CipherLab
User Guide

FORGE Application Generator - Batch

For 9 Series Mobile Computers:
9300 / 9400 / 9500 / 9600

DOC Version 1.38

CIPHER LAB

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RELEASE NOTES

Version	Date	Notes
1.38	Jan. 13, 2010	▸ Modified: 1.2 Key Field — "Index Field" renamed to "Key Field"
		▸ New: 1.8.4 Enable Automatic Data Deletion and 3.10 Enable Automatic Data Deletion
		▸ Modified: 1.8.5 Enable MSQI Function — Terminal UI button "Enter" renamed to "Save"
		▸ Modified: 1.9 Data Type — Add "Large Data" and "Read from 2D" — for collecting data via 2D scan engine
		▸ New: 1.9.17 Large Data and 1.9.18 Read from 2D
		▸ Modified: 1.11 Input Source — Remove "Both" option
		▸ Modified: 5.4.2 Data Deletion — "Automatic" option only deletes data with check box "Enable Automatic Data Deletion" is selected
1.37	Nov. 30, 2010	▸ New: System Requirements
		▸ Modified: 4.1.1 Barcode Reader — Add more GS1 DataBar symbologies
		▸ Modified: Appendix II~V — Add more GS1 DataBar symbologies
1.36	Aug. 19, 2010	▸ Modified: Appendix I — 9400AG supports "DB Upgrade"
1.35	July 15, 2010	▸ Modified: 4.1.2 RFID Reader Settings — UI updated
		▸ Modified: Appendix I — Add "DB Upgrade"
		▸ Modified: Appendix II, IV, V — Good Read Notification (Sound 2 for 9500)
		▸ Modified: Appendix III — Move "Transmit Code ID" to Reader Settings Table
		▸ Modified: Appendix V — Add "Concatenation" and "Concatenation Redundancy" for ISBT 128
1.34	Feb. 25, 2010	▸ Modified: 1.8 Advanced — requires pressing [ESC] to input track number and exit MSQI
		▸ Modified: 4.1.2 RFID Reader Settings — Rename Tag Type "Mifare Ultralight" to "Mifare" and change the Start Page to "4"
		▸ Modified: Appendix III — Chinese 25 and GS1 DataBar (RSS) default settings
		▸ Modified: Appendix III, V — Add "Transmit Code ID" setting
1.33	Jan. 11, 2010	▸ Modified: 4.1.1 Barcode Reader — Add "None" to Barcode Reader selections and update screenshot
		▸ Modified: Appendix II, III, V — Good Read Notifications setting
		▸ Modified: Appendix III — Add "UPC/EAN Security Level" for SE955
1.32	Dec. 29, 2009	▸ Modified: Appendix III — Redundancy Level default setting
		▸ Modified: Appendix V — Remove "Send Control Header" from 2D Symbologies - Macro PDF settings

1.31	Dec. 21, 2009	▶ Support ISBT 128 for CCD/Laser
		▶ Use same filename: ReaderDll_CE.dll
		▶ Modified: 4.1.2 RFID Reader — update screenshot and ID_MOD_MP_RFID table
1.30	Oct. 21, 2009	▶ Support 9300 and 9600
		▶ Modified: 1.8 Advanced — Add "Enable MSQI Function"
		▶ Modified: 4.1 Reader Type — Tables updated
		▶ Modified: Appendix III — Add "Timeout between Same Barcode" for SE955
		▶ Modified: Appendix V — Add "Intercharacter Gap Size" for 4507
		▶ Modified: Appendix V — Remove "Gain Time" from Image Capture settings
		▶ Modified: Appendix V — Remove Mirror Image (for Data Matrix)
1.24	May. 06, 2009	▶ Add new function descriptions and remove 9500PPC
1.23	Aug. 25, 2008	▶ New: Installing from the Power Suite CD-ROM – Provide setup file to install files to mobile computer
		▶ New: Getting Started with AG9500
		▶ Modified: 1.9.16 Image – Properties
		▶ Modified: 3 Lookup – Add "Data Type" for field checking
		▶ Modified: 4 Barcode – Add Good Read LED and Beep for 9400
		▶ Modified: 5 Settings – Camera initial settings
		▶ Modified: 5 Settings – System initial settings – Auto run after pre-loading the last .A94 or .A95 file
		▶ Modified: Appendix II~IV – Update default values
		▶ Modified: Appendix II~III – Support replacement of EAN-128 field separator for all scan engines
		▶ Modified: Appendix IV – Add "Image Capture" feature
1.22	Jan. 31, 2008	▶ Modified: 1.10 Prompt – Max. 30 characters allowed
		▶ Modified: 5.3 and 5.4 – Remove [Warning Beep]
1.21	Nov. 20, 2007	▶ Modified: 1.9.16 Image – file format .TIFF not supported
1.20	Oct. 18, 2007	▶ Modified: 1.2 Index Field
		▶ Modified: 1.8 Advanced – Only Read Data Once
		▶ New: 1.9.16 Image (data type supported by 9400 Application Generator)
		▶ Modified: 2.4 Item Name
1.12	Oct. 05, 2007	▶ Modified: 1.9.5 and 1.9.7 – Minus sign prefixed to saved data when selecting "-field"
		▶ Modified: 4.4 Code ID – removed
		▶ New: Appendix I – Utilities Menu > Browse: example provided
1.11	Sep. 20, 2007	▶ New: 4.4 Code ID
		▶ Modified: minor changes
1.10	Aug. 31, 2007	New Word template applied
		▶ Removed: 4.2 Reader Settings – Code ID

1.01	Oct. 24, 2006	▶ Modified: Add "Run" to the main menu of 9500_PPC
		▶ Removed: File > Run
		▶ New: 7.1 Sample screenshot of 9500_CE
1.00	Oct. 17, 2006	Initial release

CONTENTS

INTRODUCTION

FORGE Batch Application Generator for 9 Series Mobile Computers, featuring easy-to-use and quick-to-apply, is designed for the users of Windows mobile computers to develop custom templates for the use with AG application on the mobile computers. Users are then able to define their own data collection templates on any desktop computer without spending time writing any program code.

FORGE Application Generator is used to develop applications for many purposes, such as –

▶ 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

After having configured and saved your template, copy or move the template file to the mobile computer. When running the AG application on the mobile computer, data collection can commence immediately by making use of the template specified.

This manual serves to provide comprehensive understanding of FORGE Batch Application Generator for 9 Series Mobile Computers, and helps define custom template for a specific application. 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 system is required:

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

FEATURES

▶ Supports CipherLab Windows CE 5.0 mobile computers — 9400 / 9500 Series
▶ Supports CipherLab Windows CE 6.0 mobile computers — 9300 / 9600 Series
▶ Definition of program flow
▶ Editing of screens and data
▶ Managing barcode reader and RFID reader
▶ Font size options and program localization
▶ Password-protected user settings to prevent unauthorized user intervention
▶ Definition of system initial settings for a quick start
▶ Easy cloning by delivering the template file

INSTALLING FROM THE CD-ROM

The program files are provided on the product CD:

9300 Application Generator

AG9300.exe	Application Generator for 9300
AG9300-xxxxxxx.lng	This language file for AG9300.exe
AG9300CE.exe	The setup file for installing the applet to "\DiskOnChip\FORGE\" on the mobile computer. ▶ The FORGE folder contains two files: 9300_CE.exe and ReaderDll_CE.dll ▶ A shortcut to the AG applet is created and placed in: **Start** | **Programs**.

9400 Application Generator

AG9400.exe	Application Generator for 9400
AG9400-xxxxxxx.lng	This language file for AG9400.exe
AG9400CE.exe	The setup file for installing the applet to "\DiskOnChip\FORGE\" on the mobile computer. ▶ The FORGE folder contains two files: 9400_CE.exe and ReaderDll_CE.dll ▶ A shortcut to the AG applet is created and placed in: **Start** | **Programs**.

9500 Application Generator

AG9500.exe	Application Generator for 9500
AG9500-xxxxxxx.lng	This language file for AG9500.exe
AG9500CE.exe	The setup file for installing the applet to "\DiskOnChip\FORGE\" on the mobile computer. ▶ The FORGE folder contains two files: 9500_CE.exe and ReaderDll_CE.dll ▶ A shortcut to the AG applet is created and placed in: **Start** | **Programs**.

9600 Application Generator

AG9600.exe	Application Generator for 9600
AG9600-xxxxxxx.lng	This language file for AG9600.exe
AG9600CE.exe	The setup file for installing the applet to "\DiskOnChip\FORGE\" on the mobile computer. ▶ The FORGE folder contains two files: 9600_CE.exe and ReaderDll_CE.dll ▶ A shortcut to the AG applet is created and placed in: **Start** | **Programs**.

HOW IT WORKS

Data collection mainly consists of three elements: input (scanning or key-in), data processing, and output (updating database). FORGE Application Generator for 9 Series Mobile Computers is specifically designed to deal with the sequences of data processing inside the mobile computers.
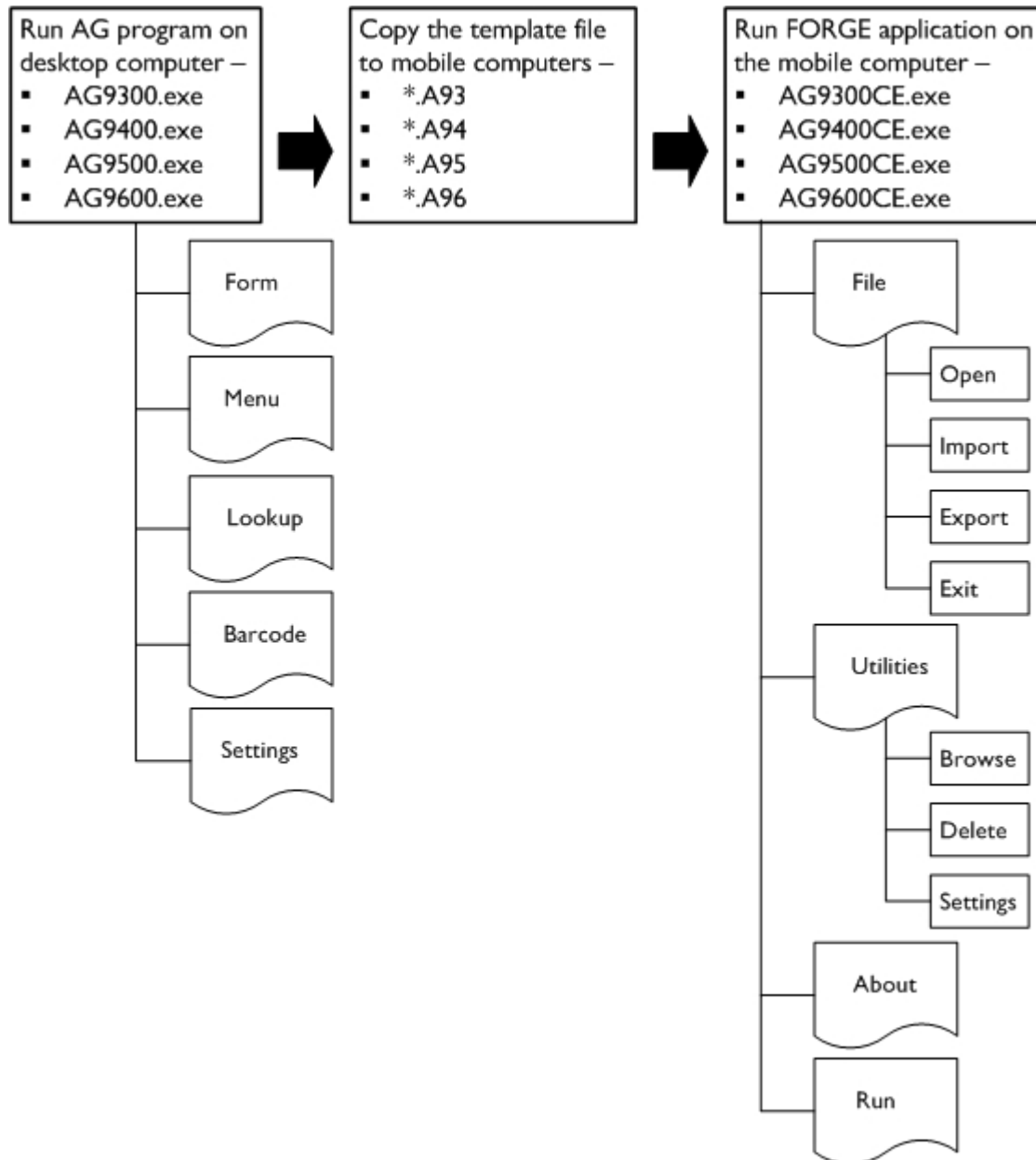
GETTING STARTED

Let's take the example of 9600 Application Generator.

1) Run *AG9600.exe* on your computer. The miniature image of 9600 pops up.

2) Right-click freely on the image or click the [Power] key on it.
   The Command Menu appears as shown below.

3) Click [Edit] to start with a new or the latest application template.

4) Click [OK] to close the editing window upon completion.

5) Click [Save] or [Save As] to save the current editing template to file (*.A96).

6) Copy the template file (*.A96) to the mobile computer via ActiveSync.

7) Run the program *9600_CE.exe* on the mobile computer.

8) Tap **[File | Open]** to use the application template (*.A96).

9) Tap **[File | Import]** to import lookup file(s) if necessary.

10) Tap **[Run]** to start with your data collection task.

COMMAND MENU

When the Command Menu first appears, it displays the following commands.

New	Ctrl+N
Open...	Ctrl+O
Save	Ctrl+S
Save As...	
Edit	Ctrl+E
Preferences...	
About...	
Exit	Alt+F4

Command	Action...
New	To create a new application template.
Open	To open an existing application template. File path needs to be specified.
Save	To save the current editing template.
Save As	To save the current editing template to a new file.
Edit	To edit a new or the latest application template.
Preferences	To configure the language settings, application property and load action.
About...	To show information about the Application Generator.
Exit	To close the Application Generator.

RECENT FILE LIST

If you ever saved a template, it will be displayed in the Command Menu as well. Up to 4 recent template files are listed for quick access.

New	Ctrl+N
Open...	Ctrl+O
Save	Ctrl+S
Save As...	
Edit	Ctrl+E
Preferences...	
1: D:\9 Series\96_AG\4.A96	
2: D:\9 Series\96_AG\3.A96	
3: D:\9 Series\96_AG\2.A96	
4: D:\9 Series\96_AG\1.A96	
About...	
Exit	Alt+F4
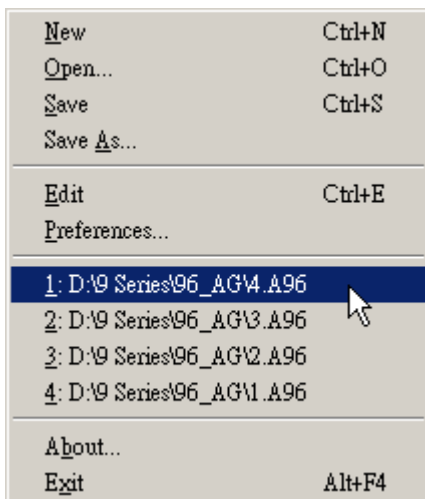
▶ The first file on the recent file list is the latest template you work on. If you accidentally clicked the Close button or [OK] of the template, simply click the Edit command to re-open it.

▶ You may click any of the four files to open the template for editing. It will then be placed on top of the list.

PREFERENCES
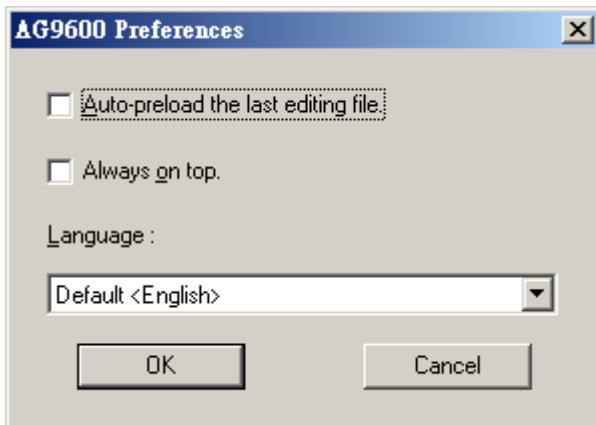
▶ Auto-preload the last editing file.

You may select the check box so that the last editing file will be loaded upon running the AG program on the desktop computer.

▶ Always on top.

You may select the check box so that the AG program always remains on top of all other windows on the desktop.

▶ Language

If there is any language file (*.lng) saved in the same folder where the AG program is, a drop-down menu will be available. Then you will be able to select a preferred language for the GUI of your program.

APPLICATION TEMPLATE

To work on a new or existing application template, click the New, Open, or Edit command. An application template is composed of five tabs; each is a property page for custom configurations.
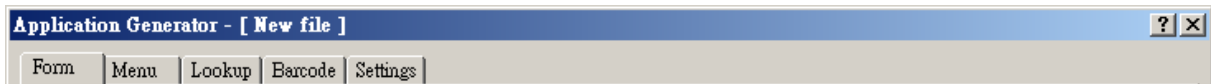
Property Pages

Form	Forms are used to show information and allow for data input, which may be placed under a user menu, e.g. Main Menu > (Menu 1) > Form 1.
Menu	Menus are used to provide multi-level options, which may be placed under the main menu, e.g. Main Menu > Menu 1 > (Menu 2) > Form 1.
Lookup	Data of forms may make reference to one or up to 5 lookup files. You need to specify the data format of a lookup file.
Barcode	You may configure symbologies and barcode parameters.
Settings	You may configure program sequences and system settings so that they will take effect when initialization is done on the mobile computer.

When you have completed all the configuration, copy the application template file (*.A93, *.A94, *.A95 or *.A96) to the mobile computer and open it. The submenus will become available now. If no lookup files are defined in both the Form and Lookup tabs, the associated options will become unavailable, as shown below.
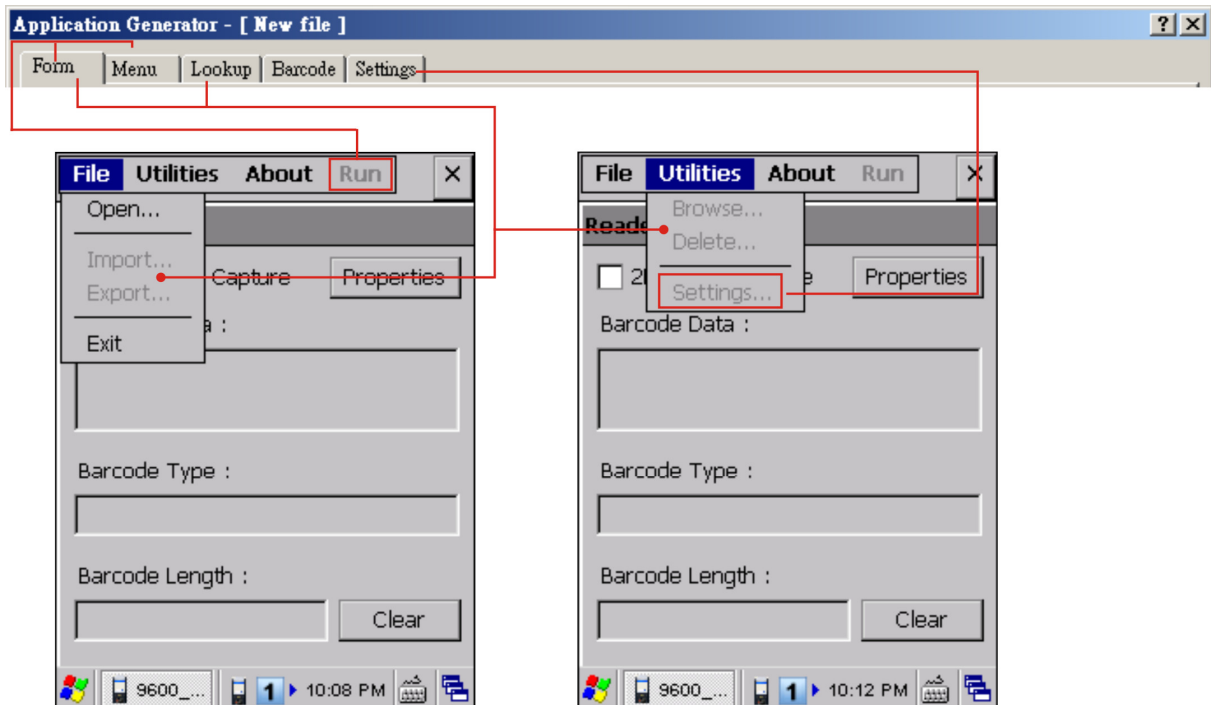
Warning: (1) On the Barcode tab of the AG program, you must select the correct barcode reader even though no modification is made to its settings. Otherwise, a warning dialog box is displayed to remind you of "wrong reader type" after opening the template file on the mobile computer. Then, you may choose to close the application directly or use the default setting to initialize the barcode reader.

(2) AG9400 or AG9600 program allows the configuration of camera settings on the Settings tab, as well as the Image Capture setting on the Barcode tab when the barcode reader selected is 2D reader. If 9400/9600 mobile computer is equipped with both a camera and 2D reader, it only allows using the camera for image capture.

