output record", "Save & output screen" or "Save & remove" on the **Form** property page, data can only be saved in a data file. See 1.2.3 Record for reference.

3.4.2 SHOW WARNING MESSAGE

When **Show warning message** is selected, a warning message "Data not found!" would display when the incoming data finds no match in the key fields of the lookup file.

▶ The cursor shows at the end of the data input to prompt you to input other data. (By the example below, you need to replace "9990" with other data.)

```
Product Code:9990
Description:
Bin:
Quantity:


Data not found!
Press any key...
```
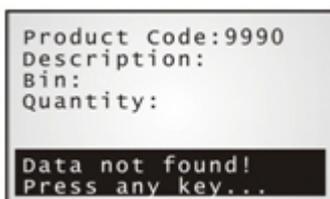
3.4.3 INSERT TO LOOKUP FILE

When "**Insert to lookup file**" is selected, the data collecting form proceeds to accept the incoming data without showing any message even when the incoming data finds no match in the key fields of the lookup file.

The incoming data will be written into the target lookup file if the **Record** mode of the data collecting form is set to "Update lookup", "Save & update", "Remove from lookup", or "Save & remove". See 1.2.3 Record for details.

3.4.4 SHOW WARNING MESSAGE & INSERT

When "**Showing warning message & insert**" is selected, the data collecting form shows a warning message "Data not found!" before accepting the incoming data into the target lookup file even if the incoming data finds no match in the lookup file.

The incoming data will be written into the target lookup file if the **Record** mode of the data collecting form is set to "Update lookup", "Save & update", "Remove from lookup", or "Save & remove". See 1.2.3 Record for reference.

3.4.5 CLEAR THE SCREEN

When "**Clear the screen**" is selected, the data collecting form automatically clears the incoming data when it finds no match in the lookup file. The incoming data isn't accepted into the lookup file. The input field awaits new entry.

3.4.6 SHOW WARNING & CLEAR SCREEN

When "**Show warning & clear screen**" is selected, the data collecting form shows a warning message "Data not found!" when the incoming data finds no match in the lookup file. The incoming data will be cleared and the input field awaits new entry.

```
Product Code:9990        Product Code:
Description:             Description:
Bin:                    Bin:
Quantity:         →      Quantity:

Data not found!
Press any key...
```
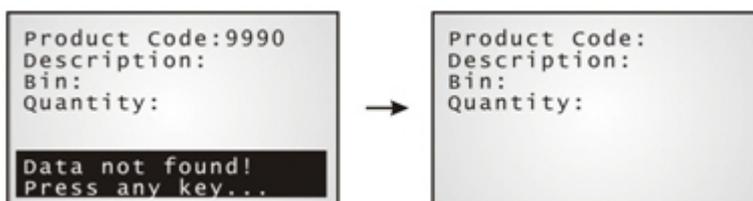
3.5 OFFSET

This applies to **Fixed Length**. Specify the start position for each referred data field.

3.6 LENGTH

▶ When the field property is set to **Fixed Length**, specify the length for each referred data field. The value can be 255 at most.

▶ When the field property is set to **Delimiter**, specify the maximum length for each referred data field. The value can be 255 at most.

Note: If a delimiter is used to separate data fields, any improper value would cause wrong data format.

3.7 KEY FIELD

The import of data depends on the key field. Select your key field so that an index file can be created for the database (lookup file).

▶ When a form makes reference to a lookup file, there must be one input field associated with the key field of the database (lookup file).

When its input data is found matching with any key field value of the database, data of other fields linking with the key field will be imported from database into the form.

If no matching, see 3.4 Action When the Input Data Has No Match.

Note: If offset and length of each field are specified improperly, it may go wrong with data import.

3.8 ACTION WHEN RECORD FORMAT IS WRONG

The [Action when the format of record is wrong] group box features a few actions for the application template to take when a lookup file of wrong data format is sent to the mobile computer. The crucial factors for a lookup file's data format are usually the separation of data fields, i.e. fixed length and delimiter.

3.8.1 STOP THE DOWNLOAD PROCESS

With "**Stop the download process**" selected, a warning message will be displayed on the mobile computer to indicate which line is found format mismatching if a lookup file with wrong format is detected. The downloading process is stopped then. You will need to correct the data format. For example, remove any empty record (line) at the end of the lookup file. And then download the lookup file again.
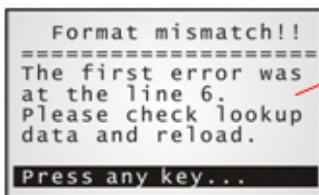
The following table lists the actions taken by the application template when the incoming lookup file's format is wrong:
(Note: An application template is marked as ".AGX".)

Fixed Length

Conditions	Action
Record length in source file is greater than that specified in .AGX	Stop download
Record length in source file is less than that specified in .AGX	Stop download

Delimiter

Cause of Failure	Action
The number of fields in the source lookup file is more than that specified in .AGX	Stop download
The number of fields in the source lookup file is less than that specified in .AGX	Stop download
The field length in the source lookup file is more than that specified in .AGX	Stop download
The field length in the source lookup file is less than that specified in .AGX	Allow download[Note]

Note: If the max data length specified in the application template is more than the field length in the source lookup file, the data field in the lookup file will be padded with blank space when it is sent to the mobile computer.

3.8.2 TRUNCATE / REFORMAT THE RECORD

When "**Truncate/Reformat the Record**" is selected, if a lookup file of wrong format is sent in, the application template first displays a message on the mobile computer to notify the mismatching part fixed, automatically truncated, or reformatted during downloading.

For example, the additional fields of a record will be left out. However, you may need to reload the lookup file after the data format has been corrected.

The following table lists the actions taken by the application template when the incoming lookup file's format is wrong:
(Note: An application template is marked as ".AGX".)

Fixed Length

Conditions	Action
Record length in source file is greater than that specified in .AGX	Truncate
Record length in source file is less than that specified in .AGX	Reformat[Note]

Note: Each field of that specific record will be padded with additional space.

Delimiter

Conditions	Action
The number of fields in the source lookup file is more than that specified in .AGX	Truncate
The number of fields in the source lookup file is less than that specified in .AGX	Reformat[Note1]
The field length in the source lookup file is more than that specified in .AGX	Truncate
The field length in the source lookup file is less than that specified in .AGX	Allow download[Note2]

Note: (1) Additional fields will be appended with additional delimiter and space.
        (2) The data field concerned will be padded with additional blank space.

3.8.3 SKIP THE RECORD

When "**Skip the record**" is selected, if a lookup file of wrong format is set in, the application template first displays a message on the mobile computer to indicate the mismatching part discarded. Then you may need to reload the lookup file after the data format has been corrected.

```
Format mismatch!!
====================
Part of the records
has been discarded!
Please check lookup
data and reload.

Press any key...
```
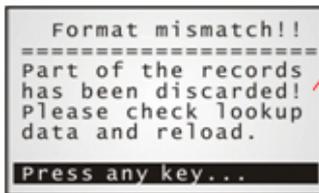
The downloading of lookup file will be completed without the mismatching line(s).

Fixed Length

| Conditions	Action
Record length in the source lookup file is more than that specified in .AGX	Skip
Record length in the source lookup file is less than that specified in .AGX	Skip

Delimiter

Conditions	Action
The number of fields in the source lookup file is more than that specified in .AGX	Skip
The number of fields in the source lookup file is less than that specified in .AGX	Skip
The field length in the source lookup file is more than that specified in .AGX	Skip
The field length in the source lookup file is less than that specified in .AGX	Allow download[Note]

Note: That specific field will be padded with additional blank space.

3.9 RESET CURRENT LOOKUP FILE

Click the "**Reset Current Lookup File**" button to load the default settings.

Note: The settings for the current lookup file will be cleared.

SYMBOLOGY

A symbology means a type of barcode that is coded by its own rule. An 8-series mobile computer's barcode support depends on the scan engine equipped.

According to application requirement, users may need to enable or disable certain symbologies, and the configuration should be included in the application template on the mobile computer. The Batch AG's **Symbology** property page is the access to achieve the such configuration.

The **Symbology** property page covers the group boxes of [Reader Settings] and [Barcode & Parameters]. In the following contents of this chapter, you will be guided through these group boxes one by one.
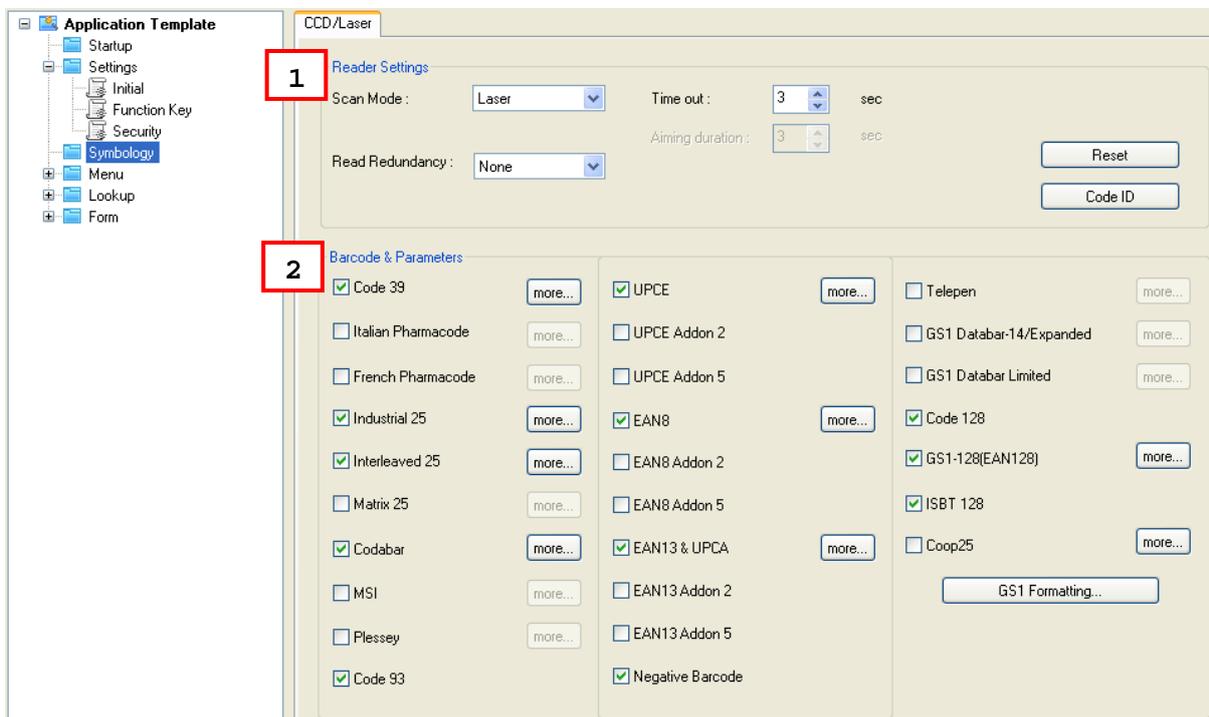
IN THIS CHAPTER

4.1 READER SETTINGS

The [Reader Settings] group box features a set of options regarding how the scan engine should scan and read. Refer to the following appendices for information on barcode reader settings —

▶ Appendix II - CCD/Laser Scan Engine for details.
▶ Appendix III - LR/ELR Laser Scan Engine for details.
▶ Appendix IV - 2D Scan Engine for details.

4.1.1 CODE ID

The "**Code ID**" means the characters prefixed to a barcode scanned to identify the barcode's symbology. Click the **Code ID** button to pop up a [Code ID] dialogue box that features the settings of barcode ID. When "**Code ID**" is enabled, a Code ID will be prefixed to the decoding result of a barcode.

▶ Click on the text box next to a barcode name, and select one code from the pop-up [The Grid Control] (ASCII codes) dialogue box.

Alternatively, you may click Set 1 ~ 5 buttons to assign code ID for all text boxes.

Note: The Code ID settings for GS1 Databar-14/Expanded, GS1 Databar Limited, and GS1-128 are detailed in 4.2 Barcode & Parameters.

4.1.2 RESET

Click the [Reset] button to load the default settings. The resetting applies to the following -

▶ The settings in [Reader Settings] group box. See 4.1 Reader Settings.
▶ The settings in [Barcode & Parameters] group box. See 4.2 Barcode & Parameters.

Note: The current settings will be cleared.

4.2 BARCODE & PARAMETERS

The [Barcode & Parameters] group box features the advance settings of various barcode symbologies supported.

Refer to the following appendices for information on symbology settings —

▶ Appendix II - CCD/Laser Scan Engine for details.
▶ Appendix III - LR/ELR Laser Scan Engine for details.
▶ Appendix IV - 2D Scan Engine for details.

Note: Code ID settings for GS1 Databar-14/Expanded, GS1 Databar Limited, and GS1-128 are provided in this group box.

SETTINGS

The **Settings** property page features the basic settings for the application template. These basic settings are divided into three themes: "**Initial**", "**Function Key**" and "**Security**". Each is presented on a single tabbed page of the **Settings**.
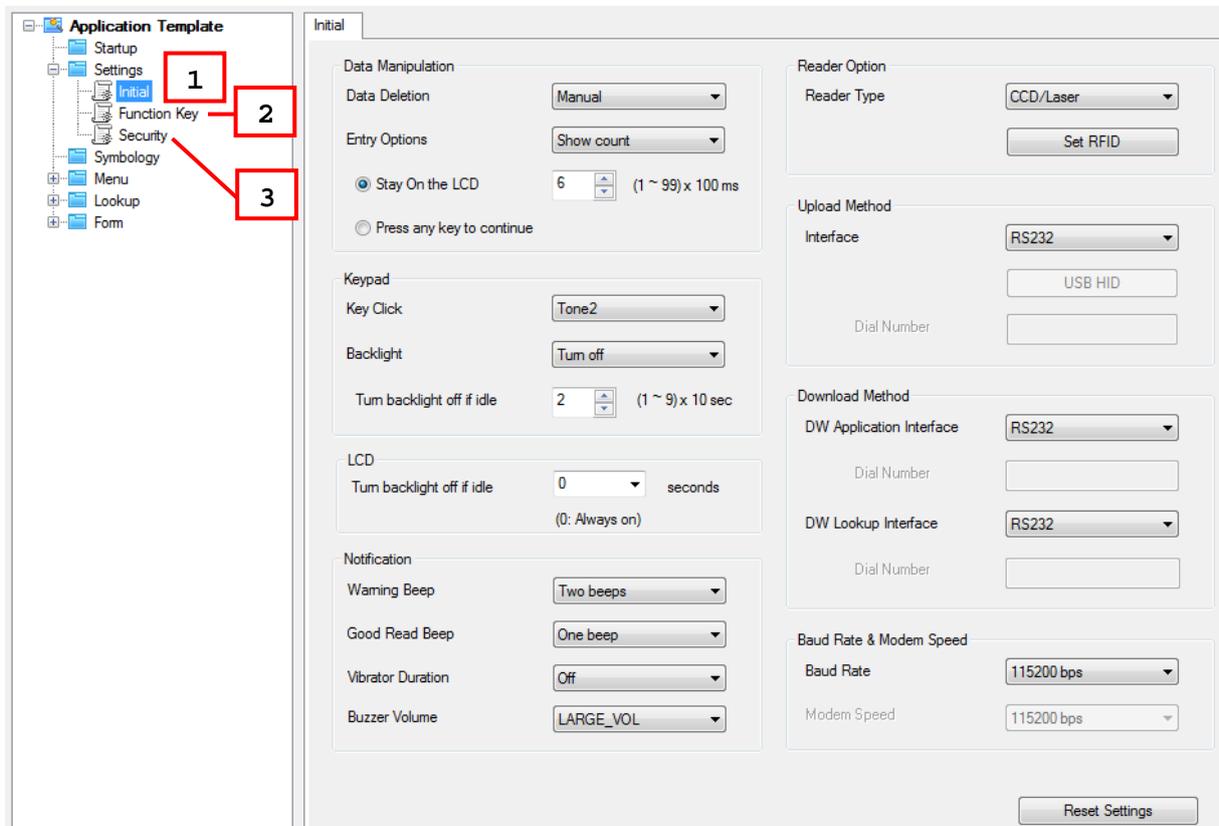
IN THIS CHAPTER

5.1 INITIAL SETTINGS

The **Initial** property page features the following settings:

Settings	Default Value	Remarks
Data Deletion	Manual	
Entry Options	Show count	Stay on the LCD for 600 ms
Key Click	Tone 2	
Keypad Backlight	Turn off	
LCD Backlight	0 seconds	
Warning Beep	Two beeps	
Good Read Beep	One beep	
Vibrator Duration	Off	
Buzzer Volume	LARGE_VOL	Only for 8200/8400/8600
Reader Option	CCD/Laser	
Upload Method	Cradle-IR[Note]	Bluetooth SPP is not available on the mobile computer unless selected for downloading to 8061, 8360.
Download Method	Cradle-IR[Note]	
Baud Rate & Modem Speed	115200 bps	

Note: For 8200/8400/8600, the default upload/download port is RS-232.

5.1.1 DATA MANIPULATION

The [Data Manipulation] group box covers settings of "**Data Deletion**" and "**Entry Options**" which are detailed in the following:

Data Deletion

Configures if the data should be automatically deleted from the mobile computer after it is uploaded to a host computer.

It is set to "Manual" by default, which means the application template won't delete the data from the mobile computer after uploading but leaves it to your decision if to delete the data right after the uploading completes. When the upload completes, you will be prompted if to delete the data. If you decide not to delete the data right at the moment, you can always delete the data later by selecting **3. Utilities** | **3. Delete Data** from the application main menu on the mobile computer.

Select "Automatic" to have the data automatically deleted from the mobile computer upon upload completion. The data on the mobile computer is no longer available as soon as it is uploaded to a host computer. You won't see any data by using **3. Utilities** | **2. Browse Data** in the user application main menu of the mobile computer; however, the data won't be deleted if the uploaded data type are lookup files.

If "No" is selected, the application template will skip the data deletion prompt upon completion of upload. The data file(s) and lookup file(s) will remain on the mobile computer after they are uploaded to a host computer. However, you can always select **3. Utilities** | **3. Delete Data** to delete them later.

Entry Options

By **Entry Options**, you can specify what kind of information the mobile computer will show on the screen after the entry of a data is completed and before the next data entry is proceeded with. Options available are the count (option "Show count") and the data preview (option "Show record"). By default, the count will display on the mobile computer screen for 600 milliseconds as soon as an entry is completed. Refer to 1.9.11 Counter.

When selecting either "Show count" or "Show record", the options of **Stay on the LCD** and **Press any key to continue** are available for you to either specify the time the data preview / count displaying on the screen of the mobile computer or simply choose to show the data review / count before a key is pressed on the mobile computer. Time-out is configured within the range of 1~99 times 100 milliseconds.

5.1.2 KEYPAD & LCD

The [Keypad] group box features the options in regard to the tone of the key click and the keypad backlight behaviour.