FORM

A form is a data collection template with input prompts. Data will be kept as a transaction record after the user completes all the input fields (lines) of a form. Then, it can be saved in a data file, added to its lookup database, etc.

▶ Each form allows at most twelve input fields (12 lines).

▶ Twenty different forms can be defined.

The attributes on this property page are explained in detail as follows.

IN THIS CHAPTER

1.1 ID

Select an ID for the current form you work on. Usually start with "form 1".

▶ form 1 ~ 20

1.2 KEY FIELD

By default, data is to be saved to a sequential data file (by "form"). However, you may select a key field as the index so that data will be saved by index and a quick search is allowed when browsing data. Refer to Utilities Menu > Browse in Appendix I – Demonstration on Mobile Computers.

▶ Select **Save** or **Save & update** in 1.6 Record.

▶ This feature can be used together with the "Only read data once" feature, which is normally applied to prevent any repeated reading of the same barcode.

Record	Key Field	Advanced > "Only read data once"
Save *Save & update*	None	Regardless of this setting, data will be saved to a sequential file.
	Any (line 1~12)	▶ If "Only read data once" is enabled, any reading of the same barcode will be rejected. A warning message will be displayed on the mobile computer to indicate "Data duplicated!" ▶ If "Only read data once" is disabled, the reading of the same barcode will be accepted but only the last one is saved. A message will be displayed on the mobile computer to indicate "Data updated!"

1.3 ESC

Select a form or menu that will be displayed when you press the [ESC] key on the mobile computer.

- ▶ main
- ▶ form 1 ~ 20
- ▶ menu 1 ~ 10

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

1.4 NEXT

Select a form or menu that will be displayed when the last input field of the current form has been completed.

- ▶ main
- ▶ form 1 ~ 20
- ▶ menu 1 ~ 10

This function is invoked by sending the key value of [Enter] when you finish with the last input field. And, the setting of Input Source decides the way to produce the key value of [Enter].

Input Source of the last line	Operation
Reader	In 1.15 Properties, Auto ENTER for barcode input must be configured as "Scan + ENTER".
Keypad	Press the [Enter] key on the mobile computer.
RFID	Press the [Enter] key on the mobile computer.
All	See all the options above.

1.5 LOOKUP (FILE)

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, especially the number of fields and length of each field.

On this property page, related settings must be configured.

- ▶ 1.9 Data Type
- ▶ 1.14 Lookup (Field) / Variables

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

1.6 RECORD

Select which action to take as soon as the input fields of a form have been completed.

Options	Action...
save	To save the record to a data file. ▶ Refer to the "Key Field" and "Advanced" settings.
update lookup	To update the lookup file associated with the form.
save & update	To save the record to a data file and update the lookup file. ▶ Refer to the "Key Field" and "Advanced" settings.
pass down	To pass down data to the next form or menu without saving.

Note: If data is to be saved in a data file, the default export file name can be changed in the "Advanced" setting.

1.6.1 EXPORT FILES

Refer to File Menu > Export Files in Appendix I – Demonstration on Mobile Computers. Based on the selected option of **Record**, you can export a data file (by "form") or lookup file, or even merge them to a new file.

▶ Data file:

This is available only when you have selected "Save" or "Save & update" for **Record**. Refer to 1.2 Key Field about how to make use of an index. The default file name is "Form 01".

▶ Lookup file:

This is available only when you have specified a lookup file in use. The default file name is "1st lookup file".

1.6.2 MANIPULATE DATA

Refer to Utilities Menu in Appendix I – Demonstration on Mobile Computers.

1.7 TIME STAMP

This feature actually includes Date and Time stamp. It may be helpful in analyzing data when the date and time information is joined in each record.

1.7.1 STAMP POSITION

Decide whether or not to enable the stamp function and include the date/time information, either to the beginning or to the end of a record.

1.7.2 DATE/TIME FORMAT

Select the format of the Date and Time stamp. To stop the use of either stamp, clear all the associated settings.

1.8 ADVANCED

Here provides additional settings associated with the "Key Field" and "Record" features.
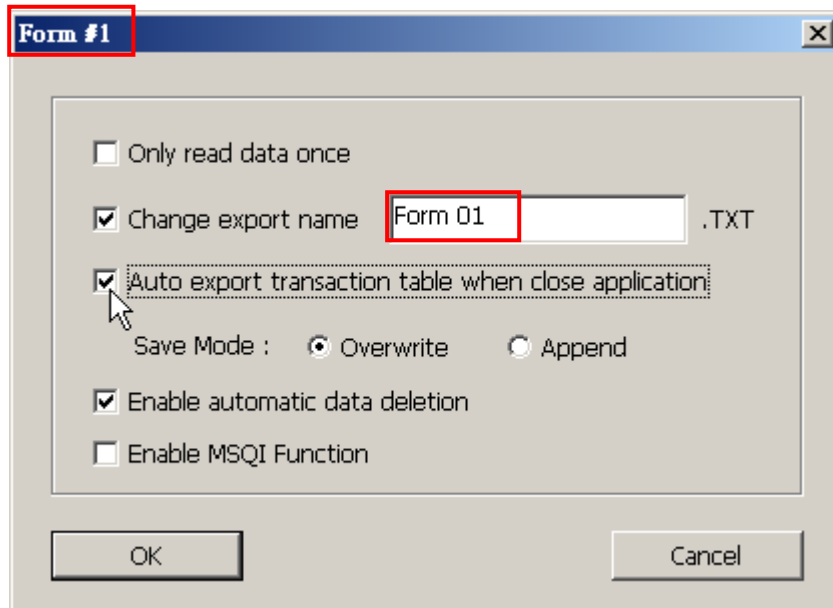
1.8.1 ONLY READ DATA ONCE

When the "Only read data once" feature is enabled, a warning message "Data duplicated!" is displayed on the mobile computer if the entry of input data already exists.

Note: To enable the "Only read data once" functionality, you must specify the key field.

1.8.2 CHANGE EXPORT NAME

By default, data is to be saved to a sequential data file (by "form"). Change the file name if necessary.

1.8.3 AUTO EXPORT...

If "Auto export transaction table when close application" is enabled, the data file will be exported automatically upon closing the application. Choose the save mode to decide whether the data file will overwrite or append to the existing file.

1.8.4 ENABLE AUTOMATIC DATA DELETION

When Data Deletion is set to "Automatic", a data file is to be deleted once it has been exported to the host by default. You may disable the Automatic Data Deletion feature to keep the data file.

1.8.5 ENABLE MSQI FUNCTION

When the Multiple Scan Quantity Incrementing (MSQI) function is enabled, the form is set to be processed again and again until you press the [ESC] key on the mobile computer. Data will be saved to a data file.

▶ Line 1 is set to "text" for data type. If a lookup file is specified in use, the lookup field will be automatically set to the key field.

▶ Line 2 is set to "MSQI" for data type. By default, the initial value is "0"; you may specify a value instead. If a lookup file is specified in use, the initial value depends on the lookup field you select.

If a lookup file is specified in use, you may specify to import more information (line #3~) from the lookup file and display it on the mobile computer.
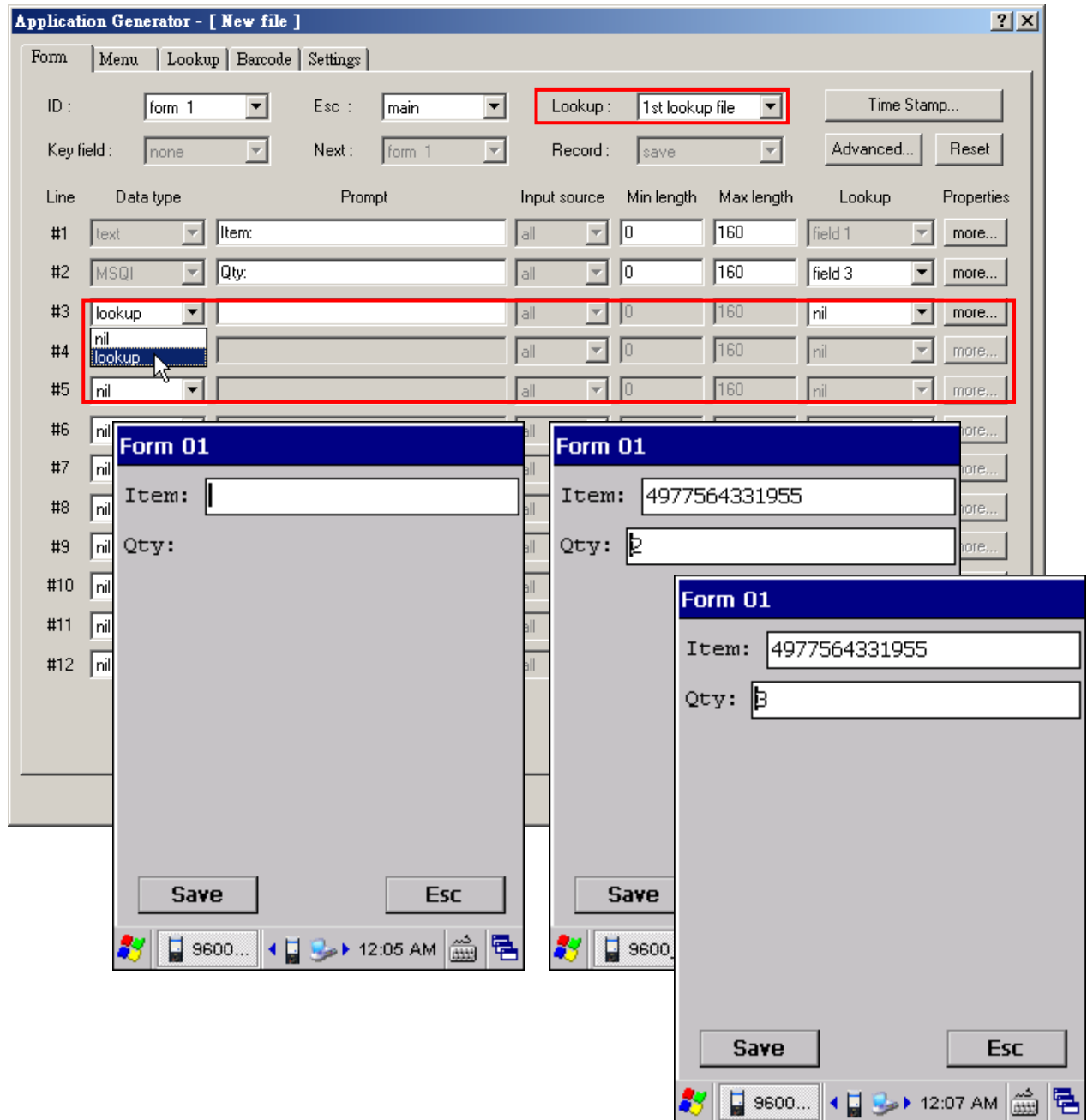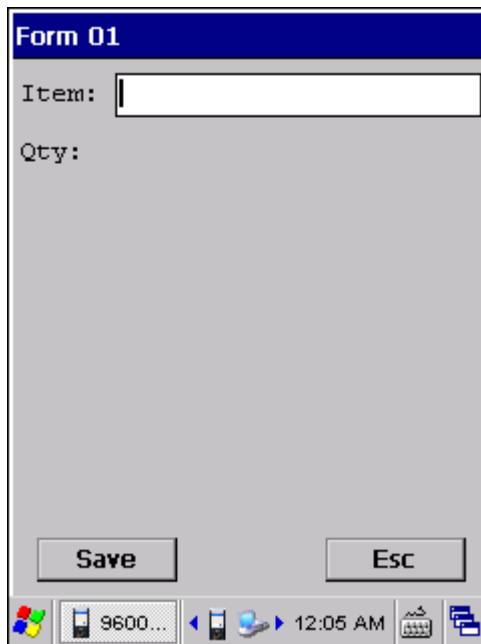
The process designed in Form 01, as shown above, will repeat as long as you are scanning barcodes.

▶ When you keep scanning the same barcode, it will accumulate the value for "Qty" field by one for each scanning.

▶ When you scan a different barcode, it starts all over again with accumulating the quantity of this new item. Data for the previous item will be saved as a transaction record!
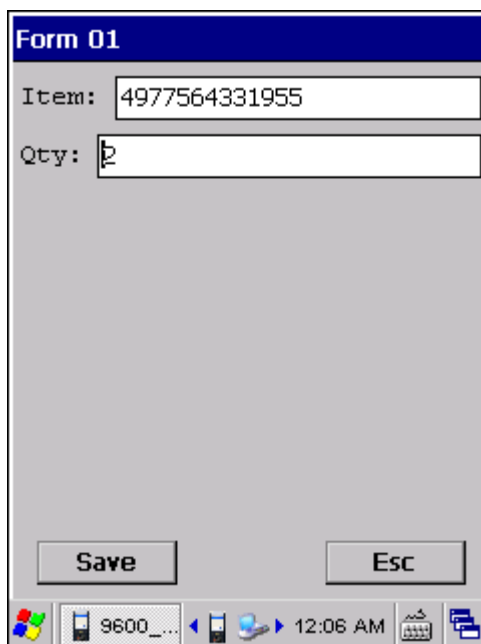
Below is the process flow explaining how MSQI function works.

1)   Scan a barcode for an item. (line #1)
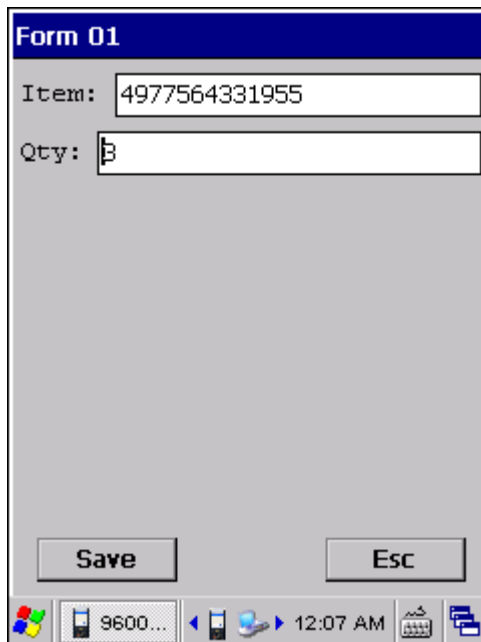
2)   The lookup value will be displayed as the initial value. (line #2)

      (If no lookup file is specified in use, the pre-defined initial value will be displayed.)
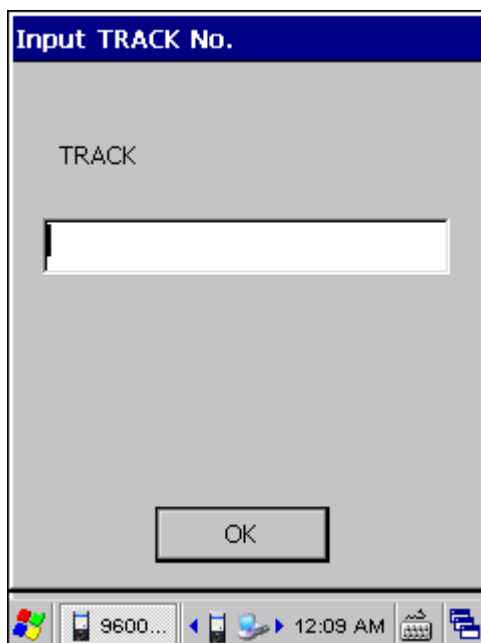
3) Scan the barcode again, and it will accumulate the value by 1.

4) You may keep scanning barcodes for different items. Repeat step 2 and step 3.

Data for the previous item will be saved automatically. Take the scanning in 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 end the scanning task.

6) A dialog box appears requesting you to input a track number. Enter a number if necessary; otherwise, tap [OK] to skip and close the dialog box.

Alternatively, if you have a large number of the same item, you may manually input the quantity, say "30". It will override the previous scanning of this item. Press [Save]. Data for the quantity field saved with this transaction record is "30".

Start with initial scanning.

Scan the same barcode to accumulate the quantity.

Manually input a value to override the previous scanning.
Press [Save] to save data.

Press [ESC] to end the scanning task.

Input track no. if necessary.
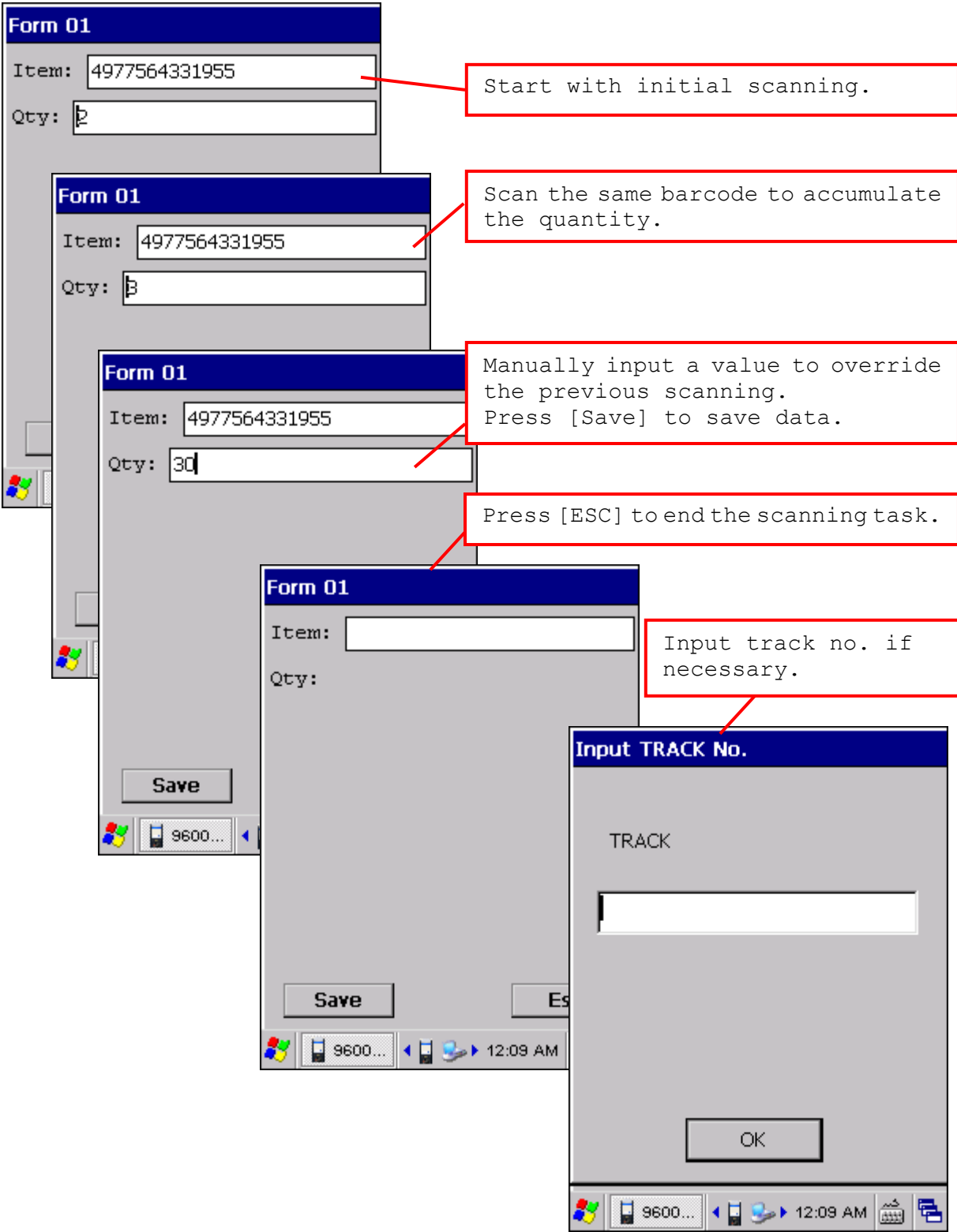
When browsing data, you will see records as shown below. The last one is for the track number.
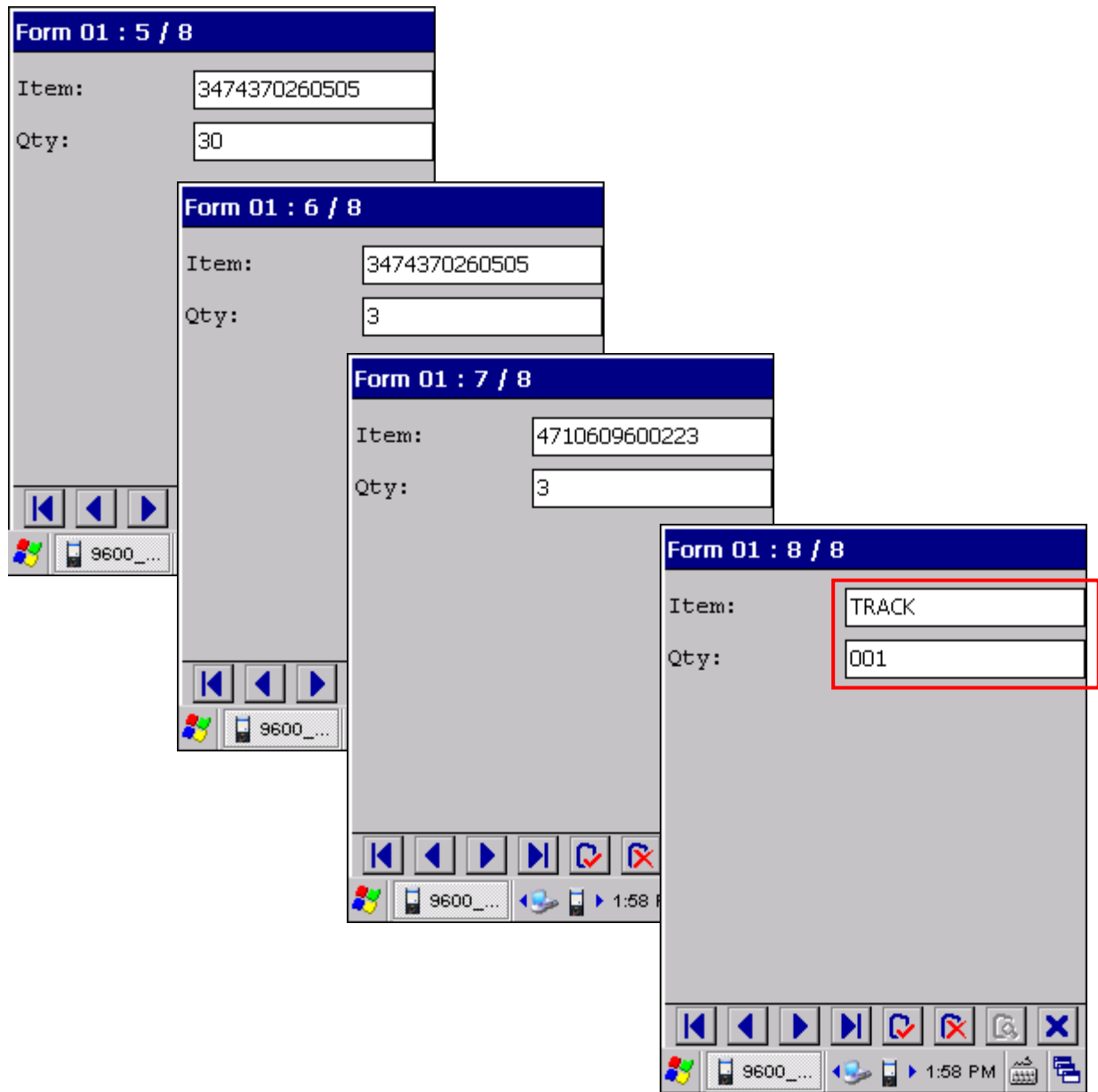
1.9 DATA TYPE

Specify the data type line by line to address your application requirements. Take the following for example.