The [Keypad] group box covers the options of **Key Click** and **Backlight** which are detailed in the following:

Key Click

"Tone 2" is the default for the key click. You may select a desired tone or mute it.

Backlight

The keypad backlight is off by default. When the backlight is turned on, you may specify the idle duration for turning off backlight. Such time-out is configured within the range of 1~9 times 10 seconds. The default time-out is 20 seconds.

5.1.3 LCD (FOR 8600 ONLY)

The [LCD] group box which is available only for 8600 determines the LCD backlight behaviour.

Backlight

The LCD backlight is always on (duration assigned with zero) by default. You can determine the idle duration for turning off backlight by specifying 10, 20, or 30 seconds.

5.1.4 NOTIFICATION

The [Notification] group box features the options regarding the status feedback of the mobile computer that are detailed in the following:

Warning Beep

By this option, you can specify if to have the application template make a warning beep when a specific event occurs. By default, the mobile computer outputs two beeps to warn you of a specific event.

Good Read Beep

By this option, you can specify if to have a beep when a barcode is decoded successfully. By default, the mobile computer produces one beep to inform you of a successful reading.

Vibration Duration

This option is only available for 8200/8300/8400/8600. You can specify if to enable the vibrator to warn you of a specific event. The vibrator is off by default. You may turn it on for a preset period of time.

Buzzer Volume

This option is available for 8200/8400/8600 only. You may change the buzzer volume by this option.

5.1.5 READER OPTION

The [Reader Option] group box sets the barcode reader and RFID reader on the mobile computer. Refer to Appendix I - Scan Engine Settings for more information.

Reader Type (for barcode scan engine)

By this option, select a reader type according to the hardware configuration of your mobile computer. The associated barcode parameters will display in the **Symbology** property page accordingly. If there is a **More** button next to the barcode symbology listed, advanced settings are available.

Note: In order to initialize the barcode reader, you must select the correct reader type when you first configure an application template. Otherwise, a message will be displayed on the mobile computer to indicate "Wrong reader type!" after you download the application template file.

Set RFID

The RFID reader is automatically enabled after initialization. Advanced settings are provided as the picture shown below. RFID tags in proximity will be read automatically by 8300/8600 when RFID reader is enabled. You may limit the 1.11 Input Type options in Form to prevent from misreading RFID data.

Read UID
By default, the RFID reader is set to read UID (Unique Identification).

Read Data
▶ Select the check box so that RFID data can be read and displayed in Hexadecimal digits. ▶ If only partial data is required, specify the start position and maximum length in bytes.

Use Delimiter
Select the check box and specify a delimiter to separate UID from data.

Mifare – Login Key
Specify the Mifare login key in 12 digits of Hexadecimal. The default value is filled up with 'F's for Key A. Because only one key type can be used, you can choose Key B as the login key instead.

5.1.6 UPLOAD METHOD

The [Upload Method] group box sets the interface for the host computer to receive data file(s) and lookup files(s) from the mobile computer. Refer to 7.2.1 Data_Read on how to set the host computer to auto-receive files from the mobile computer.

Here shows the review of the "upload interfaces" supported on the 8-series mobile computers:

Upload Interface	Remarks

AG8000	Update the AG Runtime to the latest release for your 8000 mobile computer, and update the Batch AG to the latest release on the PC. Normally the interface options on the mobile computer are ▶ Cradle-IR ▶ IrDA ▶ Modem ▶ Ethernet Cradle Note when your mobile computer is a model of 806x, setting the "Upload Method" to either "**Bluetooth SPP_Master**" or "**Bluetooth SPP_Slave**" in the application template will delete "**Modem**" from the "Upload Port" submenu on the mobile computer and replace it with either of "**Bluetooth SPP_Master**" or "**Bluetooth SPP_Slave**". Check out the mobile computer's "Upload Interface" submenu at: **3. Utilities** | **1. Settings** | **1. Upload Port**
AG8200	Update the AG Runtime to the latest release for your 8200 mobile computer, and update the Batch AG to the latest release on the PC. Since part of the 8200 lineup comes with Bluetooth integrated, the interface options on the mobile computer are: ▶ RS232 ▶ Bluetooth SPP_Master ▶ Bluetooth SPP_Slave ▶ USB VCOM ▶ USB VCOM_CDC ▶ Modem ▶ Ethernet Cradle ▶ USB HID ▶ SD Card[Note]
AG8300	Update the AG Runtime to the latest release for your 8300 mobile computer, and update the Batch AG to the latest release on the PC. Normally the interface options on the mobile computer are: ▶ Direct RS-232 ▶ Cradle-IR ▶ IrDA ▶ Keyboard Wedge[Note] ▶ Modem ▶ Ethernet Cradle Note when your mobile computer is a model of 836x, setting the "Upload Method" to either "**Bluetooth SPP_Master**" or "**Bluetooth SPP_Slave**" in the application template will delete "**Modem**" from the "Upload Interface" submenu on the mobile computer and replace it with either of "**Bluetooth SPP_Master**" or "**Bluetooth SPP_Slave**". Check out the mobile computer's "Upload Interface" submenu at: ▶ **3. Utilities** | **1. Settings** | **1. Upload Interface**

Note: Keyboard Wedge option is provided with the 8300 Series mobile computers, and therefore, the settings are available in AG8300 program only.

Upload Interface	Remarks
AG8400	Update the AG Runtime to the latest release for your 8400 mobile computer, and update the Batch AG to the latest release on the PC.
	Since the whole 8400 lineup comes with Bluetooth integrated, the interface options on the mobile computer are:
	▸ RS232
	▸ Bluetooth SPP_Master
	▸ Bluetooth SPP_Slave
	▸ USB VCOM
	▸ Modem
	▸ Ethernet Cradle
	▸ USB HID
	▸ SD Card[Note]
AG8600	With Bluetooth integrated, the upload interfaces available are:
	▸ RS232
	▸ Bluetooth SPP_Master
	▸ Bluetooth SPP_Slave
	▸ USB VCOM
	▸ USB VCOM_CDC
	▸ USB HID
	▸ SD Card[Note]
	▸ FastVPort

Note: SD Card is provided for 8200/8400/8600/to store DAT files and DBF files. The files will be saved to the default working directory "\AG\EXPORT", which will be created on SD card automatically.

5.1.7 DOWNLOAD METHOD

The [Download Method] group box sets the interface for the mobile computer to download application templates and lookup file(s) from the host computer. Here is an overview of the "download interfaces" supported on the 8-series mobile computers:

Download Interface	Remarks

AG8000	Update the AG Runtime to the latest available version for your 8000 mobile computer, and update the Batch AG to the latest available version on the host computer. Normally the interface options on the mobile computer are: ▶ Cradle-IR ▶ IrDA ▶ Modem Note when your mobile computer is an 806x model, set the "Download Method" to either **Bluetooth SPP_Master** or **Bluetooth SPP_Slave** in the application template to be able to have either of them replace the "**Modem**" in the "Download Port" submenu on the mobile computer at: **3. Utilities | 1. Settings | 2. Download Port**
AG8200	Update the AG Runtime to the latest available version for your 8200 mobile computer, and update the Batch AG to the latest available version on the host computer. Since part of the 8200 lineup comes with Bluetooth integrated, the interface options on the mobile computer are: ▶ RS232 ▶ Bluetooth SPP_Master ▶ Bluetooth SPP_Slave ▶ USB VCOM ▶ USB VCOM_CDC ▶ Modem ▶ SD Card
AG8300	Update the AG Runtime to the latest available version for your 8300 mobile computer, and update the Batch AG to the latest available version on the host computer. Normally the interface options on the mobile computer are: ▶ Direct RS-232 ▶ Cradle-IR ▶ IrDA ▶ Modem Note when your mobile computer is an 836x model, set the "Download Method" to either **Bluetooth SPP_Master** or **Bluetooth SPP_Slave** in the application template to be able to have either of them replace the "**Modem**" in the "Download Interface" submenu on the mobile computer at: ▶ **3. Utilities | 1. Settings | 2. Download Interface**

AG8400	Update the AG Runtime to the latest available version for your 8400 mobile computer, and update the Batch AG to the latest available version on the host computer.
	Since the whole 8400 lineup comes with Bluetooth integrated, the interface options on the mobile computer are:
	▶ RS232
	▶ Bluetooth SPP_Master
	▶ Bluetooth SPP_Slave
	▶ USB VCOM
	▶ Modem
	▶ SD Card
AG8600	With Bluetooth integrated, the download interfaces available are:
	▶ RS232
	▶ Bluetooth SPP_Master
	▶ Bluetooth SPP_Slave
	▶ USB VCOM
	▶ USB VCOM_CDC
	▶ SD Card
	▶ FastVPort

Note: (1) SD Card is made available for 8200/8400/8600 to store the template file (.AGX) and lookup files. The default working directories are "\AG\IMPORT" for template file and "\AG\DBF" for lookup files, which will be created on SD card automatically. Different download interfaces are supported for different file types.
(2) Before the lookup files are sent to the mobile computers, they needs to be converted from text files (.TXT) to DBF format (.DB0) with a DBF converter tool. This tool will automatically copy the DBF file(s) to the import directory "\AG\DBF" on either the SD card or SRAM.

5.1.8 BAUD RATE & MODEM SPEED

The [Baud Rate & Modem Speed] group box features speed options of the mobile computer's data transmission.

Baud Rate
By default, the baud rate is set to 115200 bps for communications via any interface other than **Modem**.

Modem Speed

Only when the modem is selected for upload or download interface, this option will become available.

▶ For 8000/8300, the data transmission speed depends on the IR control board of the modem cradle which is set to 57600 bps by default. If you select any value other than 57600 bps, you need to adjust the DIP switch of the control board accordingly.

▶ For 8200/8400, the modem cradle is capable of detecting baud rate.

Note: For the 8000/8300 Series, the version of IR control board on the modem cradle must be greater than SV3.01.

5.1.9 RESET SETTINGS

Click this button to load the default settings. This button applies to all the three tabbed pages of the **Settings** property:

▶ The **Initial** property page. (See 5.1 Initial Setting)

▶ The **Function Key** property page. (See 5.2 Function Key Setting)

▶ The **Security** property page. (See 5.3 Security Setting)

Note: The current settings will be cleared.

5.2 FUNCTION KEY SETTING

The **Function Key** property page enables users' definition of one or more keypad shortcuts to quick-access user application main menu items or submenus thereunder. By default no keypad shortcut is defined.

Note the data collecting forms you create are not supported by these keypad shortcuts.
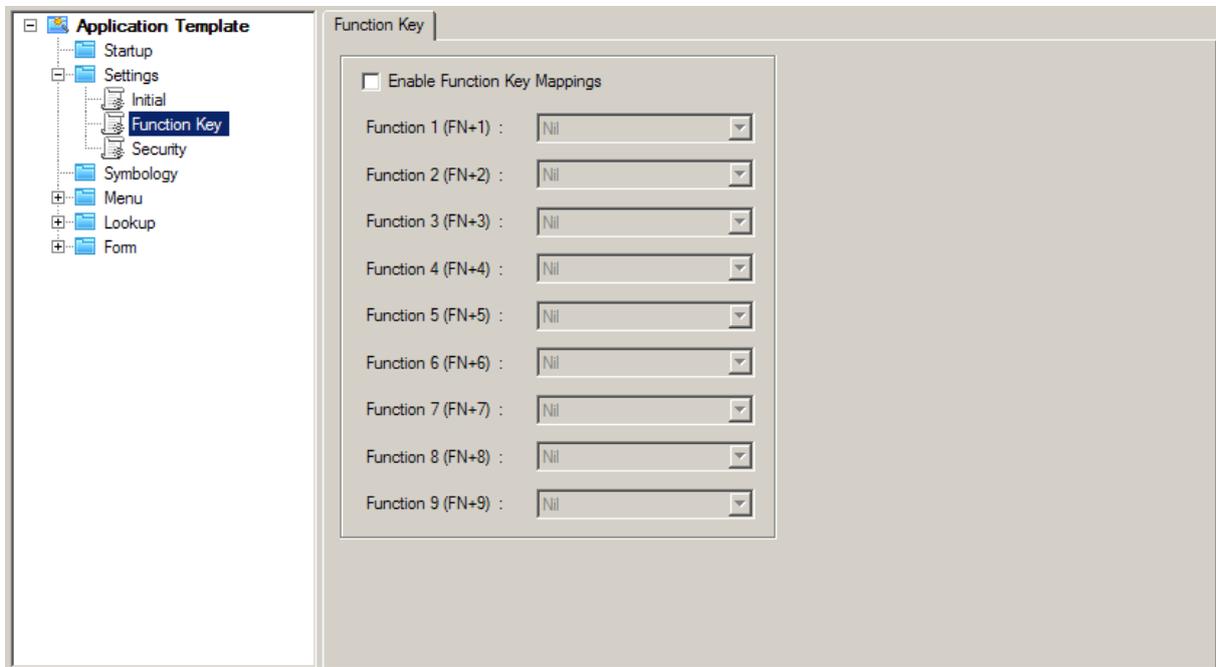
Note: For 8400/8600, key combination FN+9 on 29-key requires pressing the orange modifier key and the "-" key.

5.3 SECURITY SETTING

The **Security** property page enables the authentication that restricts the access to various resources on the mobile computer. No security is set up by default.
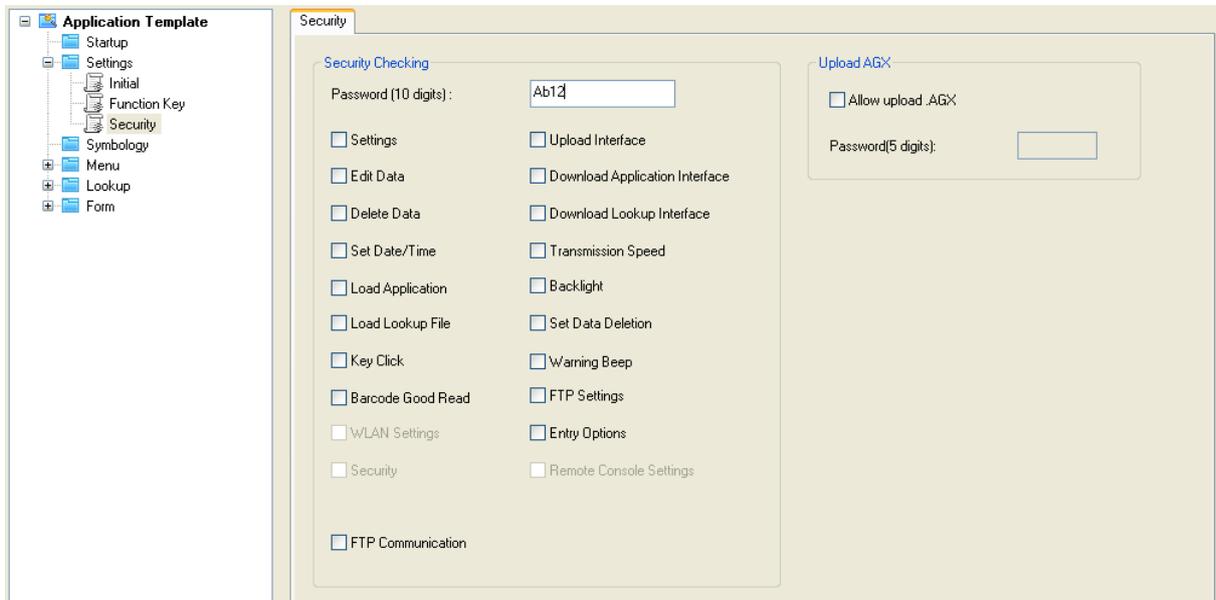

5.3.1 SECURITY CHECKING

The [Security Checking] group box features the following:

You may specify a password and select one or more items to be protected to apply the security authentication. By default, no action needs password to be taken.

If any action is selected and a password is assigned, you won't be able to cause the action to be taken on the mobile computer without the password.

▶   A password permits up to 10 alphanumeric characters.

Note: The password is case-sensitive.

Options provided in the [Security Checking] box correspond to the submenus tabulated as below:

Security Options	Remarks
Settings	**3. Utilities | 1. Program Settings**
Edit Data	**3. Utilities | 2. Browse Data**
Delete Data	**3. Utilities | 3. Delete Data**
Set Date/Time	**3. Utilities | 5. Set Date/Time**
Load Application	**3. Utilities | 6. Load Application**
Load Lookup File	**3. Utilities | 8. Load Lookup File**
Key Click	**3. Utilities | 1. Program Settings | 8. Buzzer | 1. Key Click**
Barcode Good Read	**3. Utilities | 1. Program Settings | 8. Buzzer | 2. Barcode Read**
WLAN Setting	**3. Utilities | 1. Program Settings | (2nd page) 2. WLAN Settings**
Upload Port	▶ **3. Utilities | 1. Program Settings | 1. Upload Interface**
Download Application Port	**3. Utilities | 1. Program Settings | 2. DL Program Interface**
Baud Rate	**3. Utilities | 1. Program Settings | 4. Transmission speed**
Backlight	**3. Utilities | 1. Program Settings | 5. Backlight**
Data Deletion	**3. Utilities | 1. Program Settings | 6. Set Data Delete**
Entry Options	**3. Utilities | 1. Program Settings | 7. Entry Options**
Warning Beep	**3. Utilities | 1. Program Settings | 8. Buzzer | 3. Warning Beep**
Download Lookup Port	**3. Utilities | 1. Program Settings | 3. DL Lookup Interface**
FTP Setting	**3. Utilities | 1. Program Settings | (2nd page) 1. FTP Settings**
Security	**3. Utilities | 1. Program Settings | (2nd page) 3. Security**
FTP Communication	**4. FTP**

Note: 8200, 8400, and 8600 allow different download interfaces for template file (.AGX) and lookup files.

5.3.2 UPLOAD .AGX

If your Batch AG is a version of 1.00.0005 or later, a password to protect the application template from any external access by any other computer is configurable by the [Upload AGX] group box. See Upload Application Template for reference.

Select "**Allow upload .AGX**" to enable the authentication of any external access to the .AGX file. Upon selecting "**Allow upload .AGX**", you are asked to specify a password.

▶ The password allows up to 5 alphanumeric characters.

Note: The password is case-sensitive.

STARTUP

On this property page, **Startup** settings for the application program can be customized.
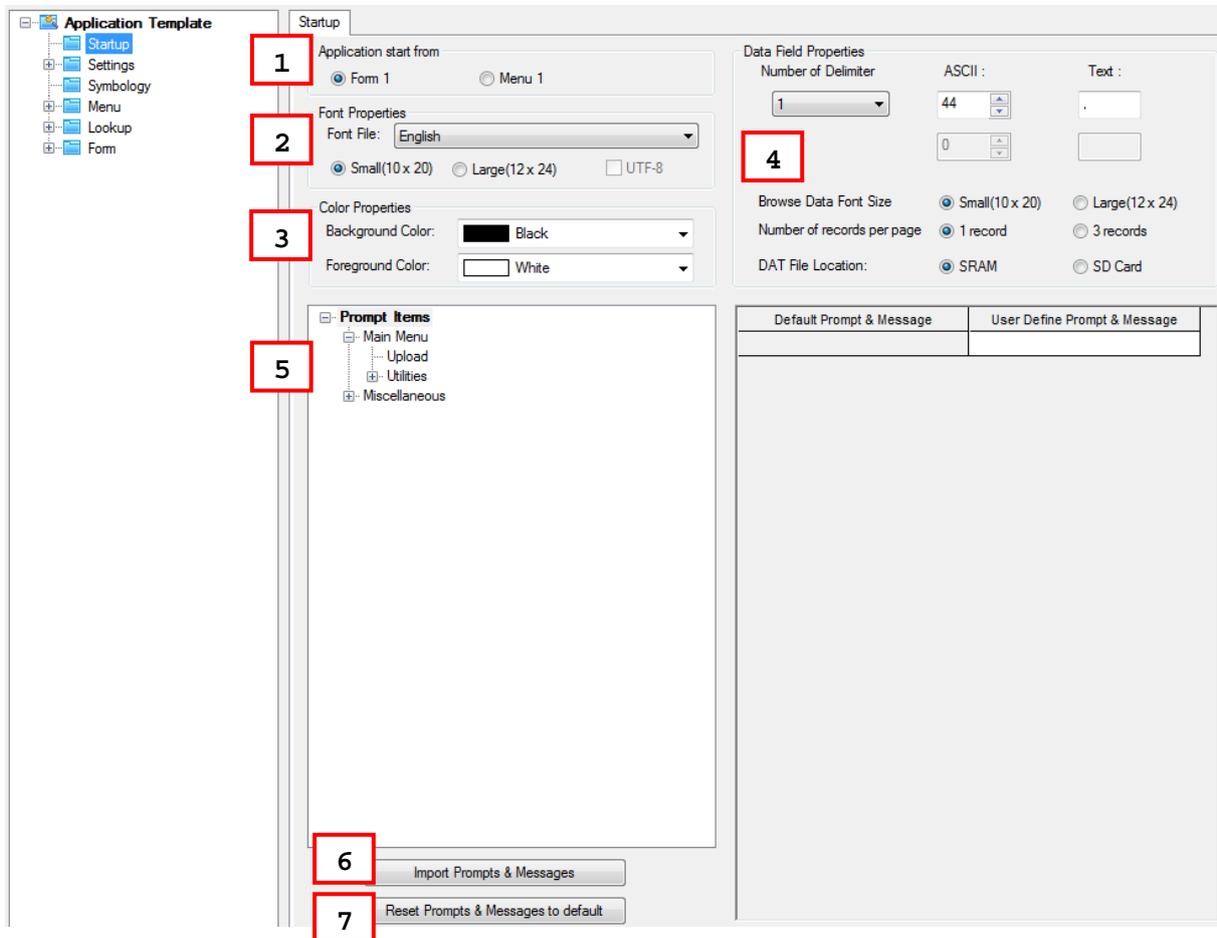
IN THIS CHAPTER

6.1 APPLICATION START FROM

By [Application start from] group box, you can proceed to make the following settings:

Decide where the application program starts as soon as the menu item **1. Collect data** is selected on the mobile computer.

▶ Form 1
▶ Menu 1

6.2 FONT PROPERTIES

The **Font File** drop-down menu that allows users to select a language is available in AG8200, AG8400, and AG8600.

The table below lists the font files supported. Once the font file is determined here, the **Selected Font File** item on Form/Menu property pages will be changed accordingly.

Font File Language	Double-byte	Single-byte	Note
Traditional Chinese	✓		
Simplified Chinese	✓		
Korean	✓		
Japanese	✓		
English (Default)		✓	
Canadian French		✓	
Hebrew		✓	
Latin (Slovak)		✓	
Nordic		✓	
Portuguese		✓	
Cyrillic (Russian) (CP-1251)		✓	
Turkish		✓	
Windows 1250		✓	Not supported for 8600
Greek (CP-737)		✓	
Greek (Windows-1253)		✓	
Turkish (Windows-1254)		✓	
Latin (Multilingual Latin I)		✓	
Slavic (Latin II)		✓	
Polish (Central European, Latin II)		✓	
Latin I (CP-1252)		✓	

With the **Font File** item set to a single-byte language, when the small/large font size radio button is toggled, the **Font Size Warning** dialog box will show up. Users can determine whether to change font size for browser data, forms and menus.
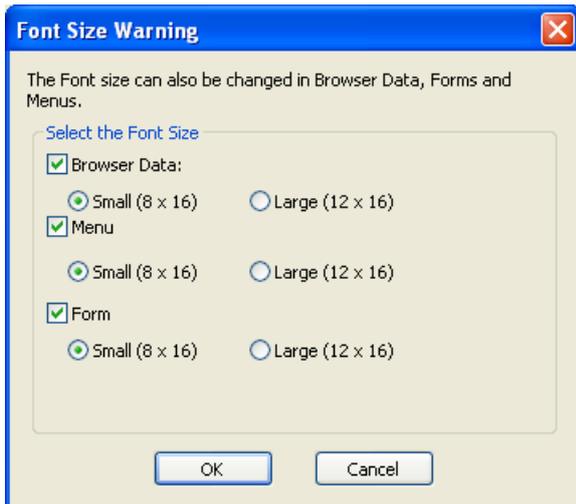
With the **Font File** item set to a double-byte language, when the small/large font size radio button is toggled, a message box will pop up warning that font properties will be applied to forms, menus, and browsing data.

With the **Large** radio button selected, when the **Font File** item is changed from double-byte languages to single-byte languages, a message box will pop up warning that a single line on the screen can display only 13 characters and the excessive prompt will be truncated.

6.3 COLOR PROPERTIES (8600 ONLY)

Click the drop-down menus to determine background & foreground colors of the startup for the 8600 mobile computer.

6.4 DATA FIELD PROPERTIES

6.4.1 NUMBER OF DELIMITER

The input data will be saved as transaction records. Specify the delimiters used to separate data fields, either in ASCII code or text. It allows using up to two different delimiters. Type the ASCII code for a delimiter and its corresponding character will be shown automatically, and vice versa.

6.4.2 BROWSE DATA FONT SIZE

You may select to use small/large font for data browsing when the **Font File** item is set to single-byte languages.

6.4.3 NUMBER OF RECORDS PER PAGE

Users can determine the displayed data records of a single page while browsing the data file. By default one data record is displayed per page. With the 3 records radio button selected, the previous, current and next records are displayed respectively from top to bottom.

6.4.4 DAT FILE LOCATION

You may specify the location to store the DAT files. The options are as follows:

▶ SRAM
▶ SD Card

Note: This selection is not available for 8000/8300 models.

6.5 REDEFINE PROMPTS & MESSAGES

For non-English environment, all the prompts and messages need to be re-defined in your local language. In addition, the appropriate font file has to be downloaded to the mobile computer so that it can display the prompts and messages correctly. Refer to Localization.

6.6 IMPORT PROMPTS & MESSAGES

If the prompts and messages have already been re-defined with an existing template file, simply click this button to import the template file.

6.7 RESET PROMPTS & MESSAGES TO DEFAULT

Click this button to load the default prompts and messages settings.

Note: The current settings will be cleared.

UTILITIES

These utilities are available in the Tools menu inside the 8 Series Batch AG program, or can be accessed via **Start** | **All Programs** | **CipherLab** | **Forge** | **Batch** | **Utilities**. For experienced programmers to issue a command or run a script, refer to Appendix V Command Line Syntax.

| Shortcut Name of Utility	Program Name	Usage
AG_Load	AG_Load.exe	To download the current application template to the mobile computer.
EAGX_Read	EAGX_Read.exe	To upload the current application template from the mobile computer.
Data_Read	Data_Read.exe	To receive data via Data_Read utility. It also synchronizes date/time on every host connection.
DLookup	DLookup.exe	To download associated lookup file(s) to the mobile computer
Prog_Load	ProgLoad.exe	To download the AG runtime or font file (.SHX) to the mobile computer.
Simulator	Simulator.exe	To launch the simulator.
DBF_Converter	DBF_Converter.exe	To convert text file into DBF file.

## IN THIS CHAPTER

7.1 DOWNLOAD UTILITIES

7.1.1 AG LOAD

Without the need to run the Batch or WLAN Application Generator programs, you can use **AG_Load.exe** to download a template file to your mobile computer.
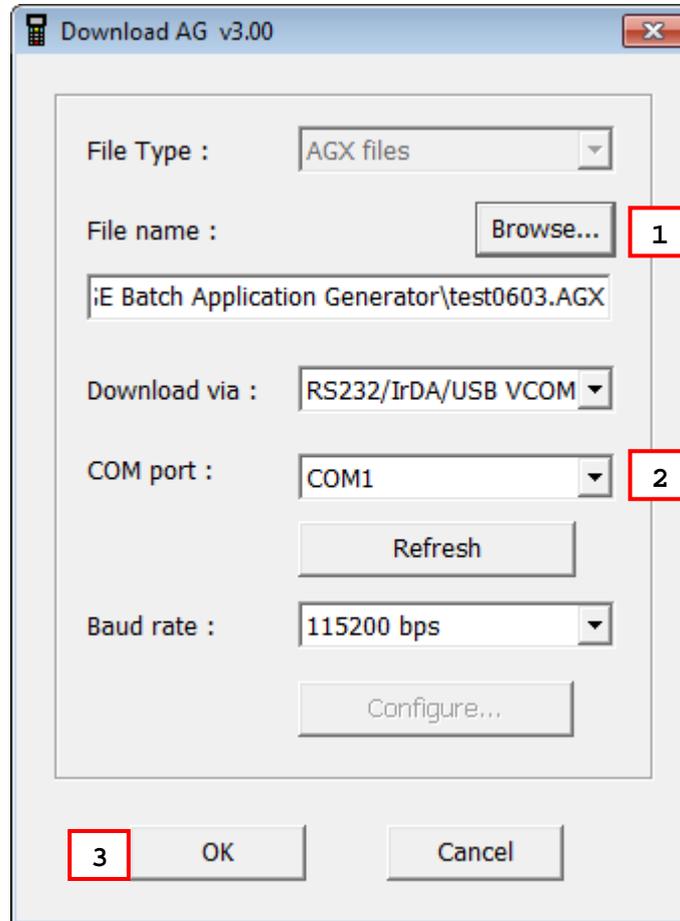
Run AG_Load.exe

1. In the **File name** box, type the file path where the AG template file is located.

    Otherwise, click **Browse** to locate the AG template file you want to download. Click **Open** in the dialog box as shown below.
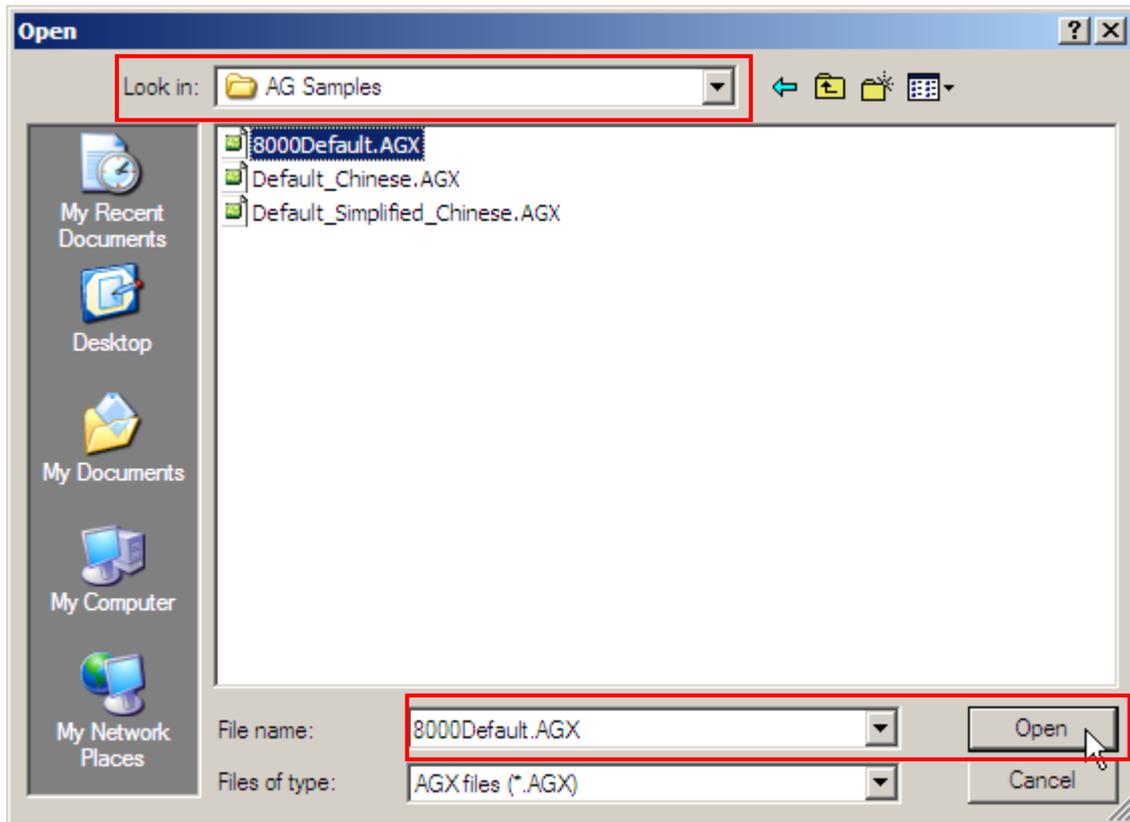
2. In the **Download via** box, select the download interface.

Download via	Description
RS232/IrDA/USB VCOM Cradle-IR MODEM	RS-232/IrDA/USB VCOM is available on 8000/8200/8300/8400/8600 Series Mobile Computers. ▶ Proceed to configure COM port (1~255) and baud rate settings.
RS232/IrDA/USB VCOM Cradle-IR MODEM	Cradle-IR interface is available on 8000/8300 Series Mobile Computers. Cradles or IR-Transceivers are required. ▶ Proceed to configure COM port (1~255) and baud rate settings.
RS232/IrDA/USB VCOM Cradle-IR MODEM	Modem interface is available on 8000/8200/8300/8400 Series Mobile Computers. Modem Cradles are required. ▶ Proceed to configure modem if necessary. Download AG v3.00 File Type : AGX files File name : Browse... ;E Batch Application Generator\test0603.AGX Download via : MODEM COM port : COM1 Refresh Baud rate : 115200 bps Configure... OK Cancel
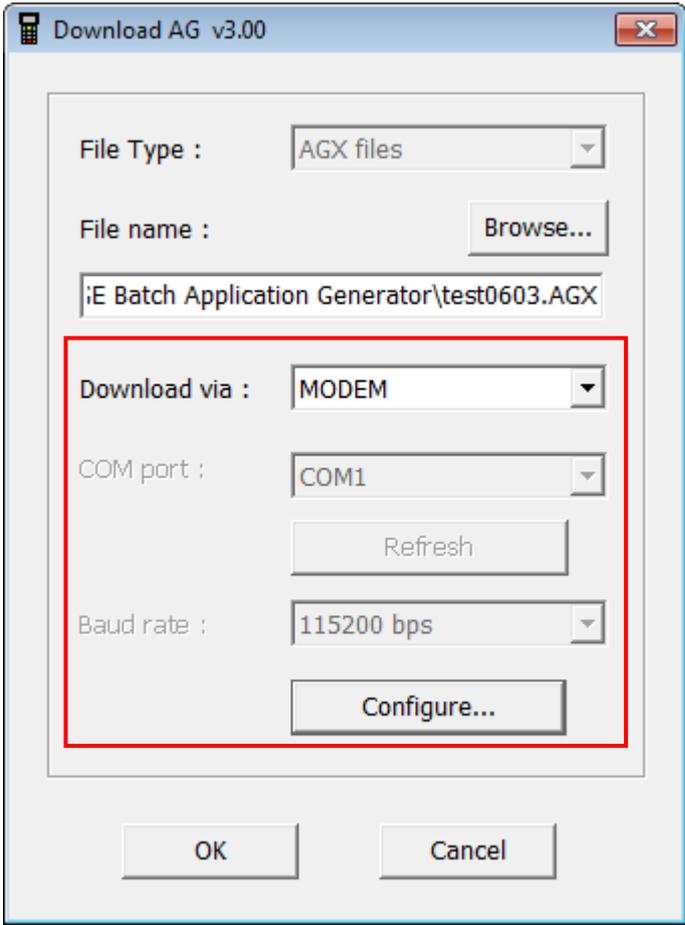
3. Click **OK** to start the download process.

7.1.2 DLOOKUP

Without the need to run the Batch Application Generator programs, you can use **DLookup.exe** to download a lookup file to your mobile computer.
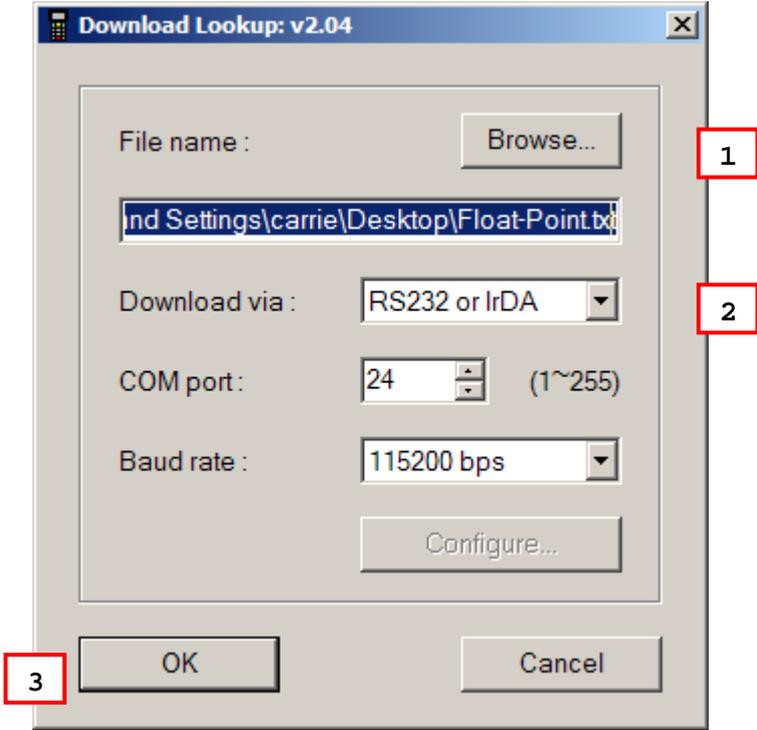

Note: (1) For 8200/8400/8600, USB Virtual COM shares the interface option of RS-232/IrDA.
(2) Cradle-IR is not supported on 8200/8400/8600.