The associated settings for each data type are marked in the table below.

Data Type	Prompt		Input Source	Length	Lookup	Properties
	on-screen	saved in record		Min / Max	Field	More…
nil						
text	✓		✓	✓	✓	✓
letter	✓		✓	✓	✓	✓
alphanumeric	✓		✓	✓	✓	✓
integer	✓		✓	✓	✓	✓
real	✓		✓	✓	✓	✓
auto (+/-)	✓		✓	✓	✓	✓
extension						
pass down	✓					
boolean	✓		✓		✓	✓
lookup	✓	User-definable			✓	✓
fixed data	✓	✓				✓
prompt	✓					
pause	✓					
counter	✓					
image	✓			✓	✓	✓
large data	✓	✓		✓	✓	✓
read from 2D	✓	✓		✓	✓	✓

1.9.1 NIL

No data input is allowed.

▶ This is the default setting. There will be single line spacing on the mobile computer screen.

▶ When the data type of the previous line is "image", you may need to reserve enough space for displaying the image.

1.9.2 TEXT

ASCII character – any character is acceptable. For example, `$1a2b3c=-*/…`

1.9.3 LETTER

Alphabetic character – any letter is acceptable, capital or small (`Aa ~ Zz`).

1.9.4 ALPHAMERIC

A combination choice of **alphabetic** (1.9.3) and **numeric** (1.9.5); any alphabet or number is acceptable. For example, `ABC123xyz`

1.9.5 INTEGER

Whole number - any number is acceptable, such as … `-2, -1, 0, 1, 2` …

▶ When **integer** or **real** is selected along with lookup field specified, the lookup value will be first displayed in the input field on the mobile computer screen. Then, data input is allowed.
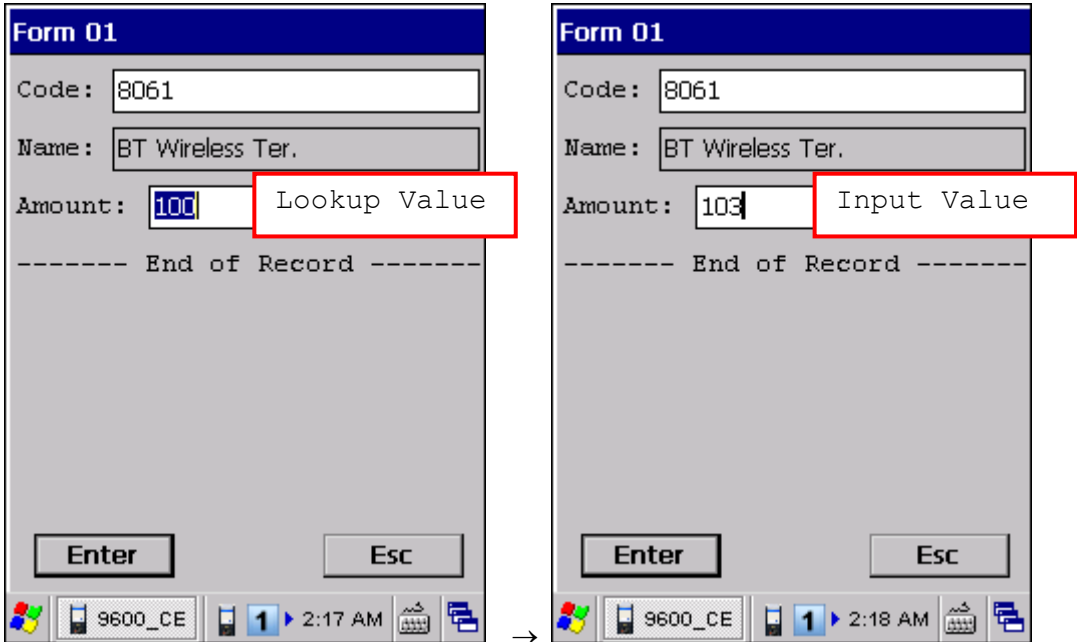
LOOKUP (FIELD) – NO ARITHMETIC SIGN

For example, if you select "Save & Update" for **Record**, the input value will overwrite the lookup value. No arithmetic operations are performed

▶ Utilities > Browse (Data) > select "Form 01": the value of the entry is 103

▶ Utilities > Browse (Data) > select "1st lookup file": the value of the entry is 103

LOOKUP (FIELD) – ARITHMETIC SIGN "+"

For example, if you select "Save & Update" for **Record**, it will automatically add the input value to the lookup value.

▶ Utilities > Browse (Data) > select "Form 01": the value of the entry is 103

▶ Utilities > Browse (Data) > select "1st lookup file": the value of the entry is 203

LOOKUP (FIELD) – ARITHMETIC SIGN "–"

For example, if you select "Save & Update" for **Record**, it will automatically subtract the input value to the lookup value.

▶ Utilities > Browse (Data) > select "Form 01": the value of the entry is -103

▶ Utilities > Browse (Data) > select "1st lookup file": the value of the entry is -3

1.9.6 REAL

Real number – any number with a decimal representation is acceptable, rational or irrational. For example, `4.56`

1.9.7 AUTO (+/-)

Any Integer number is acceptable. For example, `123`

▶ This is similar to data type **integer**, except that the lookup value is displayed before the input field. There may be an arithmetic sign (+, -) in front of the input field, which depends on the setting of the lookup field.

LOOKUP (FIELD) – NO ARITHMETIC SIGN

For example, if you select "Save & Update" for **Record**, the input value will simply overwrite the lookup value. No arithmetic operations are performed.

▶ Utilities > Browse (Data) > select "Form 01": the value of the entry is 8
▶ Utilities > Browse (Data) > select "1st lookup file": the value of the entry is 8

LOOKUP (FIELD) – ARITHMETIC SIGN "+"

For example, if you select "Save & Update" for **Record**, it will automatically add the input value to the lookup value (left below).

▸ Utilities > Browse (Data) > select "Form 01": the value of the entry is 5

▸ Utilities > Browse (Data) > select "1st lookup file": the value of the entry is 105
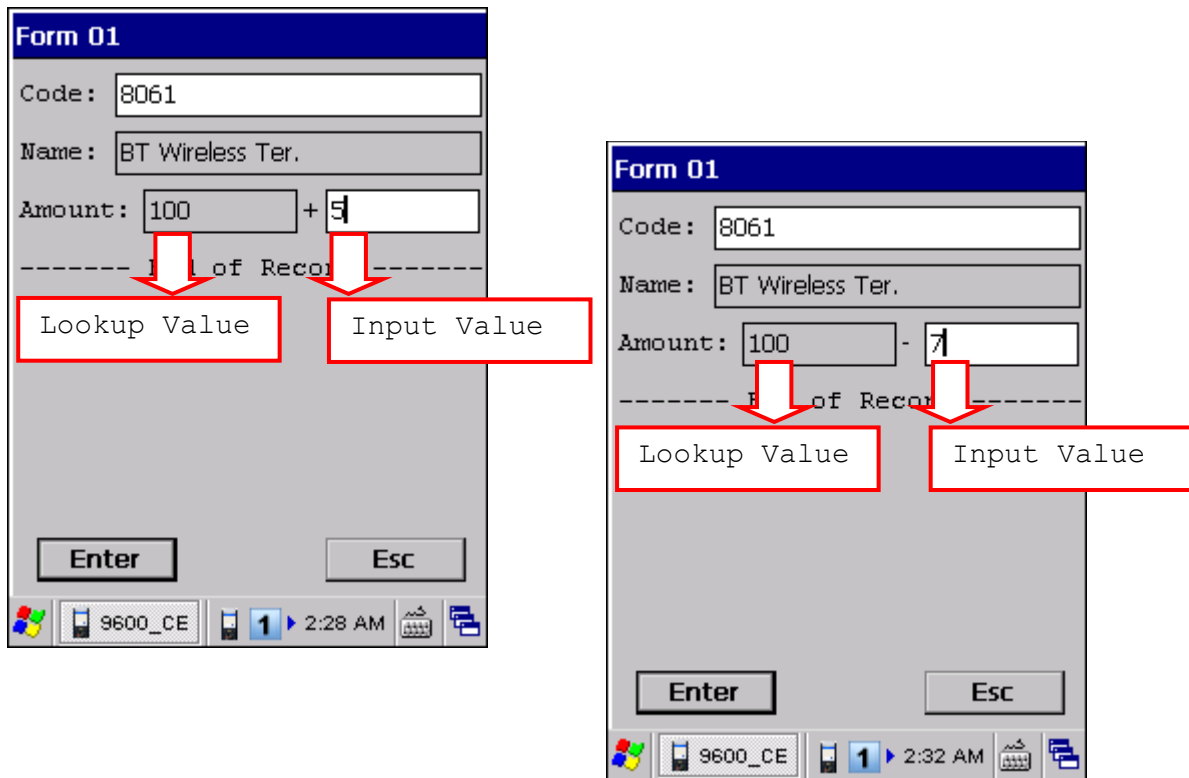
LOOKUP (FIELD) – ARITHMETIC SIGN "−"

For example, if you select "Save & Update" for **Record**, it will automatically subtract the input value to the lookup value (right above).

▸ Utilities > Browse (Data) > select "Form 01": the value of the entry is -7

▸ Utilities > Browse (Data) > select "1st lookup file": the value of the entry is 93

1.9.8 EXTENSION

No data input is allowed.

▸ The line will be reserved as an "extension" of the previous line so that the whole input data can be displayed on the mobile computer screen.

Note: The number of extension lines depends on the maximum length of your data and how many characters can be displayed per line of an input field.

1.9.9 PASS DOWN

No data input is allowed.

▸ Data of this line may be imported from a previous form, of which the setting of **Record** is specified as "pass down". When one line is not enough for displaying the inherited contents, set its following line(s) to be an "extension". Or, it may be imported from a menu, of which at least one of the options of **Data** on the Menu tab is selected for "pass down".

Note: This data type is used to combine a number of forms so that they can be saved as one record.

1.9.10 BOOLEAN

Only one of these sets of values are acceptable – "0 or 1", "Y or N" and "T or F".

▸ If you input a value other than the above ones, a message will be displayed on the mobile computer to indicate "Data type is wrong!"

1.9.11 LOOKUP

No data input is allowed.

▸ When data of a previous input field is found matching with the "key field" of a lookup file, data of this input field will be imported from its associated lookup field. This field will be displayed in grey on the mobile computer.

▸ By default, the imported data will not be saved in the transaction record. Click the [more] button and select **Save field data** in its associated Properties as shown below.

Note: The lookup value is imported for reference. No change is allowed.

1.9.12 FIXED DATA

No data input is allowed.

▶ The prompt string will be saved as part of the transaction record.

1.9.13 PROMPT

No data input is allowed.

▶ The prompt string will not be saved.

1.9.14 PAUSE

No data input is allowed.

▶ The prompt string will not be saved. However, it will be displayed on the mobile computer as a message to catch your attention.

1.9.15 COUNTER

No data input is allowed.

▶ The current record count will be displayed in eight digits, starting from 00000000. Refer to 5.4.3 Entry Options.

1.9.16 IMAGE

Only image data is allowed. The supported image file formats include BMP, JPEG, PNG, and GIF.

▶ The prompt string and the file path to an image will both be saved in the transaction record. Click the [more] button and select **Edit file path** to give a full path to an image file in the associated Properties dialog box as shown below. You may specify a default file path to an image file and change it later while collecting data.

Note: (1) For 9400/9600 mobile computer to capture an image, you must make sure that it is equipped with either a camera or 2D reader. For the latter, the Image Capture setting on the Barcode tab must be enabled. If both camera and 2D reader exist, it only allows using the camera for image capture.
(2) For 9300/9500 mobile computer to capture an image, you must make sure that it is equipped with 2D reader. Also, the Image Capture setting on the Barcode tab is enabled.
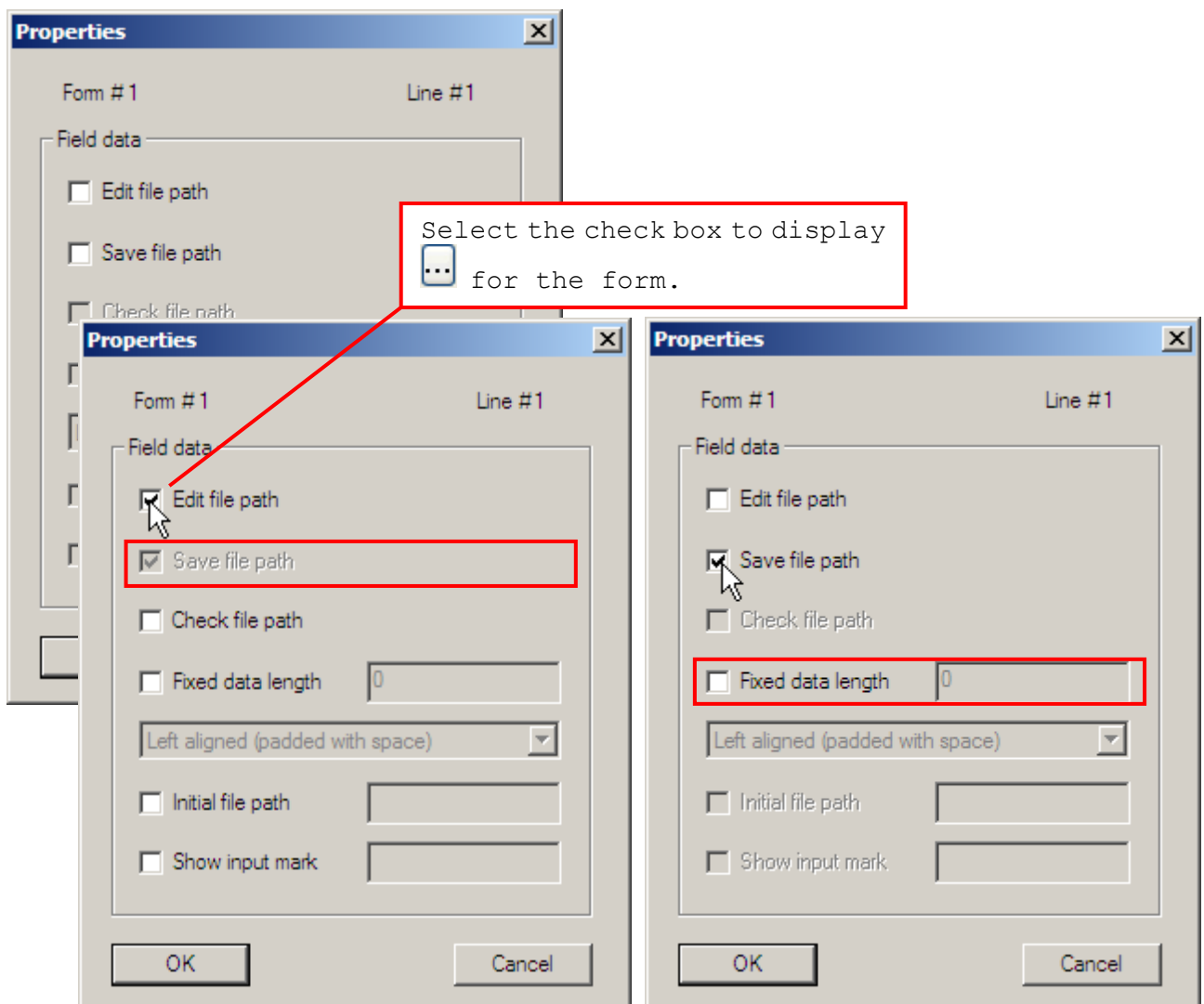
▶ Leave a number of lines ("nil" by default as shown below) to display the image.

Tap ... to select another image or capture a new image.

Warning: When "Check file path" is enabled, the file path to an image must be specified!

1.9.17 LARGE DATA

This data type option is available only when you have selected 2D scan engine for use on the mobile computer. Refer to 4.1 Reader Type.

▶ For each form, you can have one field set to read 2D barcode for large data.

▶ It allows up to 2048 characters to be collected via the 2D scan engine.

▶ By default, the maximum field length is 160 characters, which requires manual adjustment for reading more and up to 2048 characters.

▶ By default, the "Read partial barcode" setting is enabled and set to read from the start position "1" and maximum length "20". It requires manual adjustment for reading more and up to 160 characters. For reading more than 160 characters, you need to disable the "Read partial barcode" setting. Refer to 1.15.2 Barcode Input.

Note: The Variable/Field setting will become disabled when both of the requirements are met: (1) the maximum field length is over 160 characters, and (2) the "Read partial barcode" setting is disabled.

1.9.18 READ FROM 2D

This data type option is available only when the following requirements are met: (1) you have selected 2D scan engine for use on the mobile computer, and (2) one of its preceding fields must be set to "Large data".

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

▶ It allows extracting partial data, up to 160 characters, from the fields set to "Large data". Refer to 1.15.2 Barcode Input.

1.10 PROMPT

Specify a prompt string for a specific input field, if necessary. Maximum 30 characters are allowed. Due to the screen size, the length of the prompt string will affect how the input field looks on the screen – it may be a very narrow input box if the prompt string is too long, and therefore, it will not display the whole input data on the screen, even though a number of its following lines are set to "extension". It looks better when browsing data because the prompt string to be displayed is limited to 12 characters.

Note: Unless the data type of a line is "fixed data", a prompt string will not be saved in a transaction record.

1.11 INPUT SOURCE

Specify from which source data can be collected.

▶ Reader
▶ Keypad
▶ RFID
▶ All

Upon completion of one input field, it is necessary to press the [Enter] key on the mobile computer. Then it will move either to the next input field, or to the next form or menu.

When the input source is specified to "reader" only, you need to enable "Auto ENTER" for barcode input settings in 1.15 Properties.

Note: "RFID" is available only when the RFID reader is selected on the Barcode property page. When "RFID" is selected, you may still press the [ESC] or [Enter] key to cancel or confirm a task. The rest keys on the keypad are disabled.

1.12 MINIMUM LENGTH

Specify the minimum length of an input field.

▶ If the input data is shorter than specified, it will be considered unacceptable. A warning message will be displayed to indicate "Data is too short!"

1.13 MAXIMUM LENGTH

Specify the maximum length of an input field. The value can be 160 at most.

You can facilitate data input by showing input marks on the screen. In 1.15 Properties, select **Show input mark**. The number of input marks equals to the maximum length specified here.

▶ If the input data is longer than specified, it will be considered unacceptable.