Run DLookup.exe

1. In the **File name** box, type the file path where the lookup file is located.

    Otherwise, click **Browse** to locate the lookup file you want to download. Click **Open** in the dialog box as shown below.
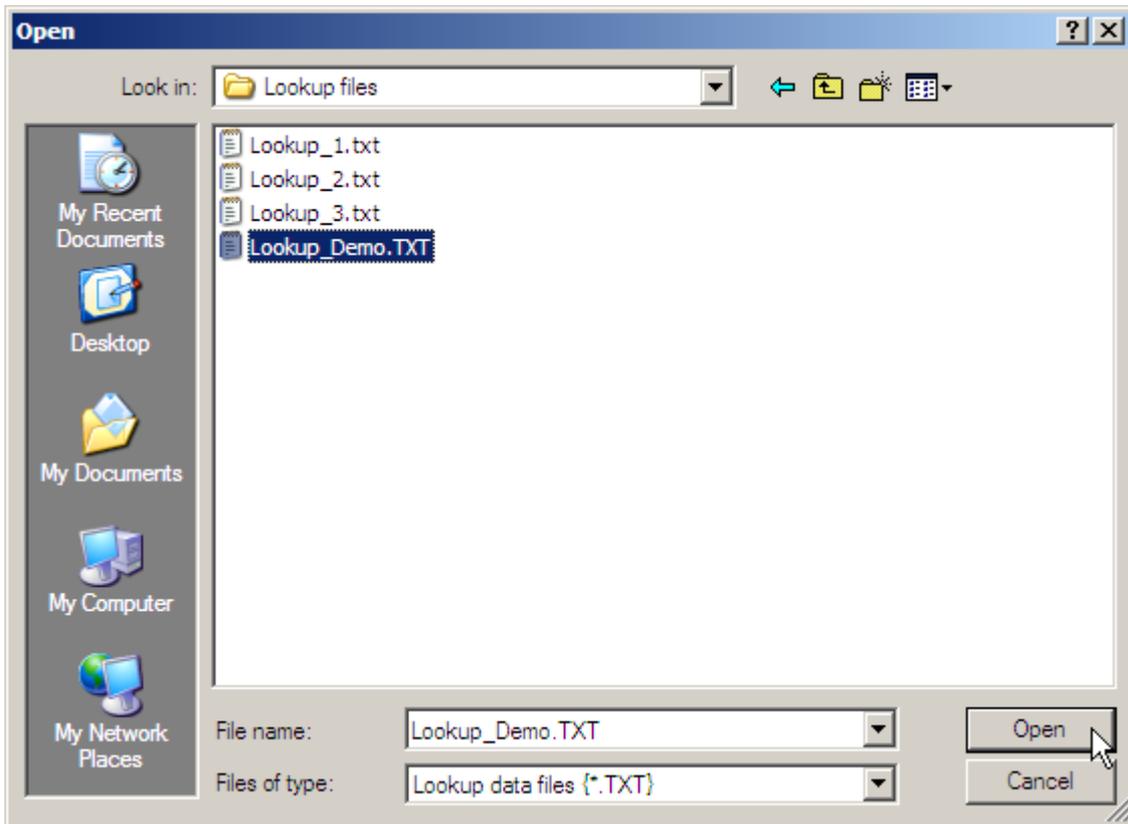
2. In the **Download via** box, select the download interface.

Download via	Description
RS232 or IrDA Cradle-IR MODEM	RS-232 or IrDA interface is available on 711/8000/8200/8300/8400/8600 Series Mobile Computers. ▶ Proceed to configure COM port (1~255) and baud rate settings.
RS232 or IrDA **Cradle-IR** MODEM	Cradle-IR interface is available on 711/8000/8300 Series Mobile Computers. Cradles or IR-Transceivers are required. ▶ Proceed to configure COM port (1~255) and baud rate settings.
RS232 or IrDA Cradle-IR **MODEM**	Modem interface is available on 8000/8200/8300/8400 Series Mobile Computers. Modem Cradles are required. ▶ Proceed to configure modem if necessary.
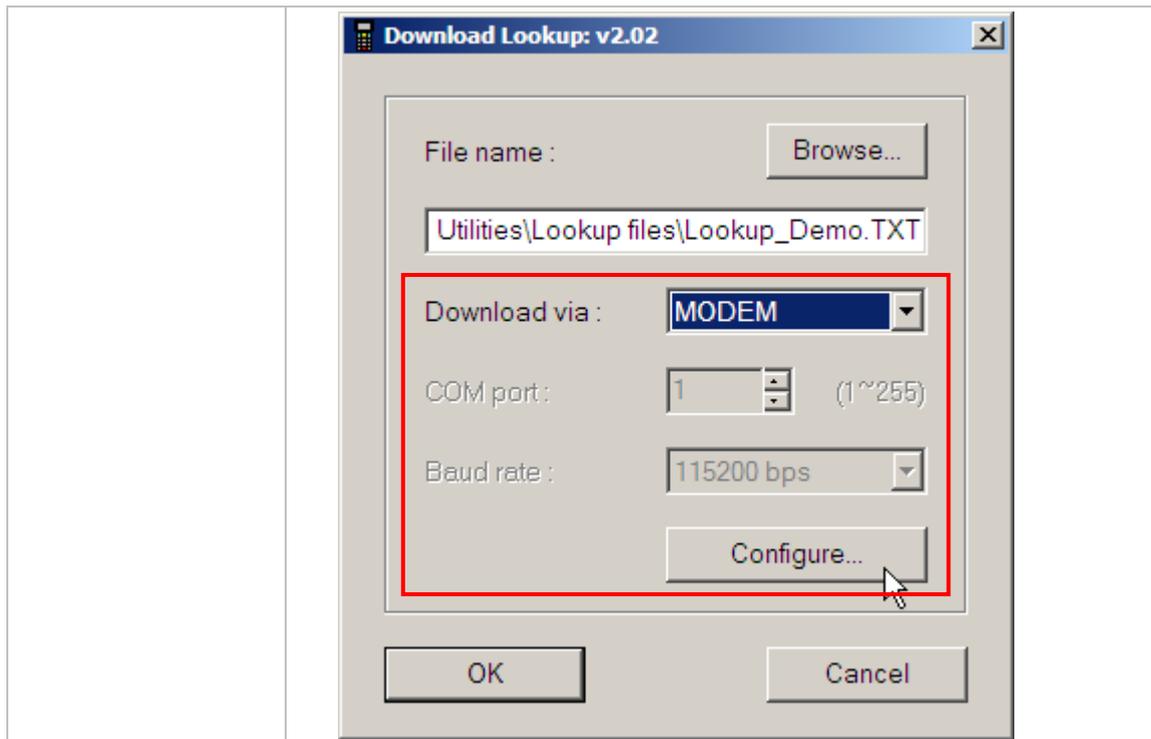
3.   Click **OK** to start the download process.

7.1.3 PROGLOAD

Without the need to run the Batch or WLAN Application Generator programs, you can use **ProgLoad.exe** to download a program (*.SHX, *.SYN or *.BIN) to your mobile computer.
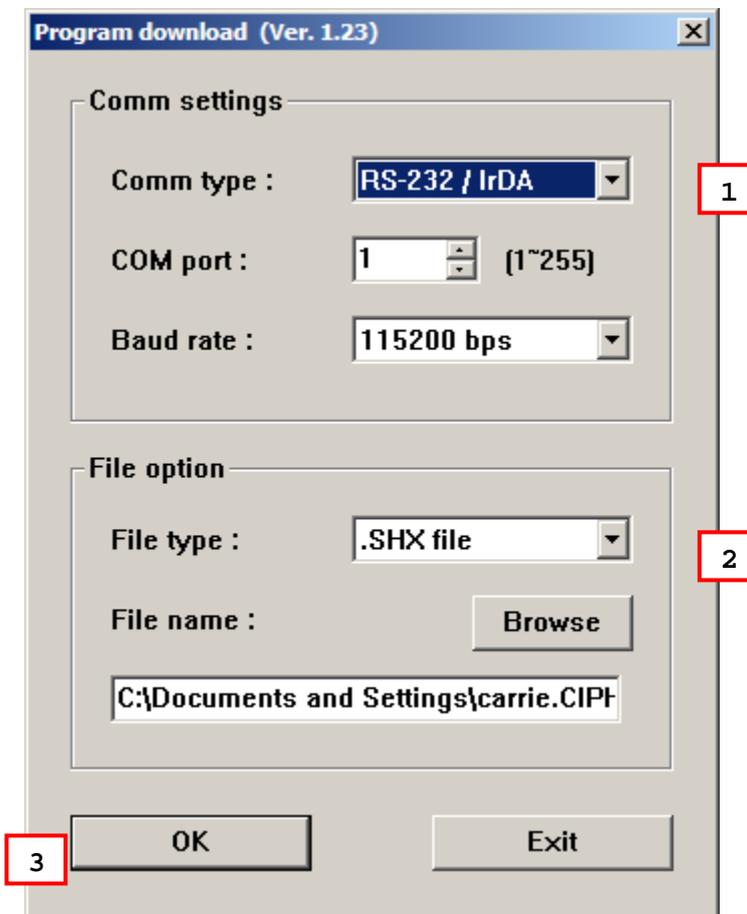
Note: (1) For 8200/8400/8600, USB Virtual COM shares the interface option of RS-232/IrDA.
(2) Cradle-IR is not supported on 8200/8400/8600.

Run ProgLoad.exe

1. In the **Comm type** box, select the download interface.

Comm Type	Description
RS-232/IrDA	Connection via direct RS-232 cable, IrDA port, or Bluetooth SPP
Cradle-IR	Connection via cradle
TCP/IP	Connection over networks

2. Click the **File type** drop-down menu to determine the file format. Then in the **File name** box, type the file path where the program file is located.

    Otherwise, click **Browse** to locate the program file you want to download. Click **Open** in the dialog box as shown below.

| File Type	Description
.SHX file	Any C program, such as AG Runtime, BASIC Runtime, font file, etc.
.SYN file	Any BASIC program after BASIC Runtime has been installed on the mobile computer.
.BIN file	Any C program ▶ Use PC utility "SHX2Bin.exe" to convert the program (.shx → .bin).

3. Click **OK** to start the download process.

7.2 UPLOAD UTILITIES

7.2.1 DATA_READ

Without the need to run the Batch Application Generator program, you can launch **Data_Read.exe** to receive data file(s) uploaded from the mobile computer via wired connection. However, if you want to upload data files over the network via Ethernet Cradles, use the Remote Console utility instead.
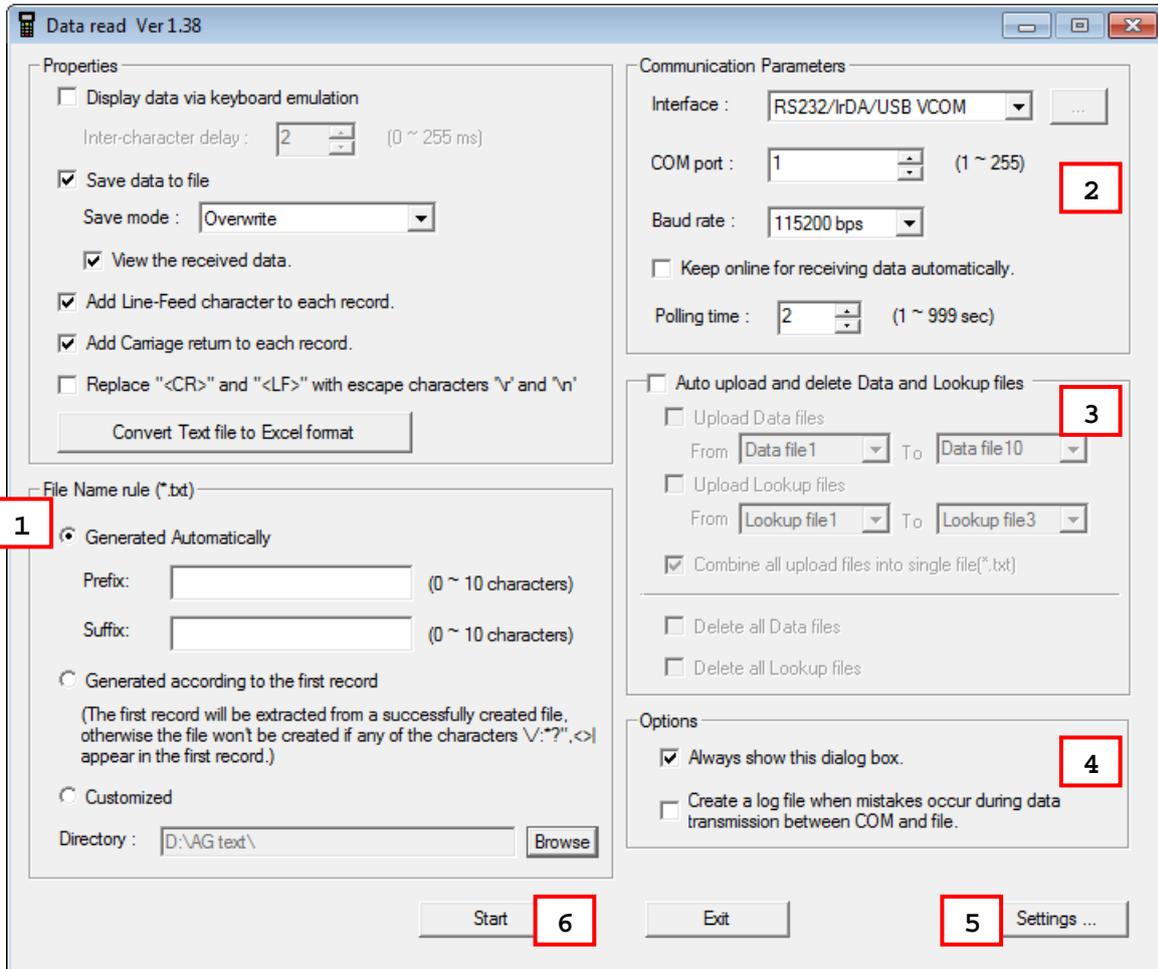
Run Data_Read.exe

1. In the [**Properties**] panel, decide whether to display data via keyboard emulation or save data to file. Options available are:

    ▶ **Display data via keyboard emulation**:

    Data is emulated as typed text and sent to the currently active window on the host where users can open a text editor to receive the data. In the **Inter-character delay** spin box, type or select a value that matches the computer response time of the keyboard interface. Such delay time is inserted between every two characters being transmitted. The longer the delay time is, the slower the transmission speed will be.

▶ **Save data to file**:

Select this item to save the received data to the host computer's storage. The received data is saved to text files (*.txt). Two saving modes are provided:

Save Mode	Description
Overwrite	If the file name you give is the same as of an existing file, the uploaded data will overwrite the original data. Otherwise, a new file will be created.
Append	If the file name you give is the same as of an existing file, the uploaded data will be appended to the original data. Otherwise, a new file will be created.

   ▶ **View the received data**: Select it to check out the received data.

Save data to file involves settings of the [**File Name rule**] panel which feature the following options:

Option	Function
Generated automatically	The uploaded data will be saved to the specified directory with a file name that is automatically generated based on the system date and time. ▶ Users can add a prefix or/and suffix string to the generated file name by specifying up to 10 characters in the Prefix/Suffix text field manually.
Generated according to the first record	The received data will be saved to a file named by its first record. ▶ For example, in Batch Application Generator you may design Form 1 to allow only one line for a specific file name and proceed to other forms for collecting data. Thus, the first record will be used to keep its file name. Depending on **Save mode**, if the file name you give is the same as of an existing file, the uploaded data will overwrite or append to the original data.
Customized	If you decide to customize own rule, click the Customized radio button to bring up the "Save As" dialog and browsing the file path where the data file will be saved to. Otherwise, click **Browse** to select which directory the data file is saved to.

▶ **Add Line-Feed character to each record**:

Adds a line-feed character to each transaction entry. Disable/enable it if necessary.

▶ **Add Carriage return to each record**:

Adds a carriage return control character to each transaction entry. Disable/enable it if necessary.

▶ A [**Convert text file to Excel format**] button is featured with "Save data to file" to facilitate the conversion of the received data to an Excel file. Click this button to access the data conversion setting.

2. In the [**Communication Parameters**] panel, users can select the upload interface, specify COM port and baud rate, decide whether to enable receiving data automatically, and set polling time in seconds.

   ▶ **Interface/COM port/Baud rate**

Interface	Description

RS232/IrDA/USB VCOM Cradle-IR Modem - TAPI Modem - COM	RS-232/IrDA/USB VCOM is available on 711/8000/8200/8300/8400 Series Mobile Computers. ▶ Proceed to configure COM port (1~255) and baud rate settings.
RS232/IrDA/USB VCOM Cradle-IR Modem - TAPI Modem - COM	Cradle-IR interface is available on 711/8000/8300 Series Mobile Computers. Cradles or IR-Transceivers are required. ▶ Proceed to configure COM port (1~255) and baud rate settings.
RS232/IrDA/USB VCOM Cradle-IR Modem - TAPI Modem - COM	Modem interface is available on 8000/8200/8300/8400 Series Mobile Computers. Modem Cradles are required. ▶ Select Modem-TAPI when using TAPI-compliant communication application on the host computer. Proceed to configure modem if necessary.
RS232/IrDA/USB VCOM Cradle-IR Modem - TAPI Modem - COM	Modem interface is available on 8000/8200/8300/8400 Series Mobile Computers. Modem Cradles are required. ▶ Select Modem-COM when using COM port based modem, and proceed to configure COM port and baud rate settings.

▶ **Keep online for receiving data automatically**:

Select the checkbox to have the mobile computer upload data to the host automatically. To overwrite/append data to file automatically, the best practice requires specifying reasonable polling time with this checkbox selected.

▶ **Polling time**:

In the Polling time spin box, type or select a value in seconds to set the polling time between the mobile computer and the host.

The table below lists models with interfaces that support automatic data uploading to a host computer using **Data_Read.exe**.

Auto Upload Support	8001	8200	8300	8400	8600
Interface Required	Cradle-IR	RS-232 USB VCOM USB VCOM CDC	Cradle-IR RS-232	RS-232 USB VCOM	RS-232 USB VCOM USB VCOM CDC Fast VPort

3. Select [**Auto upload and delete Data and Lookup files**] to configure whether to have the system automatically upload/delete data and lookup files once the mobile computer is seated in the cradle or connected via the supported cable. A running dot or hourglass icon will display on the corner of the screen indicating the mobile computer is ready for auto upload. Make sure the interface on the mobile computer is matching.

Option	Description
Upload Data files/ Upload Lookup files	Select the upload checkbox to automatically upload the data/lookup files to the host computer especially when working with a Charging and Communication Cradle. Click the pull-down menus to designate data/lookup files to be uploaded. Please note that the index of the last file can't be higher than the first one.
Combine all upload files into single file (*.txt)	Select this checkbox to combine contents of the uploaded files into a single text file. This control item is available only when the File Name Rule is set to *Generated Automatically* or *Generated according to the first record*. ▶ The *Generated Automatically* option will suffix the abbreviation of the currently uploaded file (data/lookup) to the saved file name. For example, when "Data file1" is being uploaded, "D01" will be added to the end of the saved file name. Likewise, "L01" is for "Lookup file1".
Delete all Data/Lookup files	Select the checkboxes to delete all Data/Lookup files

4. The [**Options**] panel encloses the settings how the Data_Read.exe acts each time it is used and what it responds to a data transmission error that comes up.

The options available are:

Option	Description
Always show this dialog box	Set the Data_Read.exe to show its window each time it is run. Users are able to configure the settings to receive data prior to the act. Deselect it to have the Data_Read.exe directly receive data from the mobile computer without showing its window. Note the window won't be able to recur unless the software's .ini file is deleted from the directory where the Data_Read.exe is installed. And once the .ini file is deleted, the software's configuration is gone. ▶ This is selected by default.
Create a log file when mistakes occur during transmission data between	Select it to set the Data_Read.exe to create a log file when one of the following comes up:

COM port and file	‣ The Batch AG fails to write data to the assigned file.
	‣ The Batch AG fails to open the COM port.
	‣ Data receiving time out.
	Normally the log file is accessible at the directory where the Data_Read.exe is installed.

5   Click the **Settings** button to import configuration from a .ini file, export configuration to a .ini file, or reset the current configuration to default.

6. Click **Start** to proceed with the upload process.

7.2.2 EAGX_READ

When using the Forge Batch AG version 1.00.0005 or later to create and download a template file, it may be configured to allow uploading the template file from the mobile computer at a later time.

Without the need to run the Batch Application Generator programs, you can use **EAGX_Read.exe** to receive a template file (*.AGX) from your mobile computer.
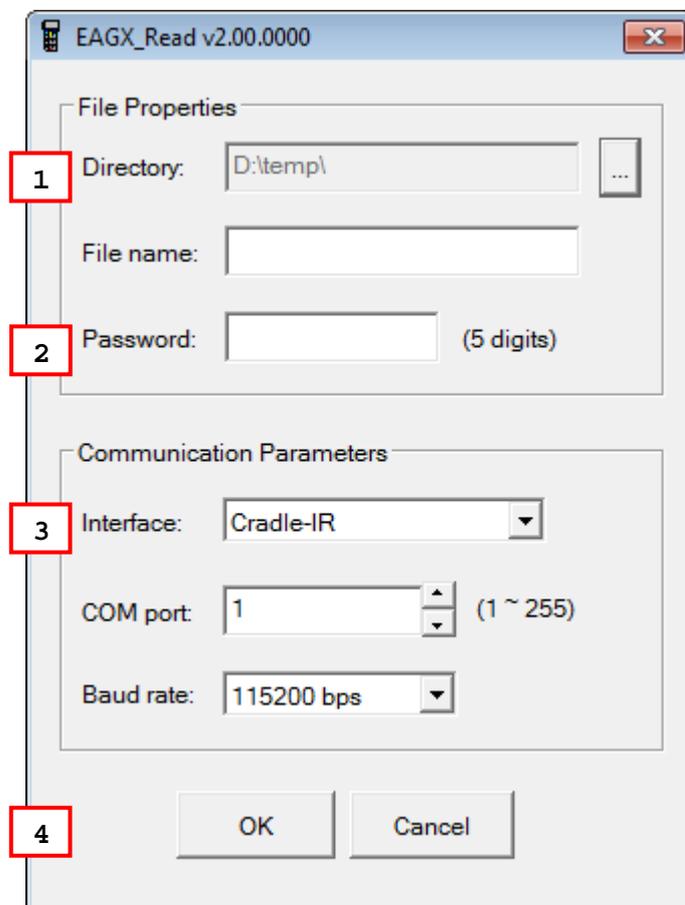
Note: Cradle-IR is not supported on 8200/8400/8600.

Run EAGX_Read.exe

1. In the **Directory** text field, type the file path where the .AGX file is to be saved.

   Otherwise, click [...] to locate where to save the file. You may change the file name as well

2. In the **Password** field, enter the correct password for access to the template file.

3. Click the **Interface** drop-down menu to select the upload interface.

Interface	Description
RS-232/IrDA/USB VCOM	Connection via direct RS-232 cable, IrDA port, or USB Virtual COM
Cradle-IR	Connection via cradle

4. Click **OK** to start the download process

7.3 SD DBF CONVERTER (8200/8400/8600 ONLY)

8200, 8400, and 8600 support accessing template files (.AGX) and lookup files from the SD card installed in the mobile computer.

The DBF Converter serves to convert a .txt lookup file to DBF format (.DB0, .DB1) and in the meanwhile duplicates the lookup file to the SD card installed in the mobile computer.

Tick the "Distribute" checkbox to duplicate the lookup file (DBF format) to the SD card.

Note: The default working directory is "\AG\DBF", which will be created on SD card automatically.

I)   For the source lookup file, click the [Browse] button to locate a text file (.TXT).

2)   For the lookup properties, specify from scratch or select a template file (.AGX) and the target lookup file. For the latter, the properties will be loaded automatically.

3)   For the output DBF file, make sure to select the check box of [Convert] and [Distribute].

Specify a file name or locate an existing DBF file to save the result files on your PC.

4) On 8200/8400/8600, select **3. Utilities** | **8. Load Lookup File** and identify the lookup file.

Note: The download interface must be set to "SD". Refer to 5.1.7 Download Method.

5) Click [Go].

▸   It will convert the source file to DBF format and save the result files on PC side.

▸   If you have selected the check box of [Distribute], it will automatically copy the result files to the import directory "\AG\DBF" on SD card.

6) On 8200/8400/8600, press [Enter] to confirm copying files to SD card and checking DBF format.

▸   Depending on the DBF location specified in the template file, it will either (1) load the associated lookup file(s) to SRAM via SD card, or (2) keep the files on SD card for direct access. Refer to 3.2.4 DBF File Location (8200/8400/8600 Only).

Note: It is suggested that you check DBF format upon completion of downloading lookup files.

7.4 PROGRAM SIMULATION

When you have completed the entire configuration, you may click **Tools** | **Simulator** to run the program simulator and verify whether these program sequences meet your requirements.

Collect Data
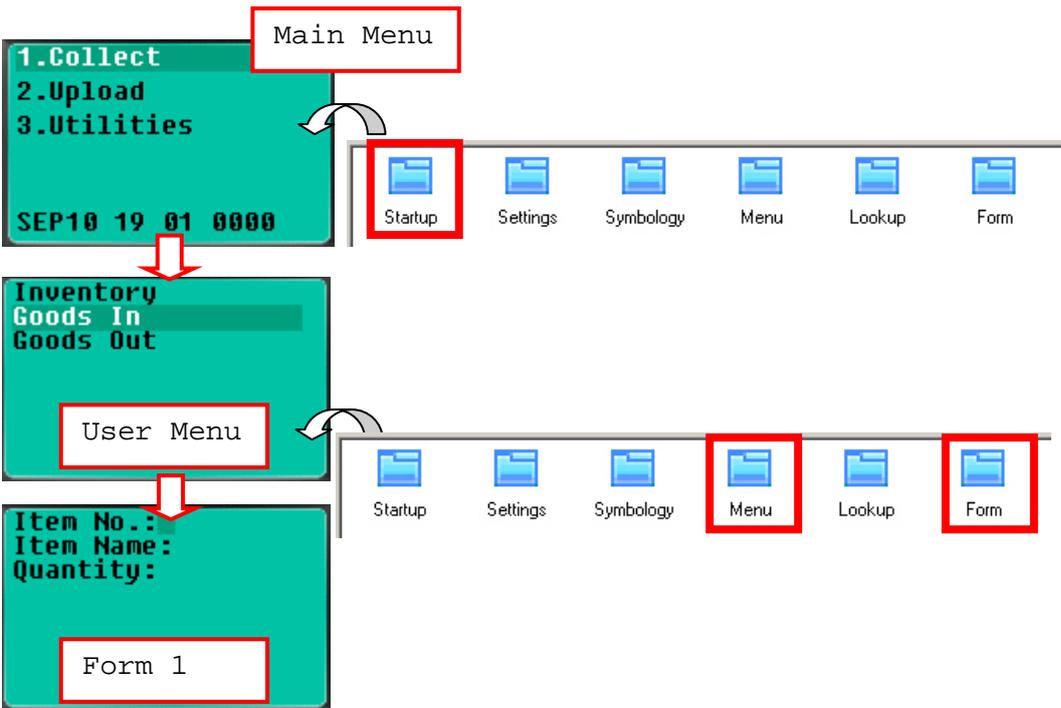
Upload Data

No simulation.

▶ Refer to 1.2.3 Record and 3.3.2 Lookup Data Can Be Uploaded. Normally, it will proceed to connect via the selected upload port.

▶ Refer to 5.1.1 Data Manipulation for "Data Deletion" upon completion of uploading data.
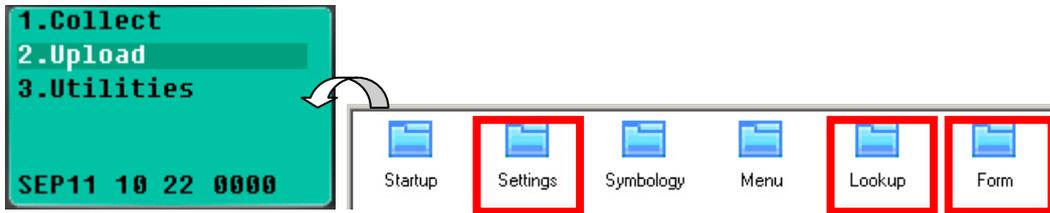
Utilities

Only partial simulation is allowed.
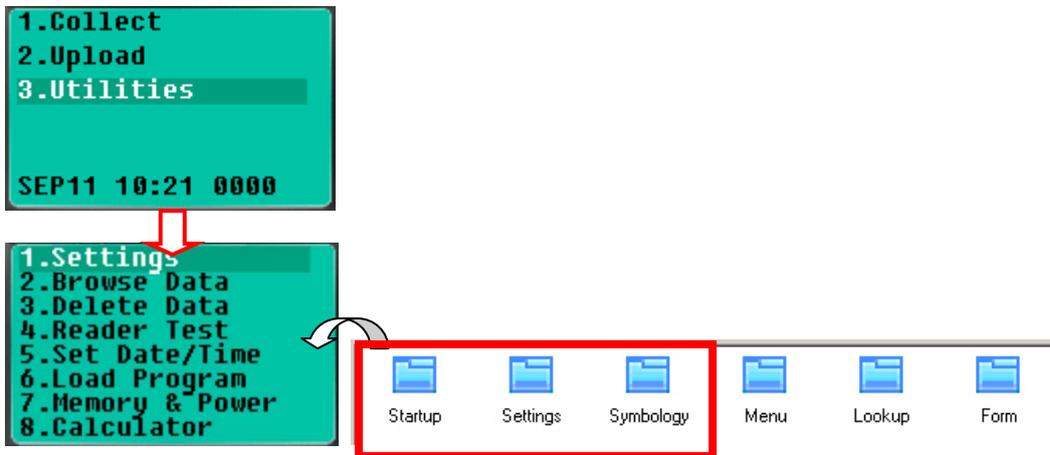
Note: If a lookup file is specified in use on the Lookup property page, **3. Utilities** | **8. Calculator** will be replaced by **3. Utilities** | **8. Load Lookup File** after you have downloaded the template file to the real mobile computer.

SCAN ENGINE SETTINGS

The **FORGE Batch Application Generator** allows configuring the following reader types, depending on the module equipped on your mobile computer:

	8000	8200	8300	8400	8600
Barcode Reader					
1D CCD Scan Engine	✓	✓	✓	✓	✓
1D Laser Scan Engine	✓	✓	✓	✓	✓
1D Long Range Laser Scan Engine (LR)	✗	✗	✓	✗	✗
1D Extra Long Range Laser Scan Engine (ELR)	✗	✗	✗	✗	✗
2D Scan Engine	✗	✓	✗	✓	✓
RFID Reader					
ACG_RFID Module v0.9	✗	✗	✗	✗	✗
ACG_RFID Module v1.0	✗	✗	✓	✗	✗
HF RFID Multi-ISO v1.2.2	✗	✗	✗	✗	✓

Options of different reader combination are allowed, such as 1D+RFID and 2D+RFID. For each combination, both readers can be initialized and ready for scanning at the same time (dual mode operation). For example, if you press the [Scan] button while running the AG run-time program on the mobile computer, it will read a barcode in position or an RFID tag in proximity depending on which one comes first.

Note: You cannot have 1D+2D scan engines installed on the mobile computer because they are both barcode readers!

SYMBOLOGIES SUPPORTED

Varying by the scan engine installed, the supported symbologies or tag types are listed below. For details on configuring associated settings, please refer to each Appendix separately.

	CCD, Laser	LR, ELR	2D
Codabar	✓	✓	✓
Code 11	✗	(✓)^Note	✓

Note: Code 11 supported on LR, ELR scan engine is for 8300 only.

		CCD, Laser	LR, ELR	2D
Code 93		✓	✓	✓
Composite Code		✗	✗	✓
MSI		✓	✓	✓
Plessey		✓	✗	✗
Postal Codes		✗	✗	✓
Telepen		✓	✗	✗
Code 128	Code 128	✓	✓	✓
	GS1-128 (EAN-128)	✓	✓	✓
	ISBT 128	✓	✓	✓
Code 2 of 5	Industrial 25 (Discrete 25)	✓	✓	✓
	Interleaved 25	✓	✓	✓
	Matrix 25	✓	✗	(✓)^Note
	Chinese 25	✗	✗	(✓)^Note
	Coop 25	(✓)^Note	✗	✗

Note: (1) ISBT 128 is not supported for 8600.
(2) Matrix 25 and Chinese 25 are supported on 2D scan engine for 8200 / 8400 / 8600 only.
(3) Coop 25 is supported on CCD/Laser scan engine for 8000 / 8200 / 8300 / 8400 / 8600 only.

		CCD, Laser	LR, ELR	2D
Code 3 of 9	Code 39	✓	✓	✓
	Trioptic Code 39	✗	✓	✓
	Italian Pharmacode (Code 32)	✓	✓	✓
	French Pharmacode	✓	✗	✗
EAN/UPC	EAN-8	✓	✓	✓
	EAN-13	✓	✓	✓
	Bookland EAN (ISBN)	✓	✓	✓
	UPC-E0	✓	✓	✓

	UPC-E1	✓	✓	✓
	UPC-A	✓	✓	✓
GS1 DataBar (RSS)	GS1 DataBar Omnidirectional (RSS-14)	✓	✓	✓
	GS1 DataBar Truncated	✓	✓	✓
	GS1 DataBar Stacked	✓	✓	✓
	GS1 DataBar Stacked Omnidirectional	✓	✓	✓
	GS1 DataBar Limited (RSS Limited)	✓	✓	✓
	GS1 DataBar Expanded (RSS Expanded)	✓	✓	✓
	GS1 DataBar Expanded Stacked	✓	✓	✓
2D Symbologies	PDF417	✗	✗	✓
	MicroPDF417	✗	✗	✓
	Data Matrix	✗	✗	✓
	Maxicode	✗	✗	✓
	QR Code	✗	✗	✓
	MicroQR	✗	✗	(✓)[Note]
	Aztec	✗	✗	(✓)[Note]

Note: MicroQR and Aztec are supported on 2D scan engine for 8200/8400/8600 only.

RFID TAGS SUPPORTED

The RFID reader supports read/write operations depending on the tags. The supported labels include ISO 15693, Icode®, ISO 14443A, and ISO 14443B. Currently, the performance of some tags has been confirmed, and the results are listed below for your reference. The results found with RFID module version 1.0 are different from those found with version 0.9 or older versions.

Note: You should study the specifications of RFID tags before use. The "Write Page" functionality may not be supported.

HF RFID Multi-ISO Version 1.2.2		UID Only	Read Page	Write Page*
ISO 14443A	Mifare Standard 1K (Mifare S50)	✓	✓	✓
	Mifare Standard 4K (Mifare S70)	✓	✓	✓
	Jcop 41 only the (Mifare 1K & 4K compatible)	✓	✓	✓
	Mifare Ultralight	✓	✓	✓
	Mifare Ultralight C	✓	✓	✓
	Mifare ProX	✓	✓	✓
	Mifare DESFire	✓	✓	✓
	Mifare Plus	✓	✓	✓
	Mifare Mini (Mifare S20)	✓	✓	✓
	SLE66CLX320P	✓	---	---
	SLE55R04 / 08	✓	---	---
	Smart MX	✓	---	---
	Jewel	✓	✓	✓
	Topaz	✓	✓	✓
ISO 14443B	SLE6666CL160S	✓	---	---
	SR176	✓	✓	✓
	SRIX4K	✓	✓	✓
	SLIX 4K	✓	✓	✓
Dual	ISO 14443A compliant	✓	---	---
	ISO 14443B compliant	✓	---	---
ISO 15693	EM4135	✓	✓	✓
	ICode SLI	✓	✓	✓
	LRI12	✓	✓	✓
	LRI64	✓	✓	✓
	LRI128	✓	✓	✓

	LRI2k	✔	✔	✔
	SRF55VxxP	✔	✔	✔
	SRF55VxxS	✔	✔	✔
	Tag-it HF-I Std	✔	✔	✔
	TempSense	✔	---	---
	ICODE1 with EAS&AFI	✔	✔	✔
	Icode	✔	✔	✔

ACG_RFID Module Version 1.0		UID Only	Read Page	Write Page*
ISO 14443A	Mifare Standard 1K	✔	✔	✔
	Mifare Standard 4K	✔	✔	✔
	Mifare Ultralight	✔	✔	✔
	Mifare DESFire	✔	---	---
	Mifare S50	✔	✔	✔
	SLE44R35	✔	---	---
	SLE66R35	✔	✔	✔
ISO 14443B	SRIX 4K	✔	✔	✔
	SR176	✔	✔	✔
ISO 15693	ICODE SLI	✔	✔	✔
	SRF55V02P	✔	---	---
	SRF55V02S	✔	---	---
	SRF55V10P	✔	---	---
	TI Tag-it HF-I	✔	✔	✔
ICODE® (Phillips)	ICODE	✔	✔	✔

ACG_RFID Module Version 0.9		UID Only	Read Page	Write Page*
ISO 14443A	Mifare Standard 1K	✔	---	---
	Mifare Standard 4K	✔	---	---
	Mifare DESFire	✔	---	---
	Mifare S50	✔	---	---
	SLE44R35	✔	---	---
	SLE66R35	✔	---	---

ISO 15693	ICODE SLI	✓	✓	✓
	SRF55V02P	✓	✓	✓
	SRF55V02S	✓	---	---
	SRF55V10P	✓	✓	✓
	TI Tag-it HF-I	✓	✓	✓
	ST LRI64	✓	✓	✓
	ST LRI512	✓	✓	✓
Tagit®	Tagit	✓	✓	✓
ICODE® (Phillips)	ICODE	✓	✓	✓

CCD/LASER SCAN ENGINE

The tables below list reader settings as well as symbology settings for the CCD or Laser scan engine.