Input via Barcode/RFID Reader
A warning message will be displayed to indicate "Data is too long!"

Input via Keypad
No warning message, however, you cannot input any more characters beyond the maximum length.

1.14 LOOKUP (FIELD) / VARIABLES

If there is no lookup file in use, this feature will be **Variables**.

1.14.1 LOOKUP (FIELD)

Refer to 1.5 Lookup (File). If a lookup file is in use, you need to specify the corresponding lookup field line by line. For each lookup file, there will be a key field. By default, the "key field" is Field #1. When an input field makes reference to the key field and its input data is found matching, data for its following input fields will be imported from each corresponding lookup fields.

▶ For those data types other than **integer**, **real**, and **auto (+/-)**, see the options left below.

▶ For data types **integer**, **real**, and **auto (+/-)**, see the options right below.

   When an arithmetic sign (+, -) is prefixed to the lookup field, the input data will be added or subtracted from the lookup value.
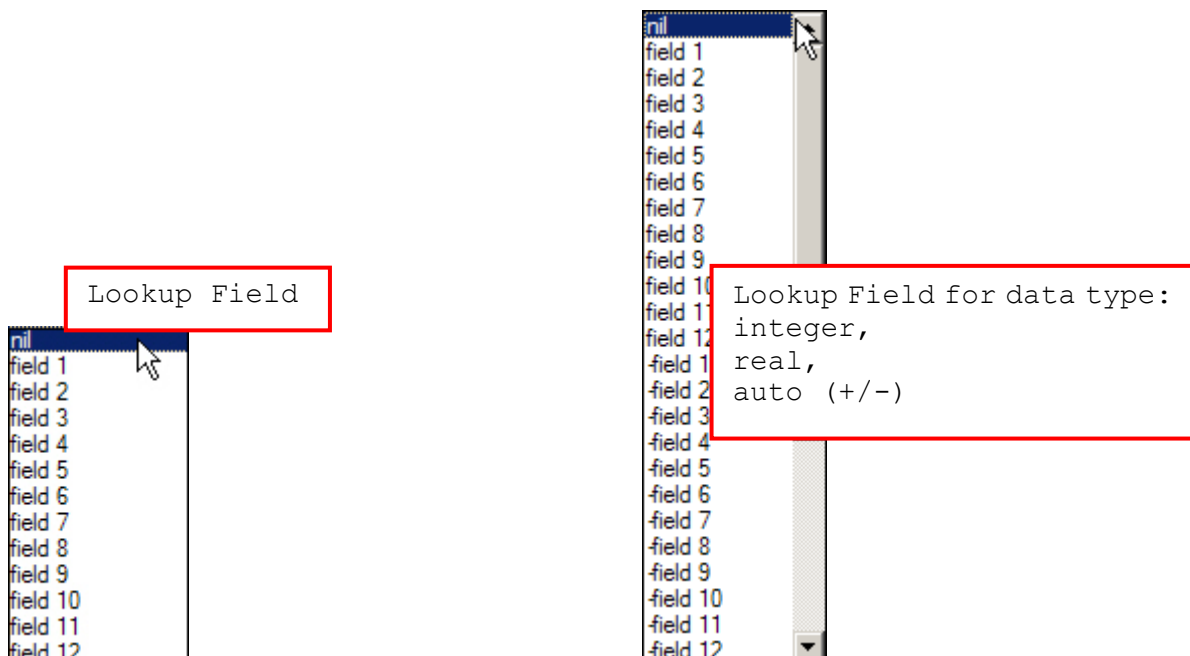
1.14.2 VARIABLES

Refer to 1.5 Lookup (File). If there is no lookup file in use, it will provide variables as shown below, which can be accessed by different forms.

For example, you may specify **set v1** for input field #1 of form 1, and its input data will be saved in the first character array. Specify **get v1** for input field #3 of form 2, and the previous input data will be imported. If you specify **get&set v1** for input field #3 of form 2, the previous input data will be imported and then updated.
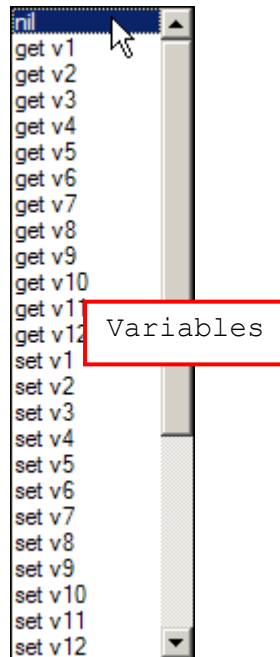
1.15 PROPERTIES

Specify field properties if necessary.

1.15.1 FIELD DATA

FIXED DATA LENGTH

Select the check box. The data length will be fixed to the value specified here.

▸ If the input data is longer, it will be truncated and saved to transaction record for the exported file only. When browsing data, it will remain intact on the screen.

▸ If the input data is shorter, "Space" or "0" will be added in front of or to the end of 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 the check box. An initial value or text, up to 10 characters, specified here will be shown in the input field. It is to be replaced by input data.

For example, it can be used to prompt an initial value for quantity.

ADD PREFIX CODE

Select the check box to prefix a code to the input data. Click the editing box next to it, and select one or more codes from the Grid Control (ASCII codes). For example, a dollar sign ("$") can be added to the front of the data input for price.

ADD SUFFIX CODE

Select the check box to suffix a code to the input data. Click the editing box next to it, and select one or more codes from the Grid Control (ASCII codes).

Instead of using delimiters in 5.2 Data Field Delimiter, you may use prefix and/or suffix codes to separate each entry of input data.

Note: You may use prefix/suffix code to wrap the input data. The prefix/suffix code will be added to the exported file only.

SHOW INPUT MARK

Select the check box to show input marks, such as underline (_) or asterisk (*), which is to be replaced by input 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

A decimal place is the position of a digit to the right of a decimal point. When the data type is **real**, you may need to specify its decimal places.

▶   By default, it is set **variable** to accept all real numbers.

For example, **4** is selected for decimal places, however, there are only 2 decimal places in the input number, say "8.12". To follow this rule, the system will save the input data as "8.1200". If you try to input a number "8.12345" via the keypad, it will not allow the input of the fifth decimal digit. 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 be displayed on the mobile computer, and the system will automatically clear the input data and wait for new entry.

1.15.2 BARCODE INPUT

READ PARTIAL BARCODE

By default, it will return the whole barcode that has been decoded. When the check box is selected, it will return partial barcode according to the settings of the start position and maximum length.

Below are some examples.

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

CHECK LEADING CODE

The leading code refers to the digit in the start position of a barcode.

Select the check box to verify the barcode input. When the leading code is not matching, the barcode will be rejected.

Below are some examples.

Leading code	Barcode scanned	Transaction record
9	9876543210	9876543210
2	9876543210	(Discarded: code not matching)

Read partial code + Check leading code:

Start position	Max. length	Leading Code	Barcode scanned	Transaction record
2	7	8	9876543210	8765432
2	7	9	987654321	(Discarded)

CHECK DIGIT VERIFICATION

The check digit refers to the digit in the end of a barcode, as a one-digit derived checksum digit. Select the check box to verify the barcode input. You may apply different modulus 10 or 11 check digit as provided in the drop-down menu. When the check digit is not matching, the barcode will be rejected.

AUTO ENTER

Normally, it is necessary to press the [Enter] key on the mobile computer upon completion of one input field. Then, it will move either to the next input field, or to the next form/menu specified.

This function will automatically add a carriage return in front of or to the end of the barcode input.

▶ For barcode scanning, it proves to be timesaving when **Scan+ENTER** is enabled.

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

1.16 RESET

Click this button to load the default settings.

Note: The settings for the current form will be cleared.

MENU

A menu is a list of selection items. Up to ten different menus can be defined.

Below are the settings for each field of a menu.

2.1 ID

Select a name for the current menu you work on. Usually start with "menu 1".

▶ menu 1 ~ 10

2.2 ESC

Select a form or menu that will be displayed when you press the [ESC] key on the mobile computer.

▶ main
▶ form 1 ~ 20
▶ menu 1 ~ 10

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

2.3 MENU CAPTION

Select the check box and specify a caption for the current menu if necessary.

2.4 ITEM NAME

Specify a name for each menu item. For example, you may specify "1. Goods In" (see left below) or "Goods In" (see right below) in the first field of Item Name. The only difference is the Item No. will not be displayed on the screen in the latter.
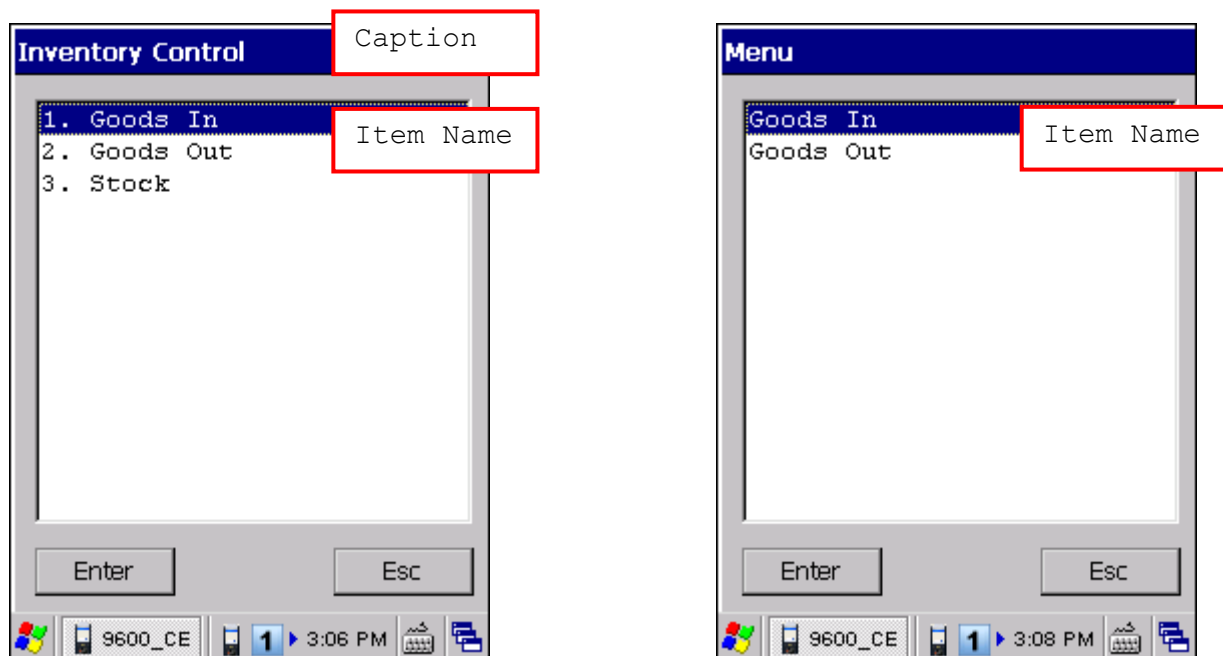
2.5 NEXT

Select a form or menu that will be displayed when a menu item has been selected.

▸ main
▸ form 1 ~ 20
▸ menu 1 ~ 10

This function can be invoked by performing one of the following actions on the mobile computer –

▸ Double-tap the desired menu item.
▸ Press the [Up/Down] arrow keys to select a menu item, and then press [Enter].

2.6 DATA

Specify how to proceed when a menu item has been selected.

▸ Save caption – Save the menu caption to the transaction record as "Pass Down" data if this menu is running.
▸ Save selected item – Save the selected menu item to the transaction record as "Pass Down" data if this menu applies.
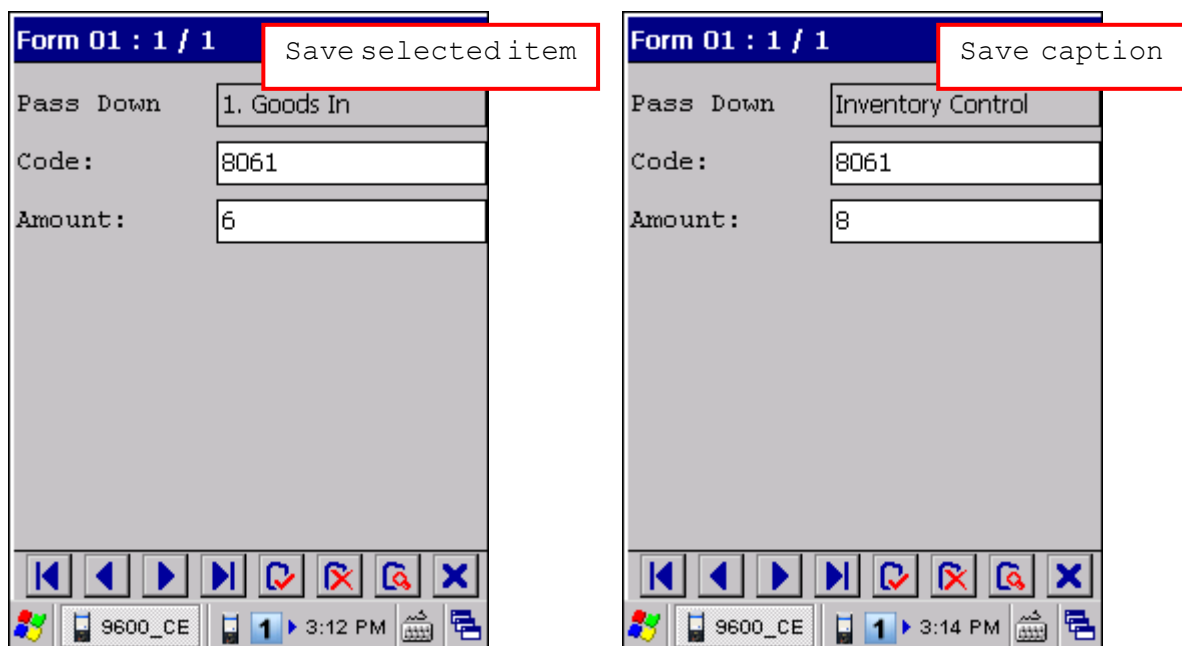
▶ Save caption and selected item – Save both to the transaction record as "Pass Down" data. If the data is too long to be displayed in full, press the [Right Arrow] key on the keypad to view the rest of it if necessary.
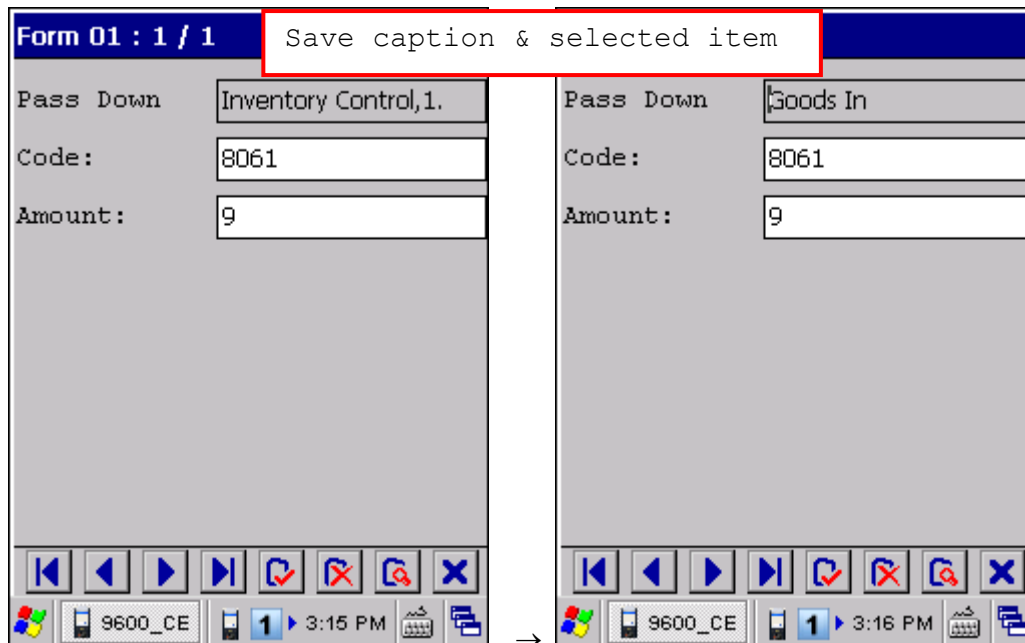
Note: The selected option(s) will be passed down to an associated form or menu.

2.7 RESET

Click this button to load the default settings.

Note: The settings for the current menu will be cleared.

LOOKUP

A lookup file is a database file created for information reference. Up to five lookup files can be defined. If settings on this property page are specified improperly, it may go wrong when an input field makes reference to its corresponding lookup field.

If the default settings remain unchanged for the following items in the AG template file that has been copied to your mobile computer, **[File** > **Import]** and **[File** > **Export]** will be unavailable on the mobile computer.

Besides this chapter, you may refer to the following sections for a whole understanding of all related settings:

▶ 1.5 Lookup (File)

▶ 1.9.11 Lookup (Data Type)

▶ 1.14 Lookup (Field)

IN THIS CHAPTER

3.1 NAME

Select a lookup file you want to define its settings. Up to 5 different lookup files can be specified. Usually start with the "1st lookup file".

3.2 FIELD PROPERTY

Specify the settings of data field of the database (lookup file).

3.2.1 FIXED LENGTH

This is the default setting. Proceed to define related settings –

▶ 3.3 Number of fields

▶ 3.6 Length

3.2.2 DELIMITER

You may use a delimiter (ASCII code) to separate the data fields. Proceed to define related settings –

▶ 3.3 Number of fields

▶ 3.6 Max. Length

If the maximum length of each field is set improperly, you will receive a warning message in the import process. You may fail to import the lookup file, which depends on the action specified when the data format is wrong. Refer to the settings of 3.11 Action When the Format of Record Is Wrong.

3.3 NUMBER OF FIELDS

It must at least cover the referred fields of the database (lookup file). Refer to 1.14 Lookup (Field) / Variables.

3.4 DATA TYPE

A newly-added feature to help you verify whether the lookup file you are importing is correct or not. Be careful with the data type you set to each of the lookup field. If data in the lookup file is not as described, it may fail to import the lookup file and display a warning message. Refer to 1.9 Data Type for details on each data type and 3.11 Action When the Format of Record Is Wrong.

▸ text

▸ integer

▸ real

▸ letter

▸ boolean

▸ image — same as "text", full file path is required, such as "\DiskOnChip\1000.jpg".

While browsing data, tap [...] to view image. It allows selecting another image file or capturing a new image.
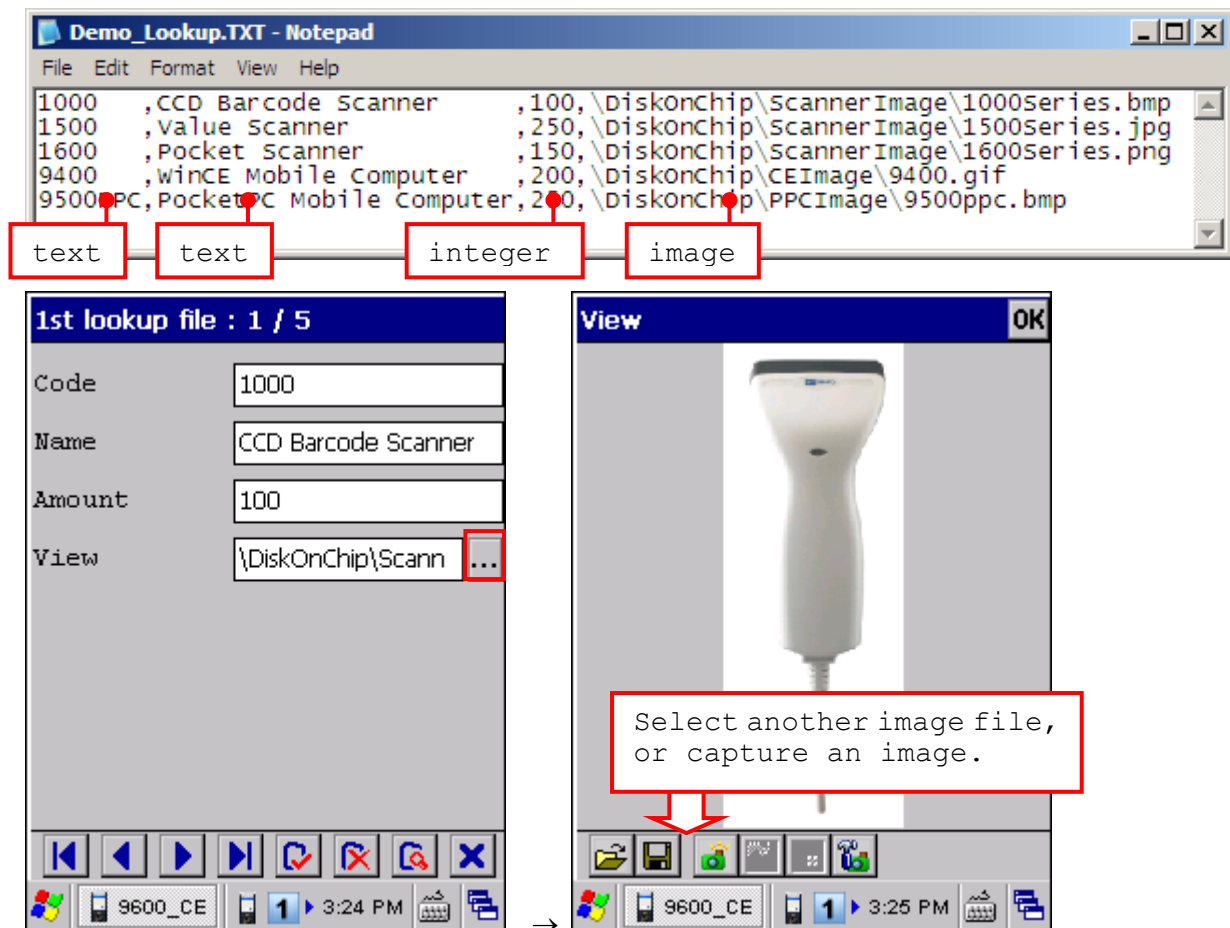
3.5 FIELD NAME

Specify a name for each lookup field, which will be displayed on the mobile computer to facilitate data editing under **[Utilities** > **Browse Data]**.