READER SETTINGS TABLE

CCD/Laser Engine	Description	Default
Scan Mode		**Laser mode**
Continuous Mode	Non-stop scanning ▶ To decode the same barcode repeatedly, move away the scan beam and target it at the barcode for each scanning.	
Test Mode	Non-stop scanning ▶ Capable of decoding the same barcode repeatedly	
Repeat Mode	Non-stop scanning ▶ Capable of re-transmitting barcode data if triggering within one second after a successful decoding	
Momentary Mode	Hold down the scan trigger to start with scanning. ▶ The scanning won't stop until you release the trigger.	
Alternate Mode	Press the scan trigger to start with scanning. ▶ The scanning won't stop until you press the trigger again.	
Aiming Mode	Press the scan trigger to aim at a barcode. Within one second, press the trigger again to decode the barcode. ▶ The scanning won't stop until (a) a barcode is decoded, (b) the pre-set timeout expires, or (c) you release the trigger.	
Laser Mode	Hold down the scan trigger to start with scanning. ▶ The scanning won't stop until (a) a barcode is read, (b) the preset timeout expires, or (c) you release the trigger.	
Auto Off Mode	Press the scan trigger to start with scanning. ▶ The scanning won't stop until (a) a barcode is read or (b) the preset timeout expires.	
Auto Power Off Mode	Press the scan trigger to start with scanning. ▶ The scanning won't stop until the preset timeout expires, and, the preset timeout period re-counts after each successful decoding.	

Read Redundancy		None
None	No redundancy means one successful decoding will make the reading valid and induce the "READER Event".	
One time, Two times, or Three times	The higher the reading security is (that is, the more redundancy the user selects), the slower the reading speed gets. ▶ If "Three Times" is selected, it will take a total of four consecutive successful decodings of the same barcode to make the reading valid.	
Time-out		**3 sec.**
0~255 (second)	Set the maximum time for decoding to continue during a scan attempt. It applies to the following scan modes only – ▶ Aiming mode ▶ Laser mode ▶ Auto Off mode ▶ Auto Power Off mode	
Aiming Duration		**3 sec.**
1~255 (second)	Set the maximum time for decoding to continue during a scan attempt. ▶ It applies to Aiming mode only.	

SYMBOLOGY SETTINGS TABLE

CCD/Laser Engine	Description	Default
Codabar		**Enable**
Transmit Start/Stop Character	Decide whether to include the start/stop characters in the data being transmitted. If "Transmit Start/Stop Characters" is desired, select one set: ▶ abcd / abcd ▶ abcd / tn*e ▶ ABCD / ABCD ▶ ABCD / TN*E	No
Skip Checking Codebar Quiet Zone	Decide whether to skip checking Codebar quiet zone.	No
Code 128		**Enable**
Skip Checking Code 128 Quiet Zone	Decide whether to skip checking Code 128 quiet zone.	No
GS1-128		**Enable**
Transmit Code ID (for GS1-128)	Decide whether to include Code ID ("]C1") will be included in the data being transmitted.	No
Replace Field Separator	Decide whether to replace the field separator. If the barcode contains Field Separator "0x1D", it will be changed to the desired Field Separator. For example, type the desired character ";" (semicolon) as the new field separator. Then if the barcode contains Field Separator "0x1D", it will be changed to ";".	No
ISBT 128		**Enable**
Industrial 25 (Discrete 25)		**Enable**
Start/Stop Selection	This decides the readability of all 2 of 5 symbology variants. For example, flight tickets actually use an Industrial 2 of 5 barcode but with Interleaved 2 of 5 start/stop pattern. In order to read this barcode, the start/stop pattern selection parameter of Industrial 2 of 5 should set to "Interleaved 25".	Industrial 25
Verify Check Digit	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted.	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Yes
Select Length	▶ One or two fixed lengths ▶ Range	1~127
Interleaved 25		**Enable**
Start/Stop Selection	Refer to Industrial 25.	Interleaved 25

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Verify Check Digit	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted.	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Yes

Select Length	▶ One or two fixed lengths ▶ Range	1~127
Matrix 25		**Disable**
Start/Stop Selection	Refer to Industrial 25.	Matrix 25
Verify Check Digit	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted.	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Yes
Select Length	▶ One or two fixed lengths ▶ Range	1~127
Coop 25		**Disable**
Verify Check Digit	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted.	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Yes

Note: Coop 25 is supported on CCD/Laser scan engine for 8000/8200/8300/8400/8600 only.

French Pharmacode		**Disable**
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Yes
Italian Pharmacode (Code 32)		**Disable**
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Yes

Note: For French/Italian Pharmacode, "Transmit Start/Stop Character" is not provided in UI but it is controlled by the same setting of Code 39.

Code 39		**Enable**
Transmit Start/Stop Character	Decide whether to include the start/stop characters "*" in the data being transmitted.	No
Verify Check Digit	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted.	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Yes
Code 39 Full ASCII	Code 39 Full ASCII includes all the alphanumeric and special characters.	No

Security Level	▶ High ▶ Normal	High
Skip Checking Code 39 Quiet Zone	Decide whether to skip checking Code 39 quiet zone.	No
Code 93		**Enable**
Skip Checking Code 93 Quiet Zone	Decide whether to skip checking Code 93 quiet zone.	No

MSI		**Disable**
Check Digit Verification	Select one of the three calculation formulas to verify the check digit. If the check digit is incorrect, the barcode will not be accepted. ▶ Single Modulo 10 ▶ Double Modulo 10 ▶ Modulo 11 & 10	Single Modulo 10
Check Digit Transmission	Decide whether to include the check digit in the data being transmitted. ▶ Last digit not transmitted ▶ Transmitted ▶ Last 2 digits not transmitted	Transmitted
Length Qualification	▶ Fixed length ▶ Max/Min Length	1~127
Negative Barcode		**Enable**
Plessey		**Disable**
Convert to UK Plessey	When applied, each occurrence of the character "A" in the barcode data will be replaced by the character "X".	No
Transmit Check Digit	Decide whether to include the two check digits in the data being transmitted.	Yes
Skip Checking Plessey Quiet Zone	Decide whether to skip checking Plessey quiet zone.	No
Telepen		**Disable**
Original Telepen (Numeric)	The original Telepen includes numeric characters.	No
AIM Telepen (Full ASCII)	AIM Telepen (Full ASCII) includes all the alphanumeric and special characters.	Yes
GS1 Databar-14/Expanded			**Disable**
GS1 Databar-14	Transmit Code ID	Decide whether to include Code ID ("]e0") will be included in the data being transmitted. GS1 DataBar-14 is short for GS1 DataBar Omnidirectional. This group consists of (1) GS1 DataBar Omnidirectional, (2) GS1 DataBar Truncated, (3) GS1 DataBar Stacked, and (4) GS1 DataBar Stacked Omnidirectional.	Yes

GS1 Databar Expanded	Transmit Code ID	Decide whether to include Code ID ("]e0") will be included in the data being transmitted. This group consists of (1) GS1 DataBar Expanded, and (2) GS1 DataBar Expanded Stacked.	
Transmit Application ID		Decide whether to include the Application ID ("01") in the data being transmitted.	Yes
Transmit Check Digit		Decide whether to include the check digit in the data being transmitted.	Yes

GS1 Databar Limited			**Disable**
Transmit Code ID		Decide whether to include Code ID ("]e0") will be included in the data being transmitted.	Yes
Transmit Application ID		Decide whether to include the Application ID ("01") in the data being transmitted.	Yes
Transmit Check Digit		Decide whether to include the check digit in the data being transmitted.	Yes
EAN-8			**Enable**
Convert to EAN-13	The EAN-8 barcode will be expanded into EAN-13, and the next processing will follow the settings configured for EAN-13. ▶ After conversion, the data follows EAN-13 format and is affected by EAN-13 programming selections (e.g. Check Digit). 5 zeros will be padded in the middle of the converted data by default.		No
	GTIN-13 for EAN13	Decide whether to convert using GTIN-13 format. With this checkbox selected, 5 leading zeros will be padded.	No
Transmit Check Digit		Decide whether to include the check digit in the data being transmitted.	Yes
Addon 2 / Addon 5		Decide whether to decode EAN-8 with supplementals.	No
EAN-13 & UPC-A			**Enable**
ISBN Conversion		The EAN-13 barcode starting with 978 and 979 will be converted to ISBN.	No
ISSN Conversion		The EAN-13 barcode starting with 977 will be converted to ISSN.	No
Transmit Check Digit		Decide whether to include the check digit in the data being transmitted.	Yes
(UPC-A) Transmit System Number		Decide whether to include the UPC-A System Number in the data being transmitted.	Yes
(UPC-A) Transmit Check Digit		Decide whether to include the UPC-A check digit in the data being transmitted.	Yes
(UPC-A) Convert to EAN-13		The UPC-A barcode will be expanded into EAN-13, and the next processing will follow the settings configured for EAN-13. ▶ After conversion, the data follows EAN-13 format and is affected by EAN-13 programming selections (e.g. Check Digit).	Yes

GTIN for EAN-13	The EAN-13 barcode will be expanded into 14-digit Global Trade Item Number (GTIN).	No
Addon 2 / Addon 5	Decide whether to decode EAN-13/UPC-A with supplementals.	No
EAN-13 Addon Mode 529	Decide whether to enable EAN-13 529 Addon Mode. When enabled, barcodes starting with 529 won't be decoded if the scanned barcodes do not have the Addon 2 or Addon 5 suffix.	No
EAN-13 Addon Mode 491	Decide whether to enable EAN-13 491 Addon Mode. When enabled, barcodes starting with 491 won't be decoded if the scanned barcodes do not have the Addon 2 or Addon 5 suffix.	No
EAN-13 Addon Mode 979	Decide whether to enable EAN-13 979 Addon Mode. When enabled, barcodes starting with 979 won't be decoded if the scanned barcodes do not have the Addon 2 or Addon 5 suffix.	No
EAN-13 Addon Mode 978	Decide whether to enable EAN-13 978 Addon Mode. When enabled, barcodes starting with 978 won't be decoded if the scanned barcodes do not have the Addon 2 or Addon 5 suffix.	No
EAN-13 Addon Mode 977	Decide whether to enable EAN-13 977 Addon Mode. When enabled, barcodes starting with 977 won't be decoded if the scanned barcodes do not have the Addon 2 or Addon 5 suffix.	No
EAN-13 Addon Mode 378/379	Decide whether to enable EAN-13 378/379 Addon Mode. When enabled, barcodes starting with 378/379 won't be decoded if the scanned barcodes do not have the Addon 2 or Addon 5 suffix.	No
EAN-13 Addon Mode 414/419/434/439	Decide whether to enable EAN-13 414/419/434/439 Addon Mode. When enabled, barcodes starting with 414/419/434/439 won't be decoded if the scanned barcodes do not have the Addon 2 or Addon 5 suffix.	No
UPC-E (= UPC-E0)		**Enable**
Convert to UPC-A	The UPC-E barcode will be expanded into UPC-A, and the next processing will follow the settings configured for UPC-A. ▶ After conversion, the data follows UPC-A format and is affected by UPC-A programming selections (e.g. System Number, Check Digit).	No
Transmit Check Digit	Decide whether to include the UPC-E check digit in the data being transmitted.	Yes
Transmit System Number	Decide whether to include the UPC-E System Number in the data being transmitted.	No
Addon 2 / Addon 5	Decide whether to decode UPC-E with supplementals.	No
UPC-E1		**Disable**

UPC-E1 Triple Check	Decide whether to apply read redundancy to the UPC-E1 barcode. If true, the same UPC-E1 barcode has to be read three times to make a valid reading. ▶ This is helpful when the barcode is defaced and requires more attempts to read it successfully.	No
GS1 Formatting		**---**
GS1-128 (EAN128)	Decide whether to enable GS1 formatting for GS1-128.	Disable
GS1 DataBar Family	Decide whether to enable GS1 formatting for GS1 DataBar Family.	Disable
Field Separator	Specify the field separator.	No
Application ID Mark	Specify the application ID mark character.	No
UPC/EAN		**---**
Addon Security for UPC/EAN Barcodes	Decide the read redundancy (the number of times decoding a UPC/EAN barcode).	0~30
Skip Checking UPC/EAN Quiet Zone	Decide whether to skip checking UPC/EAN quiet zone.	No

LR/ELR LASER SCAN ENGINE

The tables below list reader settings as well as symbology settings for the Long Range Laser (LR) or Extra Long Range Laser (ELR) scan engine.

READER SETTINGS TABLE

LR/ELR Engine	Description	Default
Scan Mode		**Laser mode**
Continuous Mode	Non-stop scanning ▶ To decode the same barcode repeatedly, move away the scan beam and target it at the barcode for each scanning.	
Test Mode	Non-stop scanning ▶ Capable of decoding the same barcode repeatedly	
Alternate Mode	Press the scan trigger to start with scanning. ▶ The scanning won't stop until you press the trigger again.	
Aiming Mode	Press the scan trigger to aim at a barcode. Within one second, press the trigger again to decode the barcode. ▶ The scanning won't stop until (a) a barcode is decoded, (b) the pre-set timeout expires, or (c) you release the trigger.	
Laser Mode	Hold down the scan trigger to start with scanning. ▶ The scanning won't stop until (a) a barcode is read, (b) the preset timeout expires, or (c) you release the trigger.	
Auto Off Mode	Press the scan trigger to start with scanning. ▶ The scanning won't stop until (a) a barcode is read or (b) the preset timeout expires.	
Time-out		**3 sec.**
0~255 (second)	Set the maximum time for decoding to continue during a scan attempt. It applies to the following scan modes only – ▶ Aiming mode ▶ Laser mode ▶ Auto Off mode	
Aiming Duration		**3 sec.**
1~255 (second)	Set the maximum time for decoding to continue during a scan attempt. ▶ It applies to Aiming mode only.	

Note: Scan Mode options and Aiming Duration are supported on Long Range Laser scan engine for 8300.

SYMBOLOGY SETTINGS TABLE (8300)

LR/ELR Engine	Description	Default
Codabar		**Enable**
Transmit Start/Stop Character	Decide whether to include the start/stop characters in the data being transmitted.	No
Select Length	▶ Any Length ▶ One or two fixed lengths ▶ Range (1~55)	Any Length
Code 128		**Enable**
GS1-128		**Enable**
Replace Field Separator	Decide whether to replace the field separator. If the barcode contains Field Separator "0x1D", it will be changed to the desired Field Separator. For example, type the desired character ";" (semicolon) as the new field separator. Then if the barcode contains Field Separator "0x1D", it will be changed to ";".	No
ISBT 128		**Enable**
Industrial 25 (Discrete 25)		**Enable**
Select Length	▶ Any Length ▶ One or two fixed lengths ▶ Range (1~55)	Any Length
Interleaved 25		**Enable**
Convert to EAN-13	Convert a 14-character barcode into EAN-13 if the following requirements are met: ▶ The barcode must have a leading 0 and a valid EAN-13 check digit.	No
Verify Check Digit	Decide whether to verify the check digit. If desired, select one of the algorithms below. If the check digit is incorrect, the barcode will not be accepted. ▶ No ▶ USS algorithm ▶ OPCC algorithm	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	No
Select Length	▶ Any Length ▶ One or two fixed lengths ▶ Range (1~55)	Any Length
Code 39		**Enable**
Convert to Code 32	Convert to Italian Pharmacode.	No
Verify Check Digit	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted.	No

Transmit Check Digit	Decide whether to include the check digit in the data being transmitted. ▶ "Verify Check Digit" must be enabled so that the check digit can be left out (= "Transmit Check Digit" disabled).	No
Code 39 Full ASCII	Code 39 Full ASCII includes all the alphanumeric and special characters.	Disable
Trioptic Code 39	Decide whether to decode Trioptic Code 39. ▶ Trioptic Code 39 is a variant of Code 39 used in the marking of computer tape cartridges. It always contains six characters.	Disable
Select Length	▶ Any Length ▶ One or two fixed lengths ▶ Range (1~55)	Any Length
Code 93		**Enable**
Select Length	▶ Any Length ▶ One or two fixed lengths ▶ Range (1~55)	Any Length
MSI		**Enable**
Verify Check Digit	If Two Check Digits option is selected, an additional verification is required to ensure integrity. Select one of the algorithms below. If the check digit is incorrect, the barcode will not be accepted. | Check Digit	Algorithm
---	---
One Check Digit	Single Modulo 10
Two Check Digits	▶ Mod 10/Mod 11 ▶ Mod 10/Mod 10		Single Modulo 10
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	No
Select Length	▶ Any Length ▶ One or two fixed lengths ▶ Range (1~55)	Any Length
GS1 Databar		**---**
GS1 Databar-14	GS1 DataBar-14 is short for GS1 DataBar Omnidirectional. This group consists of (1) GS1 DataBar Omnidirectional, (2) GS1 DataBar Truncated, (3) GS1 DataBar Stacked, and (4) GS1 DataBar Stacked Omnidirectional.	Enable
GS1 Databar Limited		Enable
GS1 Databar Expanded	This group consists of (1) GS1 DataBar Expanded, and (2) GS1 DataBar Expanded Stacked.	Enable

Convert RSS to UPC/EAN	"Convert to UPC/EAN" only applies to GS1 Databar-14 and GS1 Databar Limited barcodes not decoded as part of a Composite barcode. **Convert to EAN-13** Strip the leading "010" from barcodes. ▸ "01" is the Application ID and must be followed by a single zero (the first digit encoded) **Convert to UPC-A** Strip the leading "0100" from barcodes. ▸ "01" is the Application ID and must be followed by two or more zeros (but not six zeros)	No
EAN-8		**Enable**
Convert to EAN-13	The EAN-8 barcode will be expanded into EAN-13, and the next processing will follow the settings configured for EAN-13.	No
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
EAN-13		**Enable**
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
Bookland EAN (= Bookland ISBN-10)	The EAN-13 barcode starting with 978 will be converted to ISBN. ▸ Data starting with 979 is not considered Bookland in this mode.	No
UPC-A		**Enable**
Transmit Check Digit	Decide whether to include the UPC-A check digit in the data being transmitted.	Yes
Transmit Preamble	Decide whether to include the UPC-A preamble System Number (and Country Code) in the data being transmitted.	System Number
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
UPC-E (= UPC-E0)		**Enable**
Transmit Check Digit	Decide whether to include the UPC-E0 check digit in the data being transmitted.	Yes
Transmit Preamble	Decide whether to include the UPC-E0 preamble System Number (and Country Code) in the data being transmitted.	System Number
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
Convert to UPC-A	The UPC-E0 barcode will be expanded into UPC-A, and the next processing will follow the settings configured for UPC-A.	No
UPC-E1		**Disable**
Transmit Check Digit	Decide whether to include the UPC-E1 check digit in the data being transmitted.	Yes
Transmit Preamble	Decide whether to include the UPC-E1 preamble System Number (and Country Code) in the data being transmitted.	System Number

Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
Convert to UPC-A	The UPC-E1 barcode will be expanded into UPC-A, and the next processing will follow the settings configured for UPC-A.	No
UCC Coupon Extended Code		**Disable**
Read UPC-A barcodes starting with digit "5", EAN-13 barcodes starting with digits "99", and UPC-A/GS1-128 Coupon Codes. ▶ UPC-A, EAN-13, and GS1-128 must be enabled first!		
UPC/EAN Addon		**---**
Addon 2 / Addon 5	Decide whether to decode EAN-8, EAN-13, UPC-E0, UPC-E1, UPC-A with addons. ▶ Ignore Addons ▶ Decode Only With Addons ▶ Decode With Addons (= Auto-discriminate)	Ignore…
Code 11		**Enable**
Verify Check Digit	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted. ▶ No verification ▶ One Check Digit ▶ Two Check Digits	No
Select Length	▶ Any Length ▶ One or two fixed lengths ▶ Range (1~55)	Any Length

Note: Code 11 is supported on Long Range Laser scan engine for 8300 only.

GS1 Formatting (8300 only)		**---**
GS1-128 (EAN128)	Decide whether to enable GS1 formatting for GS1-128.	Disable
GS1 DataBar Omnidirectional	Decide whether to enable GS1 formatting for GS1 DataBar Omnidirectional.	Disable
GS1 DataBar Limited	Decide whether to enable GS1 formatting for GS1 DataBar Limited.	Disable
GS1 DataBar Expanded	Decide whether to enable GS1 formatting for GS1 DataBar Expanded.	Disable
Field Separator	Specify the field separator.	No
Application ID Mark	Specify the application ID mark character.	No
UPC/EAN		**---**
Addon Security for UPC/EAN Barcodes	Decide the read redundancy (the number of times decoding a UPC/EAN barcode).	0~30
Skip Checking UPC/EAN Quiet Zone	Decide whether to skip checking UPC/EAN quiet zone.	No

Appendix IV

2D SCAN ENGINE

The tables below list reader settings as well as symbology settings for the 2D scan engine.

READER SETTINGS TABLE

2D Engine	Description	Default
Scan Mode		**Laser mode**
Continuous Mode	Non-stop scanning ▶ To decode the same barcode repeatedly, move away the scan beam and target it at the barcode for each scanning.	
Test Mode	Non-stop scanning ▶ Capable of decoding the same barcode repeatedly	
Alternate Mode	Press the scan trigger to start with scanning. ▶ The scanning won't stop until you press the trigger again.	
Aiming Mode	Press the scan trigger to aim at a barcode. Within one second, press the trigger again to decode the barcode. ▶ The scanning won't stop until (a) a barcode is decoded, (b) the pre-set timeout expires, or (c) you release the trigger.	
Laser Mode	Hold down the scan trigger to start with scanning. ▶ The scanning won't stop until (a) a barcode is read, (b) the preset timeout expires, or (c) you release the trigger.	
Auto Off Mode	Press the scan trigger to start with scanning. ▶ The scanning won't stop until (a) a barcode is read or (b) the preset timeout expires.	
Decode Illumination	Decide whether to flash illumination on every barcode capture to aid decoding. ▶ Turn On (Internal LED) ▶ Turn Off	**On**
Aiming Pattern	Decide whether to project the aiming pattern during barcode capture. ▶ Turn On ▶ Turn Off	**On**

Time-out		3 sec.
0~255 (second)	Set the maximum time for decoding to continue during a scan attempt. It applies to the following scan modes only – ▶ Aiming mode ▶ Laser mode ▶ Auto Off mode	
Aiming Duration		**3 sec.**
1~255 (second)	Set the maximum time for decoding to continue during a scan attempt. ▶ It applies to Aiming mode only.	
Picklist Mode	Picklist mode enables the decoder to decode only barcodes aligned under the center of the laser aiming pattern. ▶ Enable ▶ Disable	**Disable**
1D Inverse Decode	1D Inverse Decoder: ▶ Decode regular 1D barcode only ▶ Decode inverse 1D barcode only ▶ Decode both regular and inverse	**Decode regular 1D barcode only**
Read Redundancy		**None**
None	No redundancy means one successful decoding will make the reading valid and induce the "READER Event".	
One time or two times	The higher the reading security is (that is, the more redundancy the user selects), the slower the reading speed gets. ▶ If "Two Times" is selected, it will take a total of three consecutive successful decodings of the same barcode to make the reading valid.	
Mobile Display Mode	Decide whether to enable enhanced mobile phone display in reading barcodes. ▶ Enable ▶ Disable	**Disable**

Note: Scan Mode options, Decode Illumination, Aiming Pattern, Aiming Duration, Picklist Mode and 1D Inverse Decoding are supported on 2D scan engine for 8200/8400/8600/ only.

SYMBOLOGY SETTINGS TABLE

1D SYMBOLOGIES

2D Engine	Description	Default
Codabar		**Enable**
Transmit Start/Stop Character	Decide whether to include the start/stop characters in the data being transmitted.	No
Select Length	▶ Any Length ▶ One or two fixed lengths ▶ Range (1~55)	Any Length
Code 128		**Enable**
GS1-128		**Enable**
Replace Field Separator	Decide whether to replace the field separator. If the barcode contains Field Separator "0x1D", it will be changed to the desired Field Separator. For example, type the desired character ";" (semicolon) as the new field separator. Then if the barcode contains Field Separator "0x1D", it will be changed to ";".	No
ISBT 128		**Enable**
Industrial 25 (Discrete 25)		**Enable**
Select Length	▶ Any Length ▶ One or two fixed lengths ▶ Range (1~55)	Any Length
Interleaved 25		**Enable**
Convert to EAN-13	Convert a 14-character barcode into EAN-13 if the following requirements are met: ▶ The barcode must have a leading 0 and a valid EAN-13 check digit.	No
Verify Check Digit	Decide whether to verify the check digit. If desired, select one of the algorithms below. If the check digit is incorrect, the barcode will not be accepted. ▶ No ▶ USS algorithm ▶ OPCC algorithm	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	No
Select Length	▶ Any Length ▶ One or two fixed lengths ▶ Range (1~55)	Any Length

Matrix 25		Disable
Verify Check Digit	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted.	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	No
Select Length	▶ Any Length ▶ One or two fixed lengths ▶ Range (1~55)	Any Length
Chinese 25		Disable

Note: Matrix 25 and Chinese 25 are supported on 2D scan engine for 8200/8400/8600.

Code 39		Enable
Convert to Code 32	Convert to Italian Pharmacode.	No
Verify Check Digit	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted.	No
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted. ▶ "Verify Check Digit" must be enabled so that the check digit can be left out (= "Transmit Check Digit" disabled).	No
Code 39 Full ASCII	Code 39 Full ASCII includes all the alphanumeric and special characters.	Disable
Trioptic Code 39	Decide whether to decode Trioptic Code 39. ▶ Trioptic Code 39 is a variant of Code 39 used in the marking of computer tape cartridges. It always contains six characters.	Disable
Select Length	▶ Any Length ▶ One or two fixed lengths ▶ Range (1~55)	Any Length
Code 93		Enable
Select Length	▶ Any Length ▶ One or two fixed lengths ▶ Range (1~55)	Any Length
MSI		Disable
Verify Check Digit	If Two Check Digits option is selected, an additional verification is required to ensure integrity. Select one of the algorithms below. If the check digit is incorrect, the barcode will not be accepted.	Single Modulo 10

	Check Digit	**Algorithm**	
	One Check Digit	Single Modulo 10	
	Two Check Digits	▶ Mod 10/Mod 11 ▶ Mod 10/Mod 10	
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	No
Select Length	▶ Any Length ▶ One or two fixed lengths ▶ Range (1~55)	Any Length
GS1 Databar		---
GS1 Databar-14	GS1 DataBar-14 is short for GS1 DataBar Omnidirectional. This group consists of (1) GS1 DataBar Omnidirectional, (2) GS1 DataBar Truncated, (3) GS1 DataBar Stacked, and (4) GS1 DataBar Stacked Omnidirectional.	Enable
GS1 Databar Limited		Enable
GS1 Databar Expanded	This group consists of (1) GS1 DataBar Expanded, and (2) GS1 DataBar Expanded Stacked.	Enable
Convert RSS to UPC/EAN	"Convert to UPC/EAN" only applies to GS1 Databar-14 and GS1 Databar Limited barcodes not decoded as part of a Composite barcode. **Convert to EAN-13** Strip the leading "010" from barcodes. ▶ "01" is the Application ID and must be followed by a single zero (the first digit encoded) **Convert to UPC-A** Strip the leading "0100" from barcodes. ▶ "01" is the Application ID and must be followed by two or more zeros (but not six zeros)	No
EAN-8		**Enable**
Convert to EAN-13	The EAN-8 barcode will be expanded into EAN-13, and the next processing will follow the settings configured for EAN-13.	No
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
EAN-13		**Enable**
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
Bookland EAN (= Bookland ISBN-10)	The EAN-13 barcode starting with 978 will be converted to ISBN. ▶ Data starting with 979 is not considered Bookland in this mode.	No

Bookland ISBN-13	Barcode data, starting with either 978 or 979, will be reported in 13-digit format to meet the 2007 ISBN-13 protocol.	No

Note: Bookland ISBN-13 is supported on 2D scan engine for 8200/8400/8600.

UPC-A		Enable
Transmit Check Digit	Decide whether to include the UPC-A check digit in the data being transmitted.	Yes
Transmit Preamble	Decide whether to include the UPC-A preamble System Number (and Country Code) in the data being transmitted.	System Number
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
Convert to EAN-13	The UPC-A barcode will be expanded into EAN-13, and the next processing will follow the settings configured for EAN-13. ▸ After conversion, the data follows EAN-13 format and is affected by EAN-13 programming selections (e.g. Check Digit).	No
UPC-E (= UPC-E0)		**Enable**
Transmit Check Digit	Decide whether to include the UPC-E0 check digit in the data being transmitted.	Yes
Transmit Preamble	Decide whether to include the UPC-E0 preamble System Number (and Country Code) in the data being transmitted.	System Number
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
Convert to UPC-A	The UPC-E0 barcode will be expanded into UPC-A, and the next processing will follow the settings configured for UPC-A.	No
UPC-E1		**Disable**
Transmit Check Digit	Decide whether to include the UPC-E1 check digit in the data being transmitted.	Yes
Transmit Preamble	Decide whether to include the UPC-E1 preamble System Number (and Country Code) in the data being transmitted.	System Number
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
Convert to UPC-A	The UPC-E1 barcode will be expanded into UPC-A, and the next processing will follow the settings configured for UPC-A.	No
UCC Coupon Extended Code		**Disable**
Read UPC-A barcodes starting with digit "5", EAN-13 barcodes starting with digits "99", and UPC-A/GS1-128 Coupon Codes. ▸ UPC-A, EAN-13, and GS1-128 must be enabled first!		
UPC/EAN Addon		**---**

Addon 2 / Addon 5	Decide whether to decode EAN-8, EAN-13, UPC-E0, UPC-E1, UPC-A with addons. ▶ Ignore Addons ▶ Decode Only With Addons ▶ Decode With Addons (= Auto-discriminate)	Ignore...
Code 11		**Disable**
Verify Check Digit	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted. ▶ No verification ▶ One Check Digit ▶ Two Check Digits	No
Select Length	▶ Any Length ▶ One or two fixed lengths ▶ Range (1~55)	Any Length
Postal Codes		---
US Postnet		Enable
US Planet		Enable
Transmit US Postal Check Digit	US Postnet or US Planet must be enabled first!	Enable
UK Postal		Enable
Transmit UK Postal Check Digit	UK Postal must be enabled first!	Enable
Japan Postal		Enable
Australian Postal		Enable
Dutch Postal		Enable
UPU FICS Postal		Disable
USPS 4CB/One Code/ Intelligent Mail		Disable

Note: UPU FICS Postal and USPS 4CB/One Code/Intelligent Mail are supported on 2D scan engine for 8200/8400/8600/ only.

Composite Codes		---
Composite CC-C		Disable
Composite CC-A/B		Disable
Composite TLC-39		Disable
GS1-128 Emulation Mode for UCC/EAN Composite Codes	Transmit UCC/EAN Composite Code data as if it was encoded in GS1-128 barcodes.	Disable

UPC Composite Mode	UPC barcodes can be "linked" with a 2D barcode during transmission as if they were one barcode.	UPC Always Linked
	UPC Never Linked	
	Transmit UPC barcodes regardless of whether a 2D barcode is detected.	
	UPC Always Linked	
	Transmit UPC barcodes and the 2D portion. If the 2D portion is not detected, the UPC barcode will not be transmitted. ▸ CC-A/B or CC-C must be enabled!	
	Auto-discriminate UPC Composites	
	Transmit UPC barcodes as well as the 2D portion if present.	
GS1 Formatting		---
GS1-128 (EAN128)	Decide whether to enable GS1 formatting for GS1-128.	Disable
GS1 DataBar Omnidirectional	Decide whether to enable GS1 formatting for GS1 DataBar Omnidirectional.	Disable
GS1 DataBar Limited	Decide whether to enable GS1 formatting for GS1 DataBar Limited.	Disable
GS1 DataBar Expanded	Decide whether to enable GS1 formatting for GS1 DataBar Expanded.	Disable
Composite CC- A/B	Decide whether to enable GS1 formatting for Composite CC-A/B.	Disable
Composite CC-C	Decide whether to enable GS1 formatting for Composite CC-C.	Disable
Field Separator	Specify the field separator.	No
Application ID Mark	Specify the application ID mark character.	No

2D SYMBOLOGIES

2D Engine	Description	Default
2D Symbologies		---
PDF417		Enable
MicroPDF417		Enable
Data Matrix		Enable
Data Matrix Inverse	Decide whether to decode Data Matrix Inverse. **Regular Only** Decode regular Data Matrix barcodes only. **Inverse Only** Decode inverse Data Matrix barcodes only. **Inverse Autodetect** Decode both regular and inverse Data Matrix barcodes.	Regular Only
Mirror Image (for Data Matrix)	Decide whether to decode mirror image Data Matrix barcodes. **Never** Do not decode Data Matrix barcodes that are mirror images. **Always** Decode only Data Matrix barcodes that are mirror images. **Auto** Decode both mirrored and unmirrored Data Matrix barcodes.	Never
Maxicode		Enable
QR Code		Enable
QR Code Inverse	Decide whether to decode QR Code Inverse. **Regular Only** Decode regular QR Code only. **Inverse Only** Decode inverse QR Code only. **Inverse Autodetect** Decode both regular and inverse QR Code.	Regular Only

MicroQR		Enable
Aztec		Enable
Aztec Inverse	Decide whether to decode Aztec Inverse.	Regular Only
	Regular Only	
	Decode regular Aztec barcodes only.	
	Inverse Only	
	Decode inverse Aztec barcodes only.	
	Inverse Autodetect	
	Decode both regular and inverse Aztec barcodes.	

Note: Data Matrix Mirror, MicroQR, Aztec, and 2D Inverse are supported on 2D scan engine for 8200/8400/8600 only.

2D Symbologies - Macro PDF		---
Macro PDF is a special feature for concatenating multiple PDF barcodes into one file, known as Macro PDF417 or Macro MicroPDF417.		
Transmit/Decode Mode	Decide how to handle Macro PDF decoding.	Passthrough All Symbols
	Buffer All Symbols / Transmit Macro PDF When Complete	
	Transmit all decoded data from an entire Macro PDF sequence only when the entire sequence is scanned and decoded. If the decoded data exceeds the limit of 50 symbols, no transmission because the entire sequence was not scanned!	
	Transmit Any Symbol in Set / No Particular Order	
	Transmit data from each Macro PDF symbol as decoded, regardless of the sequence.	

	Passthrough All Symbols	
	Transmit and decode all Macro PDF symbols and perform no processing. In this mode, the host is responsible for detecting and parsing the Macro PDF sequences.	
ESC Characters	When enabled, it uses the backslash "\" as an Escape character for systems that can process transmissions containing special data sequences. It will format special data according to the Global Label Identifier (GLI) protocol, which only affects the data portion of a Macro PDF symbol transmission. The Control Header, if enabled, is always sent with GLI formatting.	None

Note: When printing barcodes, keep each Macro PDF sequence separate, as each has a unique identifier. Do not mix barcodes from several Macro PDF sequences, even if they encode the same data. When you scan Macro PDF sequences, scan the entire Macro PDF sequence without interruption!

COMMAND LINE SYNTAX

This is intended for users who are experienced in command line use. You may issue a command or run a script for executing any of the following utilities:

Shortcut Name of Utility	Program Name	Usage
DLookup	DLookup.exe	To download associated lookup file(s) to the mobile computer
Prog_Load	ProgLoad.exe	To download the AG runtime or font file (.SHX) to the mobile computer.
AG_Load	AG_Load.exe	To download the current application template to the mobile computer.
Data_Read	Data_Read.exe	To receive data via Data_Read utility. It also synchronizes date/time on every host connection.

DOWNLOAD UTILITIES

DLOOKUP

Command Line Syntax

You can use the command line to download the lookup file as well. At the command line prompt, use the following command line arguments:

```
DLookup <File Name>,<COM Port>,<Baudrate>,<Download Via>,<Show Msg box>,<Show Progress Dialog>
```

Argument

Each argument is explained in the table below. If command line arguments are not given, you may select the appropriate parameters from the dialog box that pops up.

Argument	Description
File name	Max length: 256 bytes Full-path file name is required when file is not in the current working directory.
COM port	Range: 1~255 It is set to 1 by default in the utility program.
Baudrate	Range: 1~5 It is set to 1 by default in the utility program. ▶ 1: 115200 bps ▶ 2: 57600 bps ▶ 3: 38400 bps ▶ 4: 19200 bps ▶ 5: 9600 bps
Download via	Range: 1~3 It is set to 1 by default in the utility program. ▶ 1: RS-232 or IrDA ▶ 2: Cradle-IR ▶ 3: Modem
Show Msg box	Range: 0~1 It is set to 1 by default in the utility program. ▶ 0: Disable ▶ 1: Enable
Show Progress Dialog	Range: 0~1 It is set to 1 by default in the utility program. ▶ 0: Disable ▶ 1: Enable

Example

```
DLookup DEMO_LOOKUP.TXT,1,1,1,0,0

// COM 1, 115200 bps, RS-232/IrDA, Do not show message, Do not show progress dialog
```

PROGLOAD

Command Line Syntax

You can use the command line to download a program file as well. At the command line prompt, use the following command line arguments:

```
ProgLoad <File name>,<Download via>,<COM port>,<Baud rate>,<File type>,

        <Operation mode>
```

Argument

Each argument is explained in the table below. If command line arguments are not given, you may select the appropriate parameters from the dialog box that pops up.