3.6 (MAX) LENGTH

▶ When the field property is set **Fixed Length**, specify the length for each referred data field.

▶ When the field property is set **Delimiter**, specify the maximum length for each referred data field.

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), and therefore enable searching by key field when you browse the lookup file.

Refer to Utilities Menu > Browse in Appendix I – Demonstration on Mobile Computers.

▶ 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 that of the key field, data of other input fields, if referring to a lookup field, will be imported accordingly.

If no matching, refer to 3.12 Action When the Input Data Has No Match.

3.8 CHANGE EXPORT NAME

If you have specified a lookup file in use, you can export it or even merge it with a data file. The default file name is "1st lookup file".

Note: The new name of a lookup file cannot be identical to that of the original file; otherwise, it will overwrite the original file!

3.9 AUTO EXPORT LOOKUP TABLE WHEN CLOSE APPLICATION

If a lookup file is in use and "Auto export lookup table when close application" is enabled, the lookup table will be exported automatically upon closing the application. Choose the save mode to decide whether the lookup table will overwrite or append to the existing table.

3.10 ENABLE AUTOMATIC DATA DELETION

When Data Deletion is set to "Automatic", a lookup file is to be deleted once it has been exported to the host by default. You may disable the Automatic Data Deletion feature to keep the lookup file.

3.11 ACTION WHEN THE FORMAT OF RECORD IS WRONG

This applies to **Delimiter**, when a delimiter is used to separate data fields of the lookup file. It provides several options to handle wrong data format when you import the lookup file.

3.11.1 STOP THE IMPORT PROCESS

When wrong data format is encountered, a warning message will be displayed on the mobile computer. The import process is stopped then. You will need to correct the data format, for example, remove an empty record (line) at the end of a file. Then, import the lookup file again.

3.11.2 TRUNCATE/REFORMAT THE RECORD

When wrong data format is encountered, it will automatically truncate or reformat the lookup file in the import process. For example, the additional fields of a record will be left out.

3.11.3 SKIP THE RECORD

When wrong data format is encountered, it will automatically skip the record.

3.12 ACTION WHEN THE INPUT DATA HAS NO MATCH

Choose the appropriate action to take when the input data does not match that of the key field.

3.12.1 CONTINUE

The program will allow data input to proceed without showing any message.

▶ Data can only be saved in a data file if you have selected **save** or **save & update** in 1.6 Record.

3.12.2 SHOW WARNING MESSAGE

A warning message "Data is not found!" is displayed on the mobile computer.

▶ Tap [OK] to close the message box. You will need to clear the input data manually.
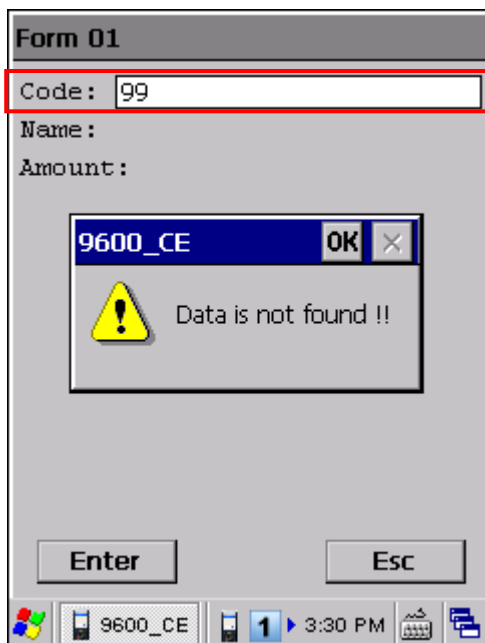
3.12.3 INSERT TO LOOKUP FILE

The program will allow data input to proceed without showing any message.

▶ Data will be inserted to the target lookup file if you have selected **update lookup** or **save & update** in 1.6 Record.

3.12.4 SHOW WARNING MESSAGE & INSERT

A warning message "Data is not found!" is displayed on the mobile computer.

▶ It will resume to data input. Data will be inserted to the target lookup file if you have selected **update lookup** or **save & update** in 1.6 Record.

3.12.5 CLEAR THE SCREEN

The program will automatically clear the input data and wait for new entry.

3.12.6 SHOW WARNING & CLEAR SCREEN

A warning message "Data is not found!" is displayed on the mobile computer.

▶ It will automatically clear the input data and wait for new entry.
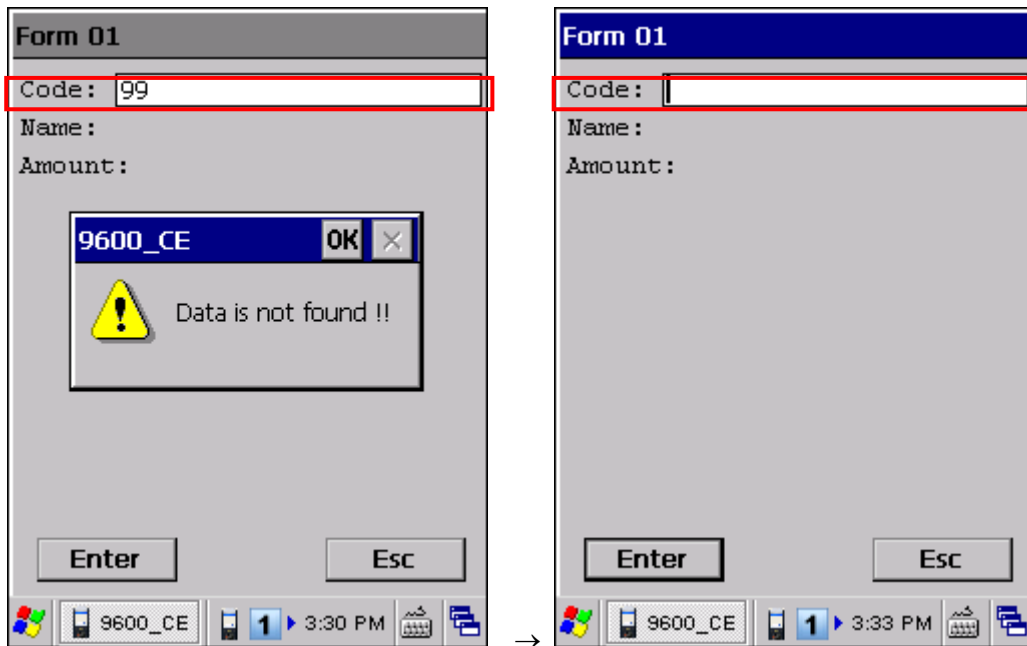
3.13 RESET

Click this button to load the default settings.

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

BARCODE

According to the requirements of a specific application, you may enable or disable any of the barcode symbologies and configure the associated parameters.

Supported barcodes depend on the scan engine integrated on the mobile computer.
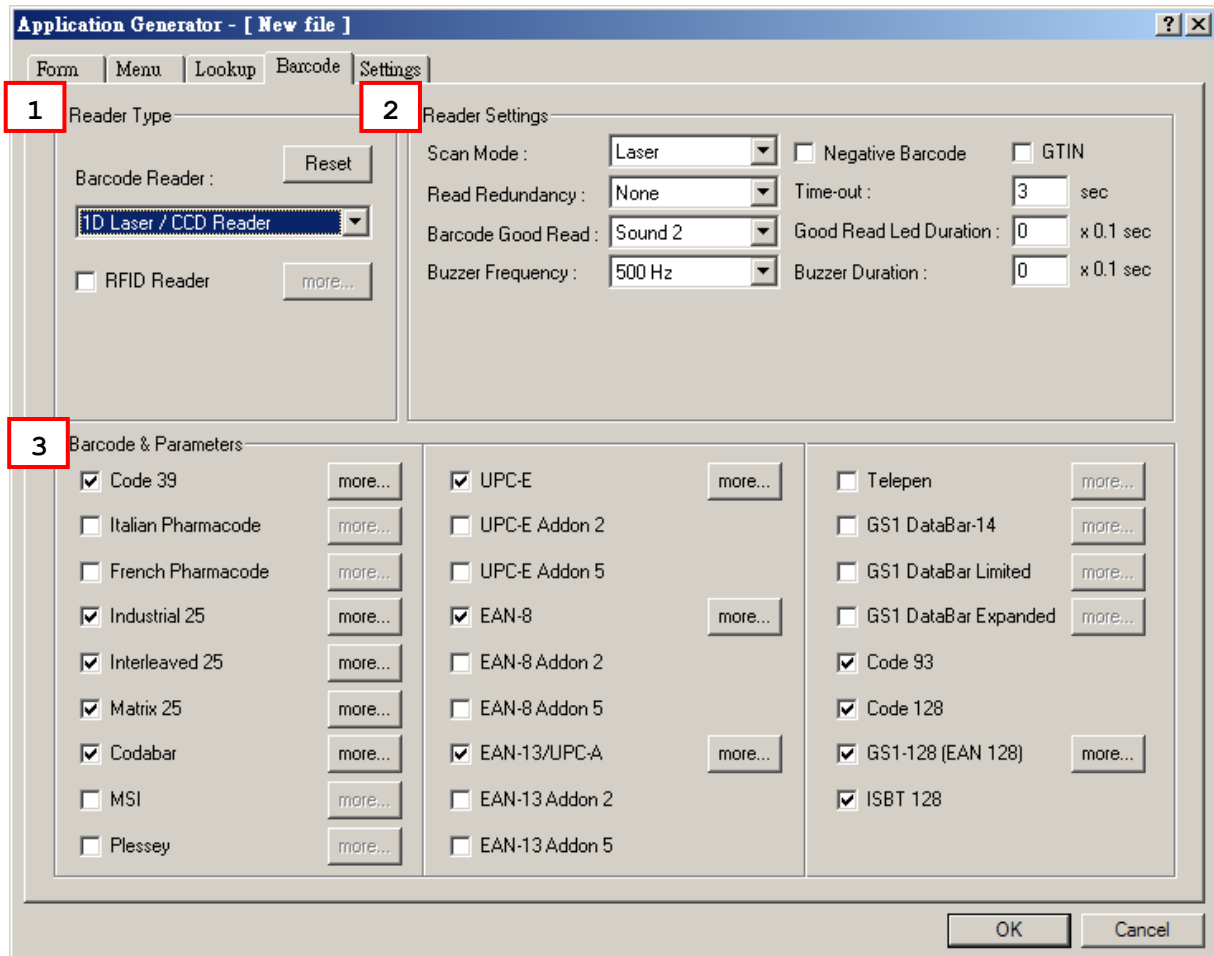
IN THIS CHAPTER

4.1 READER TYPE

Depending on the module equipped on your mobile computer, the following reader types are supported –

Scan Engine		ID	9300	9400	9500	9600
1D	Linear Imager	CCD	✘	✓	✓	✓
1D	Laser	SE950	✘	✓	✓	✓
		SE955	✓	✘	✘	✘
1D	Long Range Laser	LR	✘	✘	✓	✘
1D	Extra Long Range Laser	ELR	✘	✘	✓	✘
2D	2D Imager	PL4407	✘	✓	✓	✘
		PL4507	✓	✘	✘	✓
RFID	ID_MOD_RFID (ACG)		✘	✘	✓	✘
	ID_MOD_TI_RFID		✘	✓	✘	✘
	ID_MOD_MP_RFID		✘	✘	✘	✓

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 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!

4.1.1 BARCODE READER

Select a reader type that matches the hardware configuration of your mobile computer.

The associated barcode parameters will be displayed accordingly. If there is a **More** button next to the barcode symbology listed, advanced settings are available.

Note: (1) In order to initialize the barcode reader, you must select the correct reader type when you first configure a template file. Otherwise, a message "Wrong reader type!" will be displayed on the mobile computer after you open the template file.
(2) For 9600 mobile computer integrated with a RFID reader only, select "None" for barcode reader.

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.

Symbology		CCD, SE950	SE955	LR, ELR	2D
Codabar		✓	✓	✓	✓
Code 11		✗	✓	✗	✓
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	✓	✗	✗	✓ (PL4507 only)
	Chinese 25	✗	✓	✗	
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	✗	✗	✗	✓ (PL4507 only)
	Aztec	✗	✗	✗	

4.1.2 RFID READER

Select the check box to enable the RFID reader. Advanced settings are provided as shown below. RFID tags in proximity will be read automatically by 9400/9500/9600 when RFID reader is enabled. You may limit the Input Source options in Form to prevent from misreading RFID data.
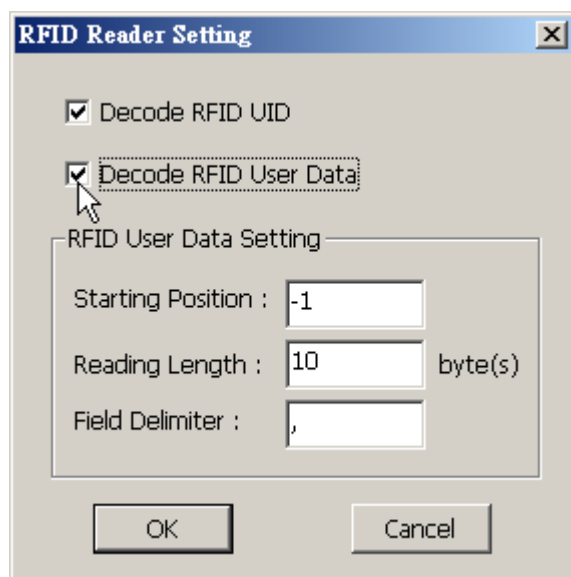
Decode RFID UID
By default, the RFID reader is set to read UID (Unique Identification).
Decode RFID User Data
▶ Select the check box so that RFID data can be read. ▶ If only partial data is required, specify the start position (or start page) and maximum length.

Some RFID tags support both read/write operations, on a page-by-page basis. You may find it necessary to define your own read operation here. For reference only, the table below lists the start page for read/write operation on a number of RFID tags.

Start Page	Tag Type	Standard
-1	Start from byte 0 of the default page (see below) for all tags	
4	Mifare	ISO 14443A
4	SR176	ISO 14443B
3	ICODE SLI	ISO 15693
0	LRI512	ISO 15693
3	SRF55VxxP	ISO 15693
0	EM4135	ISO 15693
0	Tag-it HF-I	ISO 15693
0	Others	ISO 15693
5	ICODE	ICODE® (Phillips)
0	Tag-it	Tag-it® (TI)

Note: Please refer to the specifications of your RFID tags for memory organization.

Field Delimiter

When both UID and user data are read, specify a delimiter to separate UID from user data. Tap the editing box and select one character from the Grid Control (ASCII codes).

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.

Note: You should study the specifications of RFID tags before use.

ID_MOD_RFID, (ACG) 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	✓	✓	✓

ID_MOD_TI_RFID, Module Version 1.0.A		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	✓	✓	✓
	ST LRI512	✓	---	---
ICODE® (Phillips)	ICODE	---	---	---

ID_MOD_MP_RFID		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	✓	✓	✓
	ST LRI512	✓	✓	✓

4.1.3 RESET

Click [Reset] to load the default settings. This applies to the following –

▸ 4.1 Reader Type
▸ 4.2 Reader Settings
▸ 4.3 Barcode & Parameters

Note: The current settings will be cleared.

4.2 READER SETTINGS

Refer to the reader settings table in related appendixes.

4.3 BARCODE & PARAMETERS

Refer to the symbology settings table in related appendixes.

Scan Engine	Related Mobile Computers	Reference
Linear Imager (CCD)	9400, 9500, 9600	Appendix II — Linear Imager (CCD), Laser (SE950)
Laser (SE950)	9400, 9500, 9600	Appendix II — Linear Imager (CCD), Laser (SE950)
Laser (SE955)	9300	Appendix III — Laser (SE955)
Long Range/Extra Long Ranger Laser	9500	Appendix IV — LR, ELR Laser
2D Imager (PL4407)	9400, 9500	Appendix V — 2D Imager
2D Imager (PL4507)	9300, 9600	Appendix V — 2D Imager

SETTINGS

On this property page, basic settings for the application program can be changed.
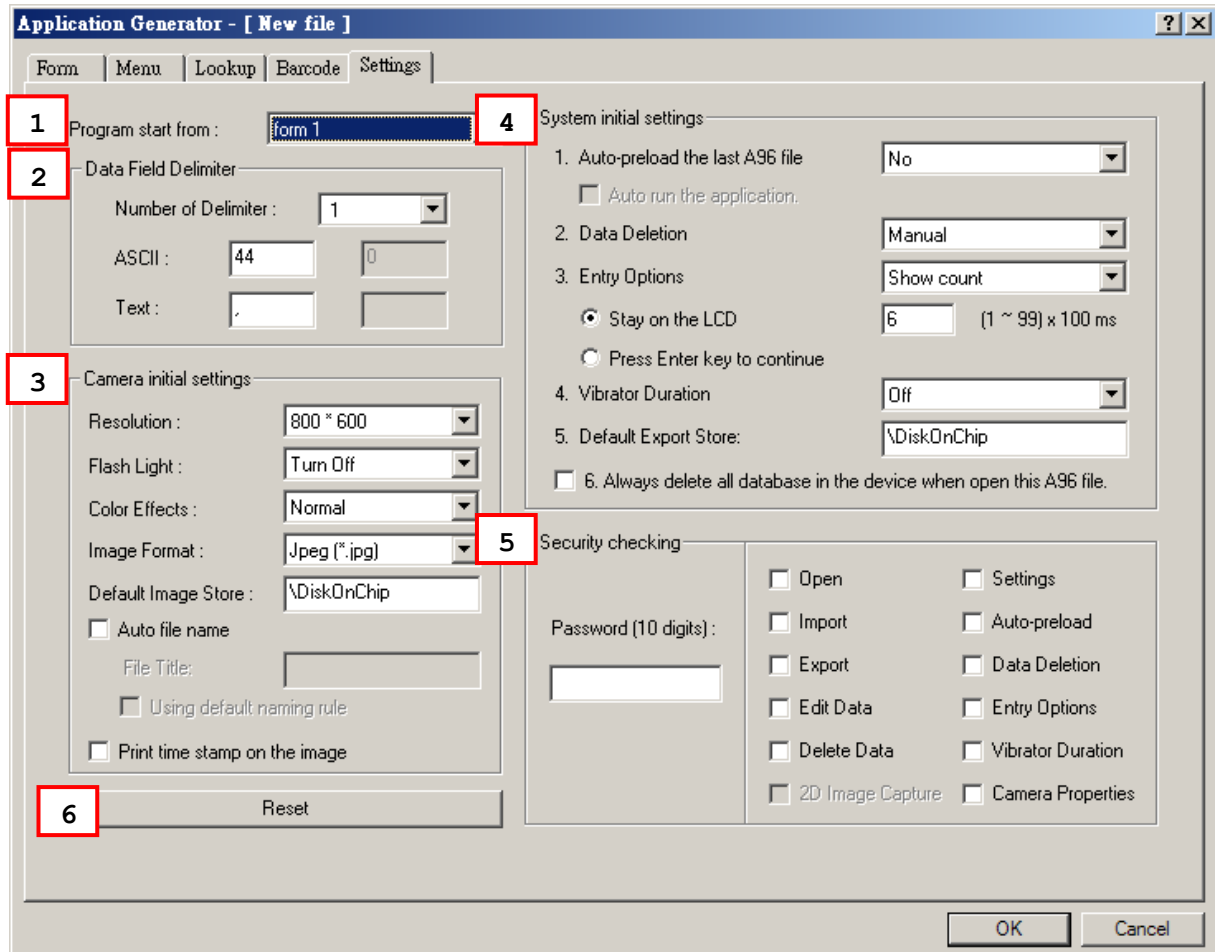
IN THIS CHAPTER

5.1 PROGRAM START FROM

Decide where the application program starts as soon as you tap **[Run]** from the toolbar on the mobile computer.

- ▶ form 1
- ▶ menu 1

5.2 DATA FIELD 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.

5.3 CAMERA INITIAL SETTINGS

The camera initial settings are only available for the AG9400 or AG9600 program. If a camera and 2D reader both exist, it only allows using the camera for image capture.