Argument	Description
File name	Max length: 256 bytes Full-path file name is required when file is not in the current working directory.
Download via	Range: 1~3 It is set to 1 by default in the utility program. ▶ 1: RS-232 or IrDA ▶ 2: Cradle-IR ▶ 3: TCP/IP
COM port	COM port: 1~255 It is set to 1 by default in the utility program. TCP port: 1~65535 It is set to 3000 by default in the utility program.
Baud rate	Range: 1~5 It is set to 1 by default in the utility program. ▶ 1: 115200 bps ▶ 2: 57600 bps ▶ 3: 38400 bps ▶ 4: 19200 bps ▶ 5: 9600 bps
File type	Range: 0~2 It is set to 0 by default in the utility program. ▶ 0: .SHX file ▶ 1: .SYN file ▶ 2: .BIN file
Operation mode	Range: 0~1 It is set to 0 by default in the utility program. ▶ 0: Show property settings for confirmation before download ▶ 1: Auto download file

Example

```
ProgLoad C:\U8400.shx,1,1,1,0,1

// RS-232/IrDA, COM 1, 115200 bps, .SHX, Auto download file
```

AG_LOAD

Command Line Syntax

You can use the command line to download the current application template to the mobile computer. At the command line prompt, use the following command line arguments:

```
AG_Load <File name>,<COM port>,<Baud rate>,<Download via>,<File Type>,<Show
dialog>,<Show Progress dialog>
```

Argument

Each argument is explained in the table below. If command line arguments are not given, you may select the appropriate parameters from the dialog box that pops up.

Argument	Description
File name	Max length: 256 bytes Full-path file name is required when file is not in the current working directory.
COM port	Range: 1~255 It is set to 1 by default in the utility program.
Baud rate	Range: 1~5 It is set to 1 by default in the utility program. ▶ 1: 115200 bps ▶ 2: 57600 bps ▶ 3: 38400 bps ▶ 4: 19200 bps ▶ 5: 9600 bps
Download via	Range: 1~3 It is set to 1 by default in the utility program. ▶ 1: RS-232/IrDA/USB VCOM ▶ 2: Cradle-IR ▶ 3: Modem
File Type	Range: 1~3 It is set to 1 by default in the utility program. ▶ 1: AGX file ▶ 2: ATX file ▶ 3: ATF file
Show dialog	Range: 0~1 It is set to 1 by default in the utility program. ▶ 0: Disable ▶ 1: Enable
Show progress dialog	Range: 0~1 It is set to 1 by default in the utility program. ▶ 0: Disable ▶ 1: Enable

Example

```
AG_Load AT8600.AGX,1,1,1,1,0
```

```
// COM 1, 115200 bps, RS-232/IrDA/USB VCOM, .AGX, Display the dialog box, Do not display
the progress dialog box
```

UPLOAD UTILITIES

DATA_READ

Command Line Syntax

Upload the lookup file on the mobile computer to PC. At the command line prompt, use the following command line arguments:

```
Data_Read <File name>,<Upload via>,<COM Port>,<Baud rate>,<Save mode>,

        <Add CR character>,<Add LF character>,<Write Log>,<Show data>,

        <Show dialog>,<Keep online>,<Polling time>,<Inter-Char delay>,

        <Auto transfer data>,<Auto upload data file>,<Auto upload lookup file>,

        <Auto delete data file>,<Auto delete lookup file>,<File rule>,

        <Auto upload data from>,<Auto upload data to>,<Auto upload lookup from>,

        <Auto upload lookup to>,<Show Progress dialog>
```

Argument

Each argument is explained in the table below. If command line arguments are not given, you may select the appropriate parameters from the dialog box that pops up.

Argument	Description
File name	Max length: 256 bytes Full-path file name is required when file is not in the current working directory.
Upload via	Range: 1~4 It is set to 1 by default in the utility program. ▶ 1 (R) : RS-232/IrDA/USB VCOM ▶ 2 (I) : Cradle-IR ▶ 3 (T) : Modem-TAPI ▶ 4 (M) : Modem-COM
COM port	Range: 1~255 It is set to 1 by default in the utility program.
Baud rate	Range: 1~5 It is set to 1 by default in the utility program. ▶ 1 (115200) : 115200 bps ▶ 2 (57600) : 57600 bps ▶ 3 (38400) : 38400 bps ▶ 4 (19200) : 19200 bps ▶ 5 (9600) : 9600 bps
Save mode	Range: 1~5 It is set to 1 by default in the utility program. ▶ 1: Overwrite ▶ 2: Append ▶ 3: Keyboard emulation ▶ 4: Auto file name ▶ 5: Auto append
Add CR character	Range: 0~1 It is set to 1 by default in the utility program. ▶ 0: Disable ▶ 1: Enable

Add LF character	Range: 0~1
	It is set to 1 by default in the utility program.
	▶ 0: Disable
	▶ 1: Enable
Write log	Range: 0~1
	It is set to 0 by default in the utility program.
	▶ 0: Error message displayed in the dialog
	▶ 1: Create a log file to write error message
Show data	Range: 0~1
	It is set to 1 by default in the utility program.
	▶ 0: Disable
	▶ 1: Display the received data after transmission
Show dialog	Range: 0~1
	It is set to 1 by default in the utility program.
	▶ 0: Disable
	▶ 1: Display the main form
Keep online	Range: 0~1
	It is set to 1 by default in the utility program.
	▶ 0: Break the connection after transmission
	▶ 1: Enable
Polling time	Range: 1~999 sec (It is set to 2 by default in the utility program.)
Inter-Char delay	Range: 0~255 ms (It is set to 2 by default in the utility program.)
Auto transfer data	Range: 0~1
	It is set to 0 by default in the utility program.
	▶ 0: Disable
	▶ 1: Enable auto transfer data. When enabled, at least one argument (Auto upload data file, Auto upload lookup file, Auto delete data file, or Auto delete lookup file) has to be set to 1.
Auto upload data file	Range: 0~1
	It is set to 0 by default in the utility program.
	▶ 0: Disable
	▶ 1: Enable
Auto upload lookup file	Range: 0~1
	It is set to 0 by default in the utility program.
	▶ 0: Disable
	▶ 1: Enable

Auto delete data file	Range: 0~1
	It is set to 0 by default in the utility program.
	▶ 0: Disable
	▶ 1: Enable
Auto delete lookup file	Range: 0~1
	It is set to 0 by default in the utility program.
	▶ 0: Disable
	▶ 1: Enable
File rule	Range: 1~3
	It is set to 1 by default in the utility program. When this value is set to 1 or 2, the <File Name> value will be ignored.
	▶ 1: Generated automatically
	▶ 2: Generated according to the first record
	▶ 3: Customized
Auto upload data from	Range: 0~9
	Set to 0 by default. This value must be less than <Auto upload data to>.
Auto upload data to	Range: 0~9
	Set to 9 by default. This value must be larger than <Auto upload data from>. If not, this value will be set to <Auto upload data from>.
Auto upload lookup from	Range: 0~2
	Set to 0 by default. This value must be less than <Auto upload lookup to>.
Auto upload lookup to	Range: 0~2
	Set to 2 by default. This value must be larger than <Auto upload lookup from>. If not, this value will be set to <Auto upload lookup from>.
Show Progress Dialog	Range: 0~1
	It is set to 1 by default in the utility program.
	▶ 0: Disable (<Keep online> will also be disabled)
	▶ 1: Enable to show the progress dialog box

Example

```
Data_Read DataFile_1.TXT,1,1,1,1,1,1,1,1,0,1,2,0,1,1,1,1,1,1,0,9,0,2,1
```

```
// RS-232/IrDA, COM 1, 115200 bps, Overwrite, Add CR, Add LF, Create a log file to write
error message, Show data, Hide dialog box, Keep online, Polling time 2 seconds, No Inter-Char
delay, Auto transfer data, Auto upload data files, Auto upload lookup files, Auto delete
data files, Auto delete lookup files, Auto generate file name rule, Auto upload data
from data file 1, Auto upload data to data file 10, Auto upload lookup file from lookup
file 1, Auto upload lookup file to lookup file 3, Display the progress dialog box
```

Appendix VI

CREATING A SCRIPT FILE

If connection arguments (ServerIP, TCPport, Username, and Password) are passed to the DoFTP function (please refer to the <u>C Programming Guide Part II</u> for further details about DoFTP), the script file is run with the received arguments to establish an FTP session and then send/receive files.

If no arguments received, the DoFTP function will run the script file accordingly to establish an FTP session and transfer files.

The script must be saved to the file `FTP.dat` in the following format.

File Name

`FTP.dat`	`/*`
	`** ` The file name "`FTP.dat`" is reserved for the
	`** ` script file. Do not use it with "`rFile=`" or
	`** ` "`tFile=`". Because it is hard-coded, the file
	`** ` name must be uppercase while the file
	`** ` extension must be lowercase.
	`*/`

Format

```
ServerIP=

TCPport=

Username=

Password=

UpdateScript,<Version control>,<Mandatory>

rFile=<Local file name1>,<Remote file name>,<Version control>,<Mandatory>

rFile=<Local file name2>,<Remote file name>,<Version control>,<Mandatory>

rFile=<Local file name3>,<Remote file name>,<Version control>,<Mandatory>

…

tFile=<Local file nameX>,<Remote file name>,0,<Mandatory>

rFile=<Local file name10>,<Remote file name>,<Version control>,<Mandatory>

…
```

Line	Default	Description
ServerIP=	Null	IP address of FTP server

TCPport=	Null	Remote port number ▶ By default, TCP port 21 is used on the server for the control connection.
Username=	Null	User name for logging onto FTP server
Password=	Null	Password for logging onto FTP server
UpdateScript, …	Null	"UpdateScript,(1/0)" is required for checking updates to the script file, with given version control. This line must be run before transmitting or receiving files. ▶ If a different server is specified, it will connect to the new server in the next connection. ▶ If you need to switch to a different server immediately, use the SWITCH command.
rFile=	Null	Receive a specific file with given version control ▶ Local file name: It's case-sensitive. File extension omitted is allowed. ▶ Remote file name: It must follow the rules of the file system used by FTP server. Wild card is supported. ▶ User program update is allowed when the file name is prefixed with the character "~". Also, version control will be ignored.

tFile=	Null	Transmit a specific file with version control set off
		    ▶ local file name: Whether including file extension or not, a local file name must not exceed 8 characters and must be case-sensitive.
		    ▶ remote file name: Such name must follow the remote FTP server's file system's rules. Wild card is supported.
		    ▶ Version control must be set to 0.
		
		Delete a specific file from the FTP server
		    ▶ The first parameter must be ignored.
		    ▶ remote file name: Such name must follow the FTP server's file system's rule. Wild card is supported.
		    ▶ Version control must be set to -1.
		
		Rename a specific file on the FTP server
		    ▶ new file name: The file name to replace the old one.
		    ▶ old file name The file name to be replaced by the new one.
		    ▶ Version control must be set to -2.

Example

```
ServerIP=192.168.17.6

TCPport=21

Username=test4669

Password=1234

UpdateScript,1,M

rFile=Rcv1.txt,Lookup1.txt,0,

rFile=Rcv2.txt,Lookup2.txt,1,

rFile=Rcv3.txt,Lookup3.txt,1,

…

tFile=A:/TestFile,Txac,0,

…

tFile=Send1,Txac_test,0,

rFile=Send1,Txac_test,-1,

/* Upload and delete the file. Remote file name is ignored */

…

tFile=,Lookup4.txt,-1,
/* deletes the Lookup4.txt from the FTP server */
…

tFile=Lookup6,Lookup5,-2,
/* renames the Lookup5 on the FTP server to "Lookup6" */
```

Check whether new script file is available. When there is no script file on the server, stop running script.

Note: Access to SD card is allowed; however, file name is not case-sensitive. Although file name may be case-sensitive on remote host, for use with SD card, it is suggested to avoid using letter case for identifying two files with identical file name, such as "AAA.txt" and "aaa.txt".

REMOTE FILE INFORMATION

Upon completion of executing **DoFTP()** but before closing the connection, it will automatically save remote file information to the file *DIRList* on the mobile computer. Such up-to-date information lists file entries in the default working directory.

File Entry Format

Each entry is saved in the following format: `YYYYMMDDhhmmss<file name>(0x0d)`

It consists of

14 digits for the time when each file is created on the server.

A file name, which is case-sensitive and can be made up of 8 characters at most, with or without file extension included. For example, "`TestFile`" and "`Svr1.txt`" are considered acceptable.

You may use **FTPRecv()** to save the remote file information to another file, whose file entry format depends on where it is saved to. For example,

```
FTPRecv((S8 *)"FileList", (S8 *)"", (S8 *)"");

                              /* Save to SRAM, file name is case-sensitive */

FTPRecv((char *)"A:\\FileList", (S8 *)"", (S8 *)"");

  /* access to SD is allowed, file name is NOT case-sensitive */
```

LOCAL FILE INFORMATION

Upon completion of downloading a file via **DoFTP()**, it will automatically add or update the entry to the file *RCVList* on the mobile computer.

File Entry Format

Each entry is saved in the following format:

`YYYYMMDDhhmmss<file name>YYYYMMDDhhmmss(0x0d)`

It consists of

14 digits for the time when each file is created on the server.

A file name, which is case-sensitive and can be made up of 8 characters at most, with or without file extension included. For example, "`TestFile`" and "`Rcv1.txt`" are considered acceptable.

14 digits for the time when each file is downloaded to the mobile computer.

Access to SD card is allowed. The entry in the file *RCVList* is in full path. For example,

`YYYYMMDDhhmmss`**`A:/FTP/Test/8X00.TXT`**`YYYYMMDDhhmmss(0x0d)`

`YYYYMMDDhhmmss`**`A:/FTP/Test/8X00.TXT`**`00000000000000(0x0d)`

VERSION CONTROL

Version control only takes effect when the following two conditions are satisfied:

▶ The mobile compueter has started an FTP session via **DoFTP()** over network.

▶ The script line must start with "`rFile=`" or "`UpdateScript`".

Version Control	Description
0	Disable version control
	For the lines starting with "tFile=", version control must be set to 0.
1	Enable version control
	Checks the local file information against the remote file information.
	For the lines starting with "`rFile=`", if no existing file is found or the file is not recorded in the file *RCVList* on the mobile computer, the version control is ignored and the specified files are received.
	For the lines starting with "`UpdateScript`", if no existing script file is found on the mobile computer, version control is ignored and the specified files are received.
-1	rFile:
	Deletes files from the mobile computer
	For the lines starting with "`rFile=`" only. Any specified remote file name will be ignored.
	The entry saved in the file *RCVList* will be modified:
	from `YYYYMMDDhhmmss<file name>YYYYMMDDhhmmss(0x0d)`
	to `YYYYMMDDhhmmss<file name>00000000000000(0x0d)`
	tFile:
	Deletes files from the FTP server
	any specified local file name will be ignored.
-2	Renames the files on the FTP server
	For the lines starting with "`tFile=`" only.

MANDATORY FLAG

The flag is used to set a breakpoint. While running script, it may stop at a line with such flag if it fails to transmit or receive the file. For example,

```
UpdateScript,1,M
```

```
tFile=Test.txt,SvrTest.txt,0,M
```

UPDATE SCRIPT FILE

"`UpdateScript,(1/0)`" is required for checking any update to the script file. This line must be run before transmitting or receiving files.

```
Format
The line must be "UpdateScript,(1/0),<Mandatory>".
```

When new script file is available, it will first update the script file, and then run the lines in the new script file to transmit or receive files, as shown below.

Note: If a different server is specified in the new script, it will connect to the new server in the next connection. If you need to switch to a different server immediately, use the SWITCH command.

UPDATE USER PROGRAM

Program update is allowed via **DoFTP()** when a user program (.bin) is properly specified in the script file. Upon completion of executing **DoFTP()**, it will automatically update the program.

Format

The line must be as shown below:

```
rFile=~<Local file name>,<Remote file name>,<version control>,<Mandatory>
```

For example,

```
rFile=~CipherAP,NewAP,0,
                        /* Save to SRAM, local file name is case-sensitive */
rFile=~A:/FTP/user.bin,NewAP,0,
                         /* Local file name is NOT case-sensitive */
```

On the right of the equal sign, it consists of

The character "~".

A file name, which is case-sensitive and can be made up of 8 characters at most, with file extension included. For example, "CipherAP" and "User.bin" are considered acceptable.

Version control; however, it will be ignored.

SWITCH TO A DIFFERENT SERVER

The "SWITCH" command is supported for immediate switching to a different server specified in the new script file. This line must be run after the connection settings and "UpdateScript".

Format

The line must be "SWITCH", all in uppercase.

When new script file is available, it will first update the script file, and then compare whether the connection settings between the original script and the update are the same.

▸ When server IP or username is found different, it will disconnect the current connection immediately, and use the updated connection settings to establish a new connection.

▸ In the new connection, the "UpdateScript" line will not be executed until it connects to the new server in the next connection.

▸ If it fails to execute the "SWITCH" command, it will stop executing the rest of lines after "SWITCH".

▸ If there is more than one "SWITCH" line, only the first one will be executed.

WILDCARDS FOR REMOTE FILE NAME

Wildcard characters are supported for distinguishing the files transmitted from the mobile computer to the FTP server.

▶ Start with a "%" character, followed by a capital letter: `%T`, `%N` or `%I`

▶ Only valid for remote file names

▶ Can be inserted to any place in the file name

▶ Can be applied multiple times and in combinations, as long as the actual file name does not exceed 256 characters. If the file name becomes too long, it will be truncated automatically. If it comes with a file extension, this will result in leaving it out.

Three wildcards are supported for remote file names:

%T

Use "`%T`" to insert device system time (14 characters) to file name of the files transmitted to the server.

%N

Use "`%N`" to insert device serial number (9 characters by factory default) to file name of the files transmitted to the server.

%I

Use "`%I`" to insert user-specified string (max. 16 characters) to file name of the files transmitted to the server.

Example

```
tFile=test,test%T.txt,0,M        /* Remote file name, ex. test20000111061852.txt */

tFile=test,test%I.txt,0,M        /* Remote file name, ex. testCipherlab.txt */

tFile=test,test%N.txt,0,M        /* Remote file name, ex. testDB9001999.txt */

tFile=test,test%N+%I+%T.txt,0,  /* Ex. testDB9001999+Cipherlab+20000111061905.txt */
```