Camera Settings	Options
Resolution	By default, 800 by 600 pixels resolution is in use. ▶ 1600 by 1200 pixels resolution is supported.
Flash Light	By default, the flash light is turned off. ▶ If you need to add lighting when the ambient light is too dim, you may turn it on. ▶ Auto Flash is supported on 9600 only.
Color Effects	By default, "Normal" means no color effect is applied. ▶ Monochrome, Sepia, Negative, Solarize (with unmodified UV), and Solarize 2 (with UV) are supported. Applying any color effect will take a few seconds to configure the camera.
Image Format	By default, the captured image will be saved in JPEG format. ▶ Bitmap format is supported.
Capture Settings	Options
Default image store	By default, the captured image is stored under the directory "\DiskOnChip". Specify a file name, and the full path name will be saved to the transaction record.
Auto file name	By default, the captured image is saved to a user-specified filename. When enabled, the captured image will be saved to a filename following the automatic naming rule explained below.
File Title	Specify a string prefixed to the filename. It allows up to 5 characters.

Using default naming rule	When enabled, the format of automatic filename is xxxxxyaabbccccc.jpg (or .bmp), where
	▶ "xxxxx" is the file title specified above.
	▶ "y" can be the capital letter F for Form, or L for Lookup.
	▶ "aa" indicates in which Form (or Lookup) the image data is saved.
	▶ "bb" indicates in which "Field" of Form (or Lookup) the image data is for.
	▶ "ccccc" stands for a 5-digit serial number starting from "00001".
	When disabled, the format of automatic filename is xxxxxccccc.jpg (or .bmp), where
	▶ "xxxxx" is the file title specified above.
	▶ "ccccc" stands for a 5-digit serial number starting from "00001".
Print time stamp on the image	By default, there's no time stamp. When enabled, it will add the date/time information to the upper-left corner of the image.
	▶ The format of the Date and Time stamp is as follows: YYYY/MM/DD HH:MM:SS

5.4 SYSTEM INITIAL SETTINGS

System Settings	Default Value	Remarks
1. Auto-preload the last template file (.A93, .A94, .A95 or .A96)	No	Select the check box of "Auto run the application (template)" if necessary.
2. Data Deletion	Manual	
3. Entry Options	Show count	Stay on the LCD for 600 ms
4. Vibrator Duration	Off	
5. Default export store	\DiskOnChip	
6. Always delete all database in the device when open the template file	Disabled	

5.4.1 AUTO-PRELOAD THE LAST TEMPLATE FILE

You may select to automatically pre-load the last template file and the imported lookup file(s) upon running the AG runtime on the mobile computer.

▶ By default, you need to tap [**File** > **Open**] to open a template file.

Template File	FORGE AG Runtime
*.A93	AG9300CE.exe
*.A94	AG9400CE.exe
*.A95	AG9500CE.exe
*.A96	AG9600CE.exe

5.4.2 DATA DELETION

You may decide whether to delete data after exporting to the host. By default, it is set to "Manual", which means you have to decide whether or not to delete data upon completion of export. If you decide not to delete data, you can always tap **[Utilities** > **Delete]** to delete at a later time.

You may select "Automatic" to automatically delete data upon completion of export. The data file (by "form") or lookup file with its setting to automatic data deletion is enabled, will be deleted. If so, the exported data will not be available any more when you tap the following submenus –

▶ **[File** > **Export]**
▶ **[Utilities** > **Browse]**
▶ **[Utilities** > **Delete]**

If neither of the above two options are desired, select "No" to skip data deletion upon completion of export. The data file(s) and lookup file(s) will be kept on the mobile computer after exporting to the host. However, you can always tap **[Utilities** > **Delete]** to delete at a later time.

5.4.3 ENTRY OPTIONS

You may specify whether or not to display more information, either the record count (Show count) or the record preview (Show record), before proceeding to the next entry. When selecting "Show count" or "Show record", you will need to specify how long it will be displayed on the screen. Time-out is specified in the range of 1~99, in units of 100 milliseconds.

▶ By default, the record count will be displayed on the mobile computer screen for 600 milliseconds as soon as an entry is completed. Refer to 1.9.15 Counter.

5.4.4 VIBRATOR DURATION

You may specify whether or not to turn on the vibrator to warn you of a specific event.

5.4.5 DEFAULT EXPORT STORE

You may specify the storage directory which the export file will be saved to.

▶ By default, the default export storage directory is "\DiskOnChip".

5.4.6 ALWAYS DELETE ALL DATABASE …

If this item is selected, then the database will be deleted every time you open the template file. It means the database will be the new one and there will be no records in the database every time you open this file.
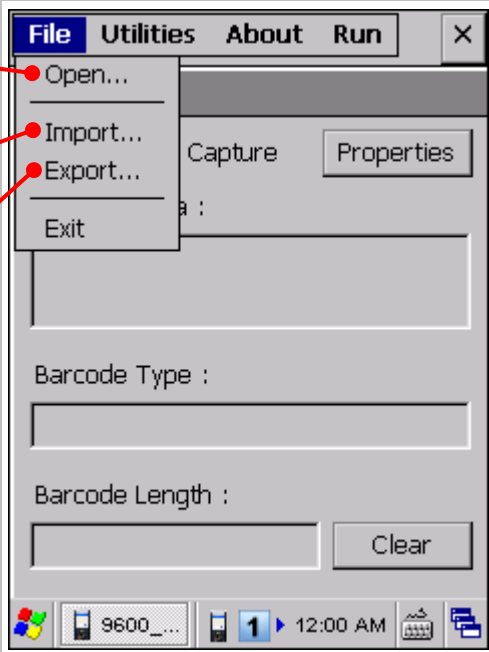
5.5 SECURITY
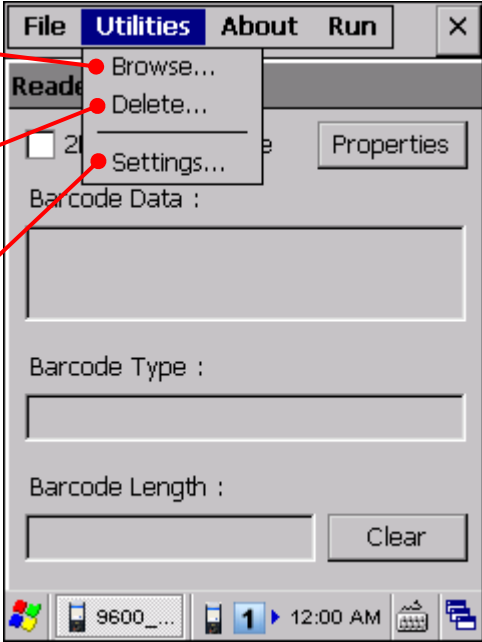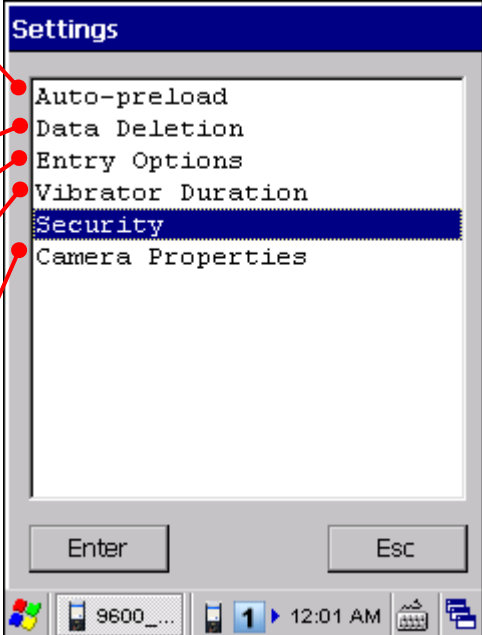
For security concerns, you may specify a password and select the check box of one or more tasks that need security checking.

‣ By default, no password is required for the listed tasks.

‣ A password can be up to 10 alphanumeric characters.

Note: The password is case-sensitive.

If any task is selected and provided with a password, you will not be allowed to enter a submenu on the mobile computer without the password.

Security Options	Password-protected Settings	
Open	File > Open	
Import	File > Import	
Export	File > Export	

Security Options	Password-protected Settings	
Edit Data	Utilities > Browse	
Delete Data	Utilities > Delete	
Settings	Utilities > Settings	
Auto-preload	Utilities > Settings > Auto-preload	
Data Deletion	Utilities > Settings > Data Deletion	
Entry Options	Utilities > Settings > Entry Options	
Vibrator Duration	Utilities > Settings > Vibrator Duration	
Camera Properties	Utilities > Settings > Camera Properties (hardware dependent)	

Security Options	Password-protected Settings	
2D Image Capture	Properties dialog box for 2D Image Capture	
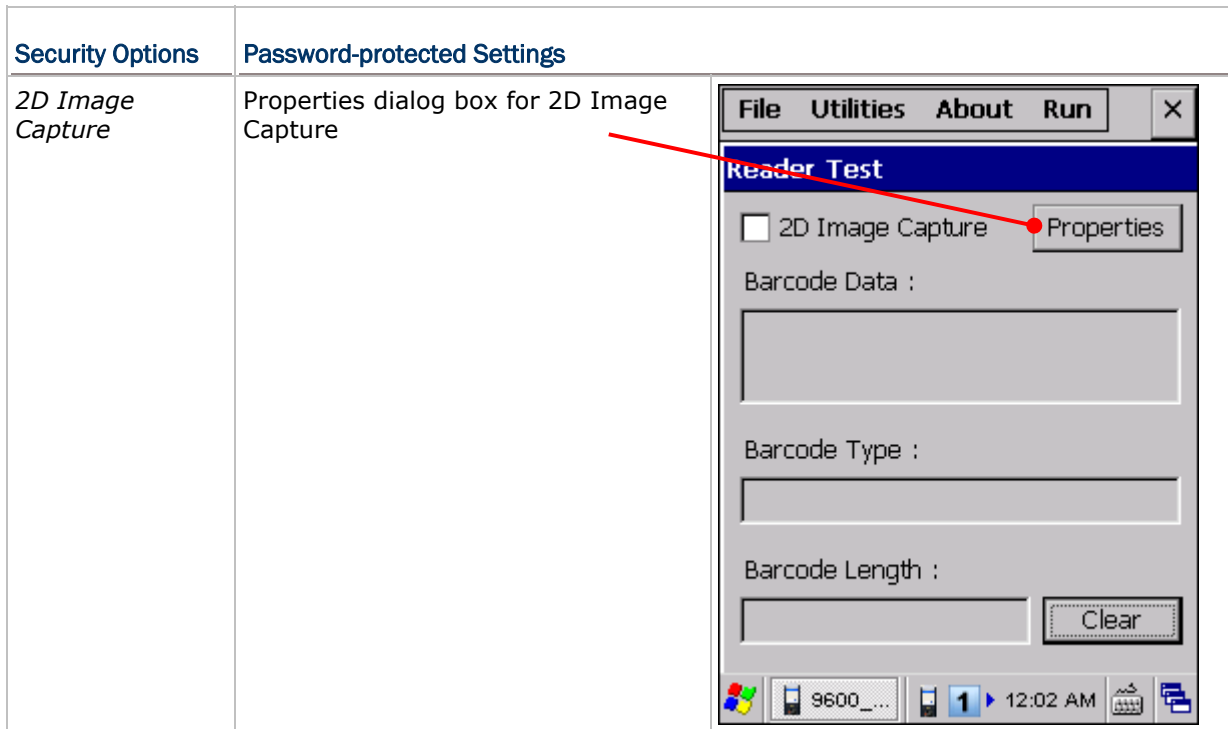
Note: (1) 2D Image Capture option is only available when the Image Capture setting on the Barcode tab is enabled for 2D reader.
(2) Camera Properties option is only available on 9400/9600 mobile computer when equipped with a camera. If a camera and 2D reader both exist, it only allows using the camera for image capture.

5.6 RESET

Click this button to load the default settings.

Note: The current settings will be cleared.

Appendix I

DEMONSTRATION ON MOBILE COMPUTERS

Let's take the example of 9600 Application Generator.

1) Run *AG9600.exe* on your computer to configure application templates.

2) Save the template file (*.A96) and copy it to the mobile computer via ActiveSync.

3) Run *9600_CE.exe* on the mobile computer.
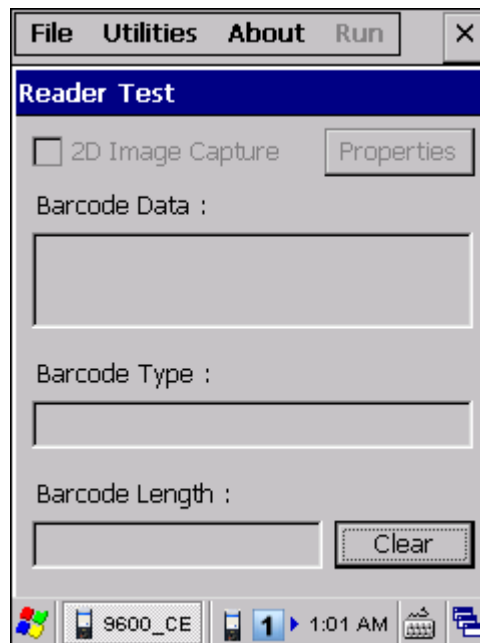
4) Tap **[File** > **Open]** to use the application template (*.A96).

5) Tap **[File** > **Import]** to import lookup file(s) if specified in the template file for use.

6) Tap **[Run]** to start with your application. It may start from a menu or form.

7) Tap **[Utilities** > **Browse]** to edit data collected.

   Tap **[Utilities** > **Delete]** to manually delete a data file or lookup file.

   Tap **[Utilities** > **Settings]** to change system settings directly.

8) Tap **[File** > **Export]** if you wish to export a data file or lookup file.

MAIN MENU (READER TEST)

Run the program and the main menu is displayed as shown below.
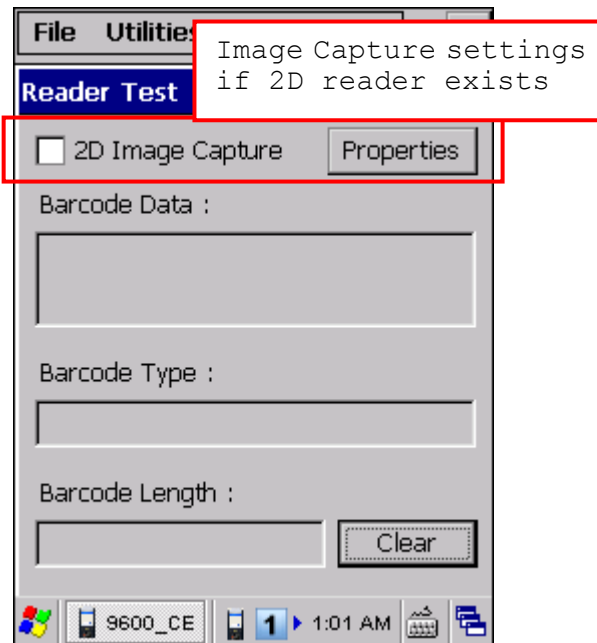
You can perform a reader test on sample barcodes if necessary. Refer to 4.1.1 Barcode Reader for associated settings.

Note: The correct reader type must be selected when configuring your application template, even though you have not made any changes to it.

FILE MENU

Refer to 5.5 Security. You may apply password-protection to these tasks.

OPEN .A96 FILE

You will need to open a *.A96 file first. The rest depends on the configuration of this template file.

IMPORT LOOKUP FILES

If you have associated a form to a lookup file, you will need to import the lookup file after opening the *.A96 file. Finally, run your application.
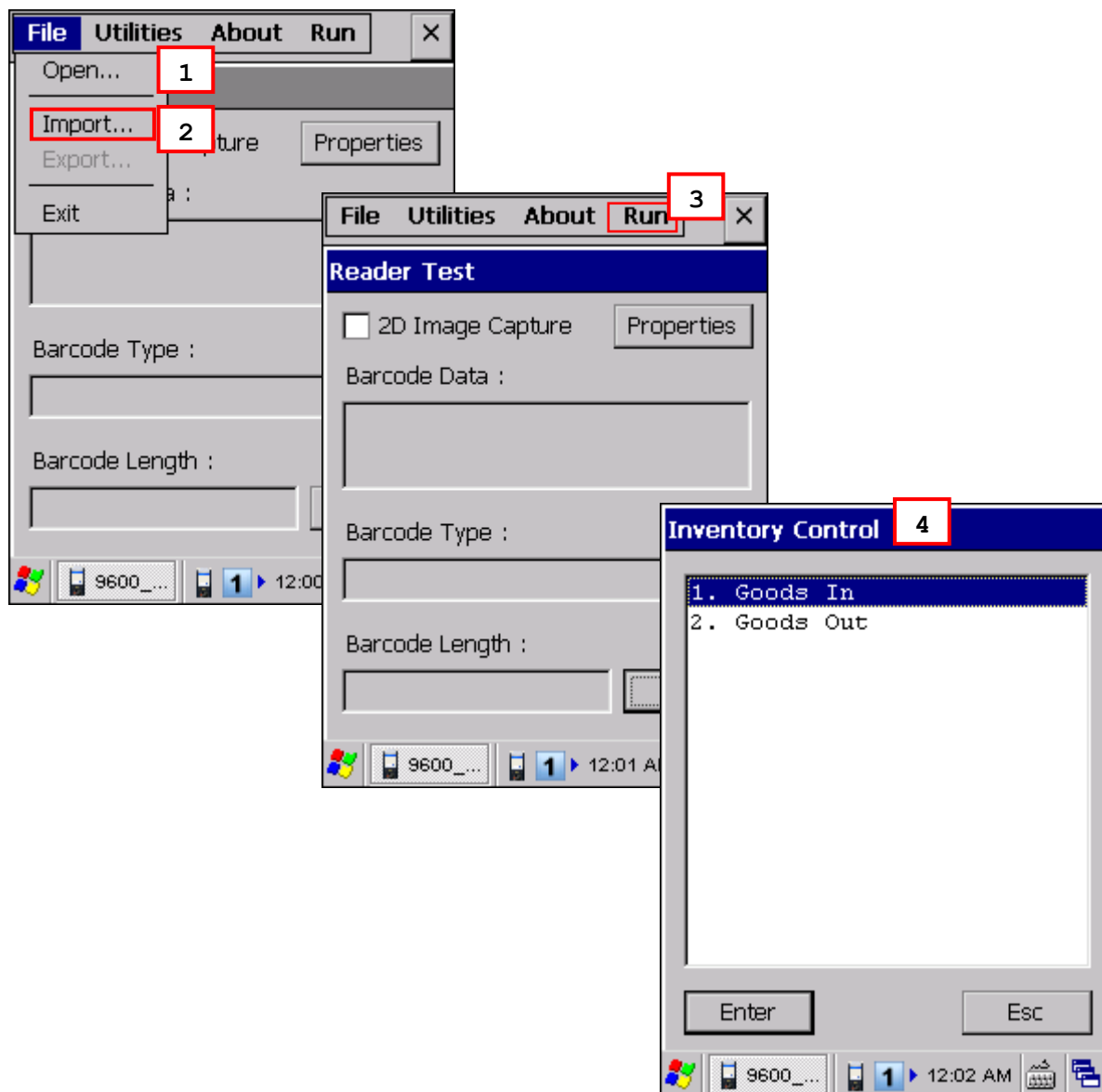
EXPORT FILES

You can export a data file (by form) or lookup file, or even merge them to a new file. Refer to 1.6.1 Export files.
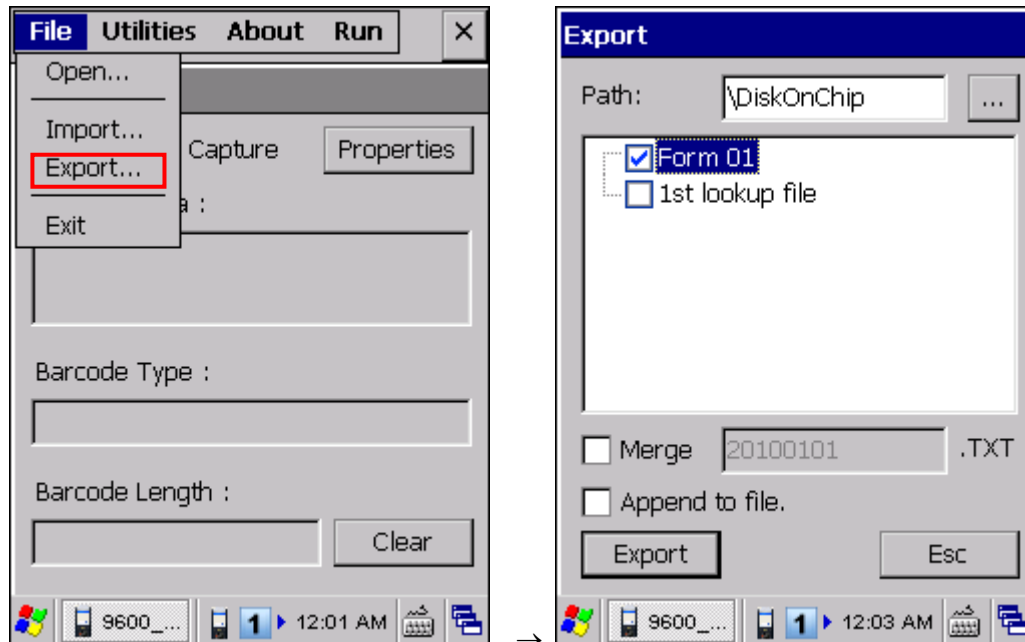
Note: If the export file name is the same as of an existing file, the exported data will overwrite the original one. Otherwise, you may select "Append to file".

DATA FILES

This is available only when you have selected **Save** or **Save & update** for Record.

▸ The default file name is "Form xx", start from Form 01.

▸ The exported data file is a sequential file.

Select to save by index if quick search is desired for data browsing.
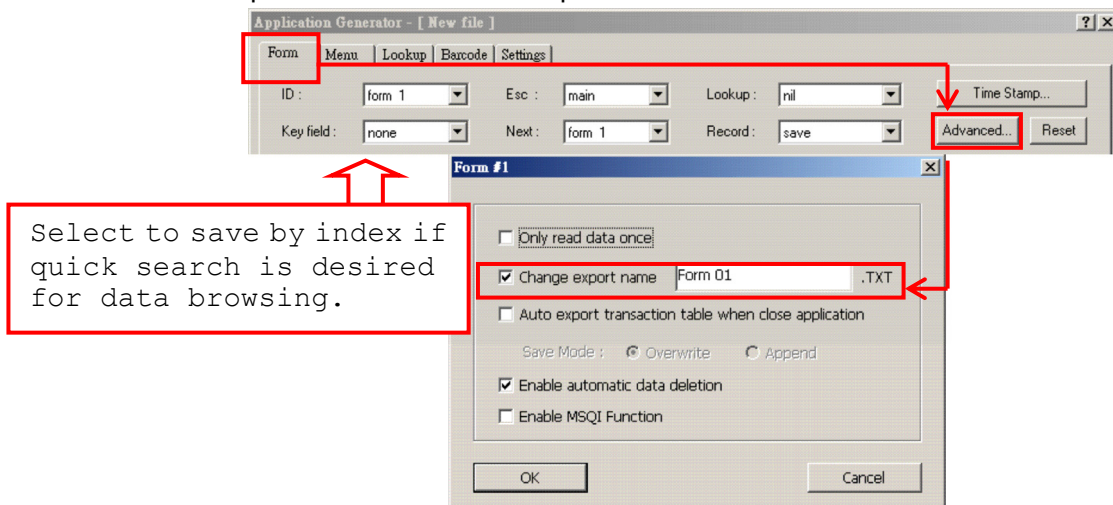
▶ You may specify an automatic exporting function for a data file when closing the application and the save mode of the exporting.

LOOKUP FILES

This is available only when you have specified a lookup file in use.

▶ The default file name is "xxx lookup file", starting from 1st lookup file.

▶ If "Auto export lookup table when close application" is enabled, the lookup table will be exported automatically upon closing the application. It either overwrites or appends to the existing table.

UPGRADE DATABASE

Below are FORGE applications that support upgrading database.

FORGE AG Runtime	Version supports "DB Upgrade"
AG9300CE.exe	---
AG9400CE.exe	1.01.0001 or later
AG9500CE.exe	---
AG9600CE.exe	0.02.0001 or later

The "DB Upgrade" option is displayed when you have an old database in use. However, it may be no longer displayed in the following conditions:

▶ You choose to delete old database when opening another template file.

▶ It is set to automatically delete all databases when opening a specific template file. Refer to 5.4.6 Always Delete All Database ….

▶ When the setting to export transaction data is enabled, the data file will be exported automatically upon closing the application, so that there will be no records in the database. Refer to 1.8.3 Auto Export….

Note: It may take a while to upgrade a large database.

EXIT THE APPLICATION

Choose **[File** > **Exit]** to end the application properly.

RUN THE APPLICATION

If no lookup files are associated with your forms, run your application after opening the template file.

Here is an example of starting from "menu 1".

→

→
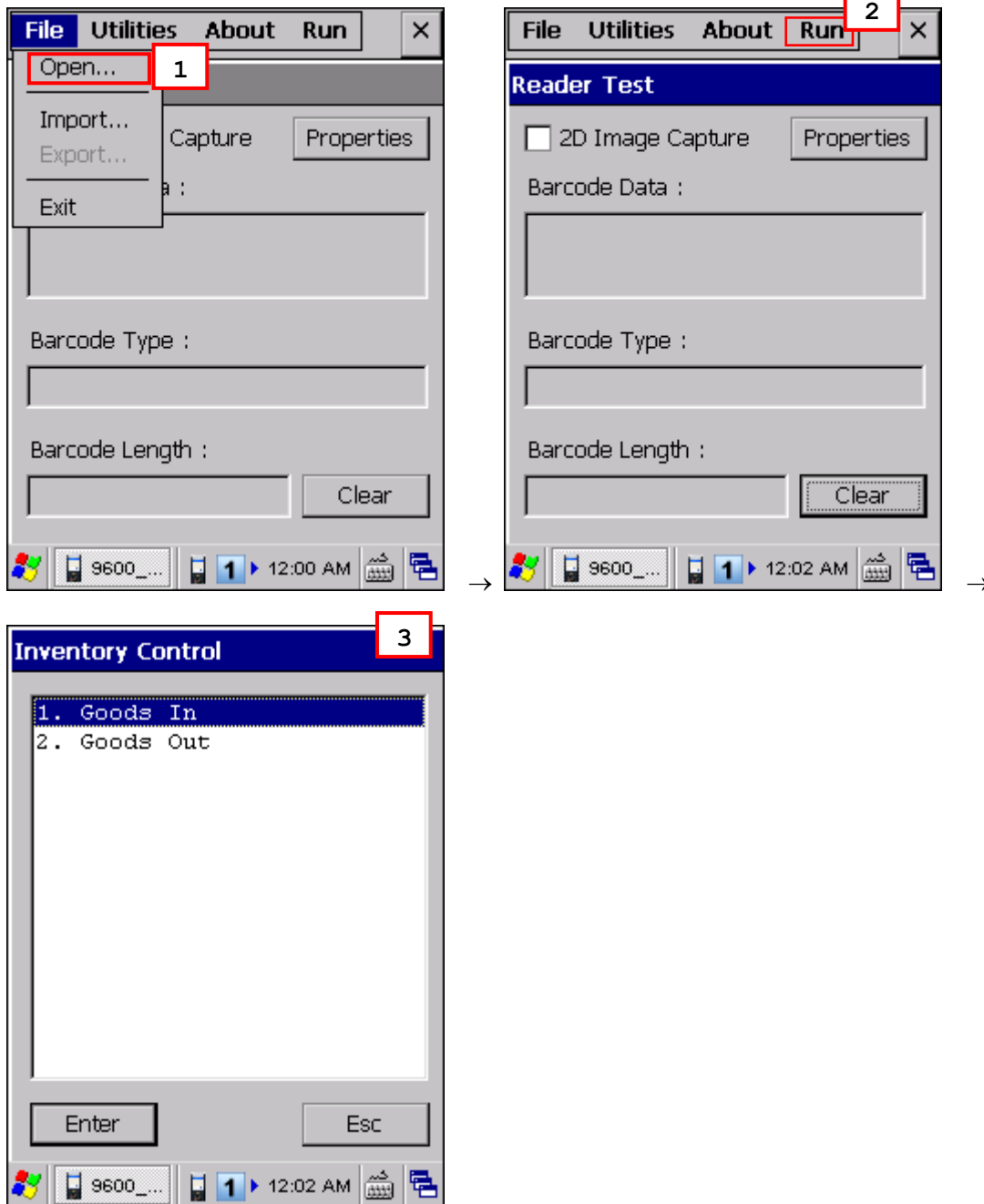
UTILITIES MENU

Unless a task is password-protected, you can edit data, delete files, and change the system settings. Refer to 5.5 Security.
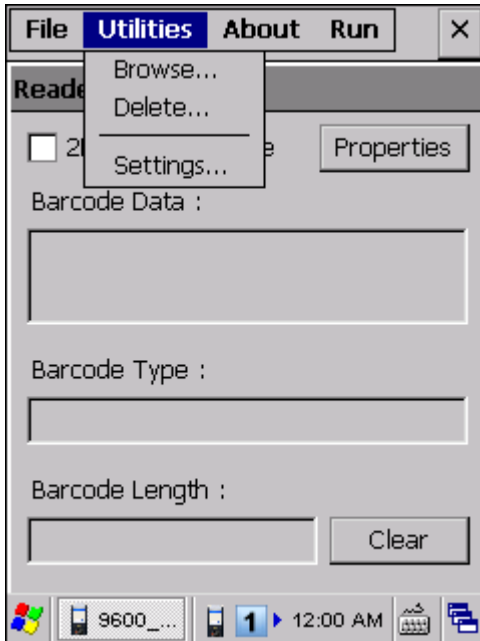
BROWSE

You can edit a data file or lookup file if necessary.

Tap the button to view or change the image

Editing Toolbar

◀▌	**First Record**	Go to the first record.
◀	**Previous Record**	Go to the previous record.
▶	**Next Record**	Go to the next record.
▌▶	**Last Record**	Go to the last record.
⟳	**Update**	Update the current record if you have made changes to any field.
ⓧ	**Delete**	Delete the current record.
🔍	**Search**	Search in the saved data by form or lookup file. (only for full match; case-sensitive) ▸ By "Form" – You must select the field that is the key field defined on the Form property page. ▸ By "lookup file" – You must select the field that is defined as the "key field" on the Lookup property page. See below for how to search in the lookup file.
✖	**Esc**	Exit data editing.

HOW TO SEARCH IN THE LOOKUP FILE?

1) Select the value of field 1, which is the key field defined on the Lookup property page of the template file.

2) Replace the original value with the new value that you want to search for, say, 9600.
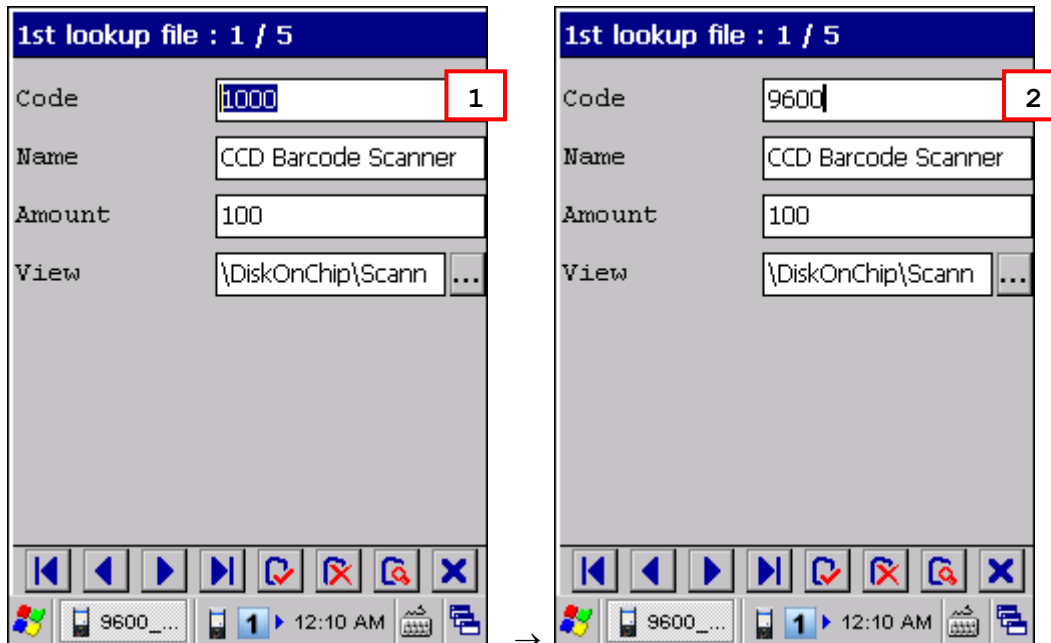
3) Tap 🔍 to start searching.

4) If successful, it will display a "Data found!" message. Tap [OK].

5) Based on the new value, the whole data is displayed.
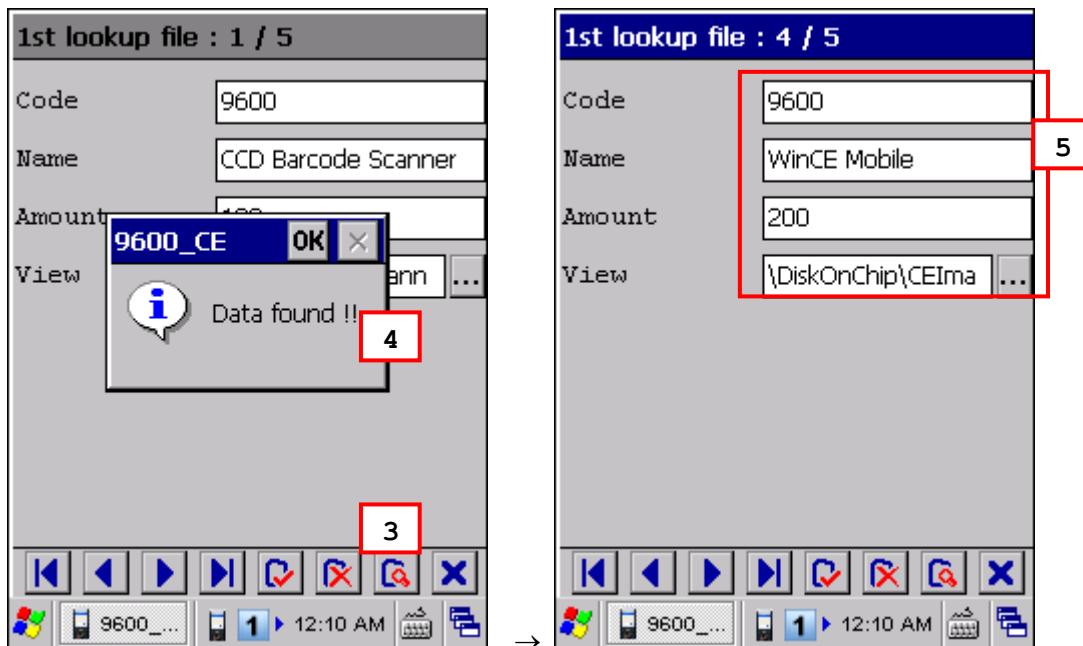
HOW TO VIEW OR UPDATE THE IMAGE FILE?

1) Tap ⋯ to view the image.

2) When the image is displayed, tap 📂 on the screen to select another image, or tap 📸 to get ready for taking a new image.
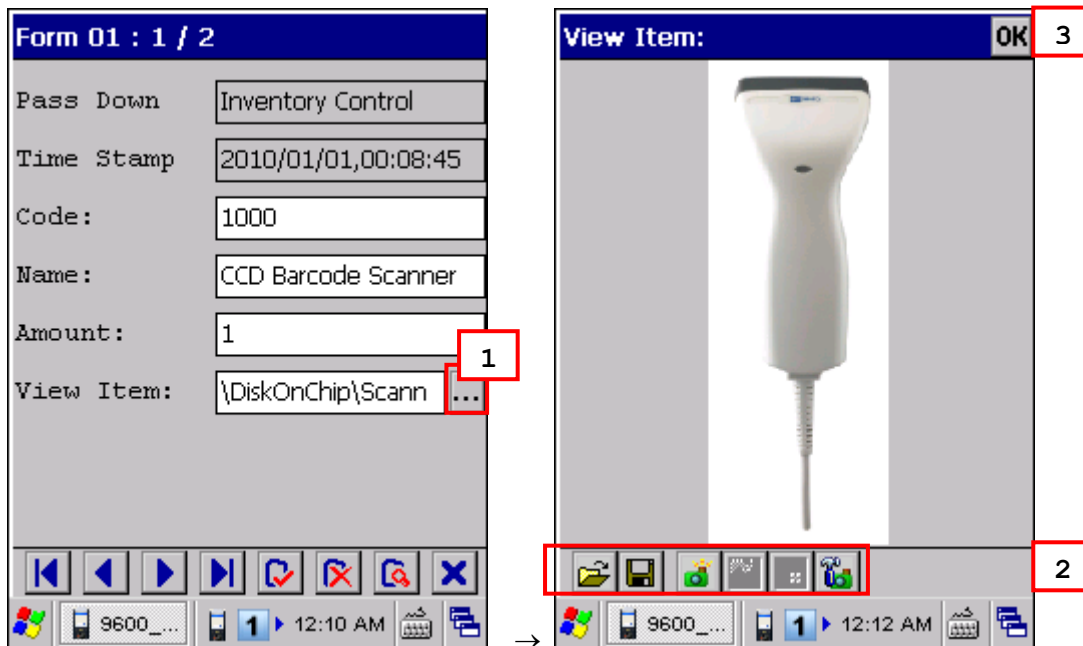
The icons on the toolbar, from left to right, are explained in the table below.

Button	Description
	Open an image. Any existing file in the following formats can be viewed — ▶ JPEG ▶ Bitmap ▶ PNG ▶ GIF
	Save the opened image to a different file name or format.
	Enter the Camera Preview Mode and display a camera preview image.
	Take a picture.
	Exit the Camera Preview Mode.
	Configure camera settings if necessary.

3) Tap [OK].

A dialog box appears requesting you to confirm whether to update the image. Tap [OK] to update the record with new image or [Cancel] to keep the original image.

DELETE

You can manually delete a data file or lookup file if it is not desired any more.
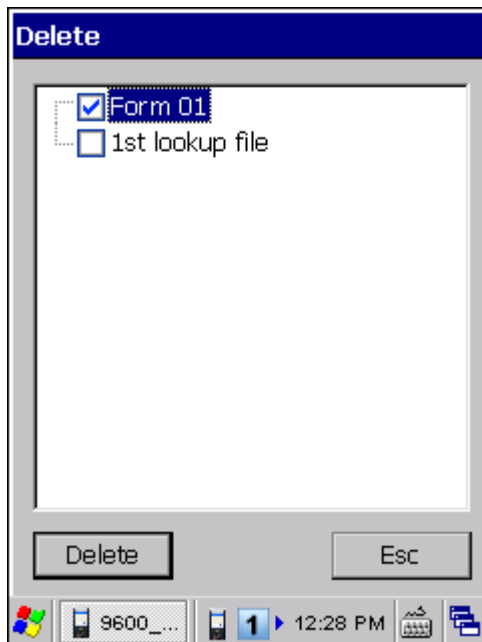
SETTINGS

You can change system settings directly on the mobile computer. Refer to 5.4 System Initial Settings.

Only available on 9400 or 9600 equipped with a camera.
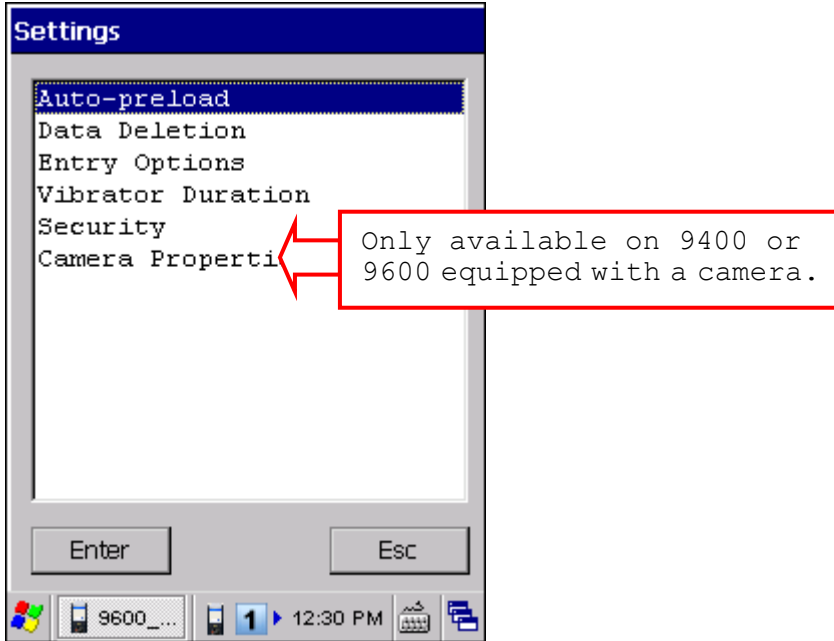
ABOUT

View the version information.

LINEAR IMAGER (CCD), LASER (SE950)

The tables below list reader settings as well as symbology settings for the Linear Imager (CCD) or Laser (SE950) 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	
Alternate Mode	Press the scan trigger to start with scanning. ▶ The scanning won't stop until you press the trigger again.	
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.	
Redundancy Level		**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)	It applies to the following scan modes only: ▶ Laser mode ▶ Auto Off mode	
Good Read Notifications		**---**
Vibrate	▶ Off ▶ 1~9 (second)	Off
Play a Sound via Speaker	▶ Mute ▶ Sound 1~9	Sound 2

Beep via Buzzer	It is available on 9300/9400/9600 only: ▶ 0 = Disable ▶ 1~255 (0.1 second) Frequency level 500~5000 Hz (+500 Hz per increment).	Disable
LED Indicator (green)	It is available on 9300/9400/9600 only: ▶ 0 = Disable ▶ 1~255 (0.1 second)	Disable
Negative Barcode		**Disable**

SYMBOLOGY SETTINGS TABLE

CCD/Laser Engine	Description	Default
Codabar		**Enable**
Transmit Start/Stop Characters	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
Code 128		**Enable**
GS1-128 (EAN-128)		**Enable**
Transmit Code ID	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.	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)	4~127

Interleaved 25		**Enable**
Start/Stop Selection	Refer to Industrial 25.	Interleaved 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)	4~127
Matrix 25		**Enable**
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)	4~127
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.	Disable
Code 93		**Enable**
MSI		**Disable**
Verify Check Digit	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

Transmit Check Digit	Decide whether to include the check digit in the data being transmitted. ▸ Last digit not transmitted ▸ Both digits transmitted ▸ Both digits not transmitted	Both digits transmitted
Select Length	▸ One or two fixed lengths ▸ Range (1~127)	4~127
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
Telepen		**Disable**
Original Telepen (Numeric)	The original Telepen includes numeric characters.	Yes
AIM Telepen (Full ASCII)	AIM Telepen (Full ASCII) includes all the alphanumeric and special characters.	No
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	Refer to GS1 Databar-14.	Yes
Transmit Application ID	Refer to GS1 Databar-14.	Yes
Transmit Check Digit	Refer to GS1 Databar-14.	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.	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 addons.	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
GTIN for EAN-13	The EAN-13 barcode will be expanded into 14-digit Global Trade Item Number (GTIN).	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-13/UPC-A with addons.	No
(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.	Yes
(UPC-A) Transmit Check Digit	Decide whether to include the UPC-A 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-E		**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.	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 addons.	No
*It cannot read UPC-E1 barcodes!		

LASER (SE955)

The tables below list reader settings as well as symbology settings for the Laser (SE955) scan engine.

READER SETTINGS TABLE

Laser (SE955) Engine	Description	Default
Decode Time-out	Set the maximum time for decoding to continue during a scan attempt. ▸ 5~99, in units of 0.1 second.	**3 sec.**
Redundancy Level		**Level 1**
Level 1	The following barcodes must be successfully read twice before being decoded: | Barcode Types	Code Length
---	---
Codabar	All
MSI	4 characters or less
Industrial 25 (Discrete 25)	8 characters or less
Interleaved 25	8 characters or less		
Level 2	All barcodes must be successfully read twice before being decoded.	
Level 3	All barcodes except for the following barcodes must be successfully read twice before being decoded. The following barcodes must be read three times: | Barcode Types "Excluded"	Code Length
---	---
MSI	4 characters or less
Industrial 25 (Discrete 25)	8 characters or less
Interleaved 25	8 characters or less		
Level 4	All barcodes must be successfully read three times before being decoded.	
Scan Angle	▸ "narrow" for 35° ▸ "wide" for 47°	**Wide**
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.	
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.	

Timeout between Same Symbol	When in Continuous mode, set the minimum time that must elapse before the scan engine decodes a second barcode, which is identical to the one that has just been decoded. This reduces the risk of accidently scanning the same barcode twice. ▶ 0.0~9.9 (second)	1.0 sec.
Good Read Notifications		---
Vibrate	▶ Off ▶ 1~9 (second)	Off
Play a Sound via Speaker	▶ Mute ▶ Sound 1~9	Sound 2
Beep via Buzzer	It is available on 9300/9400/9600 only: ▶ 0 = Disable ▶ 1~255 (0.1 second) Frequency level 500~5000 Hz (+500 Hz per increment).	Disable
LED Indicator (green)	It is available on 9300/9400/9600 only: ▶ 0 = Disable ▶ 1~255 (0.1 second)	Disable
Transmit Code ID	Decide whether to include AIM Code ID in the beginning of data. Each AIM Code ID contains the three-character string "]cm" – ▶] = Flag Character (ASCII 93) ▶ c = Code Character (see below) ▶ m = Modifier Character (see below)	**Disable**

AIM CODE ID – CODE CHARACTERS

Code Character	Code Type
A	Code 39
C	Code 128
E	UPC/EAN
F	Codabar
G	Code 93
H	Code 11
I	Interleaved 25
M	MSI
S	Industrial 25 (Discrete 25), IATA 2 of 5
X	Code 39 Trioptic, Bookland EAN

AIM CODE ID – MODIFIER CHARACTERS

Code Type	Option Value	Option
Code 39	0	No check character or Full ASCII processing.
	1	Check digit has been verified.
	3	Check digit has been verified and stripped.
	4	Full ASCII conversion has been performed.
	5	Result of option values 1 and 4.
	7	Result of option values 3 and 4.
Code 128	0	Standard data packet. No Function Code 1"FNC1" in the first character position.
	1	Function Code 1"FNC1" in the first character position.
	2	Function Code 1"FNC1" in the second character position.
Interleaved 25	0	No check digit processing.
	1	Check digit has been verified.
	3	Check digit has been verified and stripped.
Codabar	0	No check digit processing.
Code 93	0	Always transmit 0.
MSI	0	Modulo 10 check digit verified and transmitted.
	1	Modulo 10 check digit verified but not transmitted.
Industrial 25 (Discrete 25)	0	Always transmit 0.
UPC/EAN	0	Standard data packet in full EAN country code format, which is 13 digits for UPC-A and UPC-E (not including addons).
	1	Two-digit addons only.
	2	Five-digit addons only.
	4	EAN-8 data packet.
	A UPC-A with Addon 2 barcode, 012345678905-10, is transmitted to the host as a 21-character string,]E00012345678905]E110.	
Bookland EAN	0	Always transmit 0.
Trioptic Code 39	0	Always transmit 0.

SYMBOLOGY SETTINGS TABLE

Laser (SE955) Engine	Description	Default
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
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted. ▶ "Verify Check Digit" must be enabled.	No
Select Length	▶ Any length ▶ One or two fixed lengths ▶ Range (1~55)	4~55
Codabar		**Enable**
CLSI Editing	When applied, the CLSI editing strips the start/stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar barcode. ▶ The 14-character barcode length does not include start/stop characters.	No
NOTIS Editing	Decide whether to include the start/stop characters in the data being transmitted. ▶ NOTIS Editing is to strip the start/stop characters, i.e. to disable "Transmit Start/Stop Characters".	No
Select Length	▶ Any length ▶ One or two fixed lengths ▶ Range (1~55)	4~55
Code 128		**Enable**
GS1-128 (UCC/EAN-128)		**Enable**
Replace Field Separator	Decide whether to replace the field separator.	No
ISBT 128		**Enable**
Industrial 25 (Discrete 25)		**Enable**
Select Length	▶ Any length ▶ One or two fixed lengths ▶ Range (1~55)	4~55
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)	4~55
Chinese 25		**Enable**
Code 39		**Enable**
Convert to Code 32	Convert to Italian Pharmacode.	No
Code 32 Prefix	Prefix character "A" to Code 32 barcodes.	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.	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)	4~55
Code 93		**Enable**
Select Length	▸ Any length ▸ One or two fixed lengths ▸ Range (1~55)	4~55
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

91

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)	4~55
GS1 DataBar (RSS)		---
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 GS1 Databar 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**
Bookland EAN (ISBN)	The EAN-13 barcode starting with 978 will be converted to ISBN.	Yes
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
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-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!

▶ Use "Addon Redundancy" to control auto-discrimination of the GS1-128 (right half) of a coupon code.

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 ▶ Auto-discriminate	Ignore...
Addon Redundancy	When "Auto-discriminate" is applied, decide the number of times (2~30) of supplementary decoding the same barcode that makes a valid reading.	7 times

UPC/EAN Security Level	**Level 2**

Decide the decode security for UPC/EAN barcodes. Higher security levels are selected for decreasing levels of barcode quality. Note that increasing security level decreases the scan engine's aggressiveness; choose only that level of security necessary for the application.

▶ Level 0 – Select this option for the scan engine to operate in its most aggressive state, providing sufficient security in decoding most "in-spec" UPC/EAN barcodes.

▶ Level 1 – As barcode quality level diminish, certain characters become prone to mis-decodes before others (i.e. 1, 2, 7, 8). Select this option for the scan engine to eliminate mis-decodes, which are limited to characters 1, 2, 7 and 8.

▶ Level 2 – This default setting allows the scan engine to eliminate most mis-decodes when the poorly printed barcodes occurrence not limited to characters 1, 2, 7 and 8.

▶ Level 3 – Select this option if Level 2 still fails to eliminate mis-decodes. However, selecting this option impairs the decoding ability of the scan engine. If this level of security is necessary, try to improve the barcode quality.

LR, ELR LASER

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
Aiming Duration	▶ 0~99, in units of 1 second. ▶ Enter 0 if aiming is not desired.	**No aiming**
Decode Time-out	Set the maximum time for decoding to continue during a scan attempt. ▶ 5~99, in units of 0.1 second.	**3 sec.**
Good Read Notifications		---
Vibrate	▶ 0 = Disable ▶ 1~9 (second)	Disable
Play a Sound via Speaker	▶ 0 = Disable ▶ Sound 1~9	Sound 2

SYMBOLOGY SETTINGS TABLE

LR/ELR Engine	Description	Default
Codabar		**Enable**
CLSI Editing	When applied, the CLSI editing strips the start/stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar barcode. ▶ The 14-character barcode length does not include start/stop characters.	No
NOTIS Editing	Decide whether to include the start/stop characters in the data being transmitted. ▶ NOTIS Editing is to strip the start/stop characters, i.e. to disable "Transmit Start/Stop Characters".	No
Select Length	▶ Any length ▶ One or two fixed lengths ▶ Range (1~55)	4~55
Code 128		**Enable**
GS1-128 (UCC/EAN-128)		**Enable**
Replace Field Separator	Decide whether to replace the field separator.	No

ISBT 128		Enable
Industrial 25 (Discrete 25)		**Enable**
Select Length	▶ Any length ▶ One or two fixed lengths ▶ Range (1~55)	4~55
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)	4~55
Code 39		**Enable**
Convert to Code 32	Convert to Italian Pharmacode.	No
Code 32 Prefix	Prefix character "A" to Code 32 barcodes.	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.	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)	4~55
Code 93		**Enable**
Select Length	▶ Any length ▶ One or two fixed lengths ▶ Range (1~55)	4~55

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)	4~55
GS1 DataBar (RSS)		**---**
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.	Disable
GS1 Databar Limited		Disable
GS1 Databar Expanded	This group consists of (1) GS1 DataBar Expanded, and (2) GS1 DataBar Expanded Stacked.	Disable
Convert GS1 Databar 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**
Bookland EAN (ISBN)	The EAN-13 barcode starting with 978 will be converted to ISBN.	Yes
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	

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-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! ▸ Use "Addon Redundancy" to control auto-discrimination of the GS1-128 (right half) of a coupon code.		
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 ▸ Auto-discriminate	Ignore...
Addon Redundancy	When "Auto-discriminate" is applied, decide the number of times of supplementary decoding the same barcode that makes a valid reading.	7 times

2D IMAGER

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

READER SETTINGS TABLE

2D Engine	Description	Default
Focus Mode	Select the focus mode to control the working range: ▸ Far Focus – optimized to read at its far position ▸ Near Focus – optimized to read at its near position ▸ Smart Focus – toggles the focus position after every frame	**Far Focus**

Note: Focus mode is supported on 2D scan engine for 9400/9500.

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**
Decode Time-out	Set the maximum time for decoding to continue during a scan attempt. ▸ 5~99, in units of 0.1 second.	**3.0 sec.**
Redundancy Level		**Level 1**
Level 1	The following barcodes must be successfully read twice before being decoded: | Barcode Types	Code Length
---	---
Codabar	8 characters or less
MSI	4 characters or less
Industrial 25 (Discrete 25)	8 characters or less
Interleaved 25	8 characters or less		
Level 2	All barcodes must be successfully read twice before being decoded.	
Level 3	All barcodes except for the following barcodes must be successfully read twice before being decoded. The following barcodes must be read three times:	

	Barcode Types "Excluded"	Code Length	
	Codabar	8 characters or less	
	MSI	4 characters or less	
	Industrial 25 (Discrete 25)	8 characters or less	
	Interleaved 25	8 characters or less	
Level 4	All barcodes must be successfully read three times before being decoded.		
Security Level	Select a decode security level appropriate for the barcode quality when reading delta barcodes such as Code 128, Code 93, UPC/EAN. ▶ Security Level 0 – This default setting allows the scan engine to operate in its most aggressive state, providing sufficient security in decoding most "in-spec" barcodes. ▶ Security Level 1 – Select this option if misdecodes occur. This level should eliminate most misdecodes. ▶ Security Level 2 – Select this option if Security Level 1 fails to eliminate misdecodes. ▶ Security Level 3 – Select this option if Security Level 2 also fails to eliminate misdecodes. However, selecting this option impairs the decoding ability of the scan engine. If this level of security is necessary, try to improve the barcode quality.		**Level 0**
Good Read Notifications			---
Vibrate	▶ Off ▶ 1~9 (second)		Off
Play a Sound via Speaker	▶ Mute ▶ Sound 1~9		Sound 2
Beep via Buzzer	It is available on 9300/9400/9600 only: ▶ 0 = Disable ▶ 1~255 (0.1 second) Frequency level 500~5000 Hz (+500 Hz per increment).		Disable
LED Indicator (green)	It is available on 9300/9400/9600 only: ▶ 0 = Disable ▶ 1~255 (0.1 second)		Disable
Transmit Code ID	Decide whether to include AIM Code ID in the beginning of data. Each AIM Code ID contains the three-character string "]cm" – ▶] = Flag Character (ASCII 93) ▶ c = Code Character (see below) ▶ m = Modifier Character (see below)		**Disable**

Note: Transmit Code ID is supported on 2D scan engine for 9300/9600.

AIM CODE ID – CODE CHARACTERS

Code Character	Code Type
A	Code 39, Code 39 Full ASCII, Code 32
C	Code 128, Coupon (Code 128 portion)
d	Data Matrix
E	UPC/EAN, Coupon (UPC portion)
e	GS1 DataBar (RSS)
F	Codabar
G	Code 93
H	Code 11
I	Interleaved 25
L	PDF417, Macro PDF417, Micro PDF417
M	MSI
Q	QR Code
S	Industrial 25 (Discrete 25), IATA 2 of 5
U	Maxicode
X	Code 39 Trioptic, Bookland EAN, US Postnet, US Planet, UK Postal, Japan Postal, Australian Postal, Dutch Postal

AIM CODE ID – MODIFIER CHARACTERS

Code Type	Option Value	Option
Code 39	0	No check character or Full ASCII processing.
	1	Check digit has been verified.
	3	Check digit has been verified and stripped.
	4	Full ASCII conversion has been performed.
	5	Result of option values 1 and 4.
	7	Result of option values 3 and 4.
Code 128	0	Standard data packet. No Function Code 1"FNC1" in the first character position.
	1	Function Code 1"FNC1" in the first character position.
	2	Function Code 1"FNC1" in the second character position.
Interleaved 25	0	No check digit processing.
	1	Check digit has been verified.
	3	Check digit has been verified and stripped.
Codabar	0	No check digit processing.
Code 93	0	Always transmit 0.

MSI	0	Modulo 10 check digit verified and transmitted.
	1	Modulo 10 check digit verified but not transmitted.
Industrial 25 (Discrete 25)	0	Always transmit 0.
UPC/EAN	0	Standard data packet in full EAN country code format, which is 13 digits for UPC-A and UPC-E (not including addons).
	3	Standard data packet with two-digit or five-digit addons.
	4	EAN-8 data packet.
	A UPC-A with Addon 2 barcode, 012345678905-10, is transmitted to the host as a 18-character string,]E3001234567890510.	
Bookland EAN	0	Always transmit 0.
Trioptic Code 39	0	Always transmit 0.
Code 11	0	Single check digit (has been verified.)
	1	Two check digits (has been verified.)
	3	Check digit has been verified but not transmitted.
GS1 DataBar (RSS)	0	Always transmit 0.
	RSS-14 and RSS Limited will be transmitted with an Application Identifier "01". For example, an RSS-14 barcode, 10012345678902, is transmitted as]e00110012345678902.	

Note: In GS1-128 emulation mode, RSS is transmitted using Code 128 rules (= "]C1").

EAN.UCC Composites (RSS, GS1-128, 2D portion of UPC composite)	Native mode transmission	
	0	Standard data packet
	1	Data packet containing the data following an encoded symbol separator character.
	2	Data packet containing the data following an escape mechanism character. The data packet does not support the ECI protocol.
	3	Data packet containing the data following an escape mechanism character. The data packet supports the ECI protocol.
	GS1-128 emulation	
	1	Data packet is a GS1-128 barcode (= data is preceded with "]JC1").

Note: UPC portion of composite is transmitted using UPC rules.

PDF417, Micro PDF417	0	Scan engine is set to conform to protocol defined in 1994 PDF417 symbology specifications.
		▶ When this option is transmitted, the receiver cannot reliably determine whether ECIs have been invoked or whether data byte 92_{DEC} has been doubled in transmission.

	1	Scan engine is set to follow the ECI protocol (Extended Channel Interpretation). All data characters 92_{DEC} are doubled.
	2	Scan engine is set for Basic Channel operation (no escape character transmission protocol). Data characters 92_{DEC} are not doubled. ▸ When decoders are set to this mode, unbuffered Macro symbols and symbols requiring the decoder to convey ECI escape sequences cannot be transmitted.
	3	The barcode contains a GS1-128 symbol, and the first codeword is 903-907, 912, 914, 915.
	4	The barcode contains a GS1-128 symbol, and the first codeword is in the range 908-909.
	5	The barcode contains a GS1-128 symbol, and the first codeword is in the range 910-911.
	A PDF417 barcode, ABCD, with no transmission protocol enabled, is transmitted as]L2ABCD.	
Data Matrix	0	ECC 000-140, not supported.
	1	ECC 200.
	2	ECC 200, FNC1 in first or fifth position.
	3	ECC 200, FNC1 in second or sixth position.
	4	ECC 200, ECI protocol implemented.
	5	ECC 200, FNC1 in first or fifth position, ECI protocol implemented.
	6	ECC 200, FNC1 in second or sixth position, ECI protocol implemented.
Maxicode	0	Mode 4 or 5
	1	Mode 2 or 3
	2	Mode 4 or 5, ECI protocol implemented.
	3	Mode 2 or 3, ECI protocol implemented in secondary message.
QR Code	0	Model 1
	1	Model 2, ECI protocol not implemented.
	2	Model 2, ECI protocol implemented.
	3	Model 2, ECI protocol not implemented, FNC1 implied in first position.
	4	Model 2, ECI protocol implemented, FNC1 implied in first position.
	5	Model 2, ECI protocol not implemented, FNC1 implied in second position.
	6	Model 2, ECI protocol implemented, FNC1 implied in second position

SYMBOLOGY SETTINGS TABLE

1D SYMBOLOGIES

2D Engine	Description	Default
Codabar		**Enable**
CLSI Editing	When applied, the CLSI editing strips the start/stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar barcode. ▸ The 14-character barcode length does not include start/stop characters.	No
NOTIS Editing	Decide whether to include the start/stop characters in the data being transmitted. ▸ NOTIS Editing is to strip the start/stop characters, i.e. to disable "Transmit Start/Stop Characters".	No
Select Length	▸ Any length ▸ One or two fixed lengths ▸ Range (1~55)	4~55
Inter-Character Gap	The Code 39 and Codabar symbologies have an intercharacter gap that is typically quite small. Due to various barcode printing technologies, this gap can grow larger than the maximum size allowed, preventing the scan engine from decoding a barcode. If this problem occurs, set it to "Large Intercharacter Gaps" to tolerate these out-of-specification barcodes. ▸ Normal intercharacter gaps ▸ Large intercharacter gaps	Normal

Note: Inter-Character Gap is supported on 2D scan engine for 9300/9600.

Code 128		Enable
GS1-128 (UCC/EAN-128)		**Enable**
Replace Field Separator	Decide whether to replace the field separator.	No
ISBT 128		**Enable**
Concatenation	Decide whether to decode and concatenate pairs of ISBT barcodes. ▸ Disable ▸ Enable – When this option is selected, there must be two ISBT barcodes for the scanner to decode and perform concatenation.	Disable

	▶ Auto-discriminate – When this option is selected, the scanner decodes and concatenates pairs of ISBT barcodes immediately. If only a single ISBT barcode is present, the scanner must decode 10 times before transmitting its data to confirm that there is no additional ISBT barcode.	
Concatenation Redundancy	When "Auto-discriminate" is applied, decide the concatenation redundancy (2~20 times).	10 times

Note: ISBT 128 Concatenation settings are supported on 2D scan engine for 9300/9600.

Industrial 25 (Discrete 25)		**Enable**
Select Length	▶ Any length ▶ One or two fixed lengths ▶ Range (1~55)	4~55
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)	4~55
Matrix 25		**Enable**
Redundancy	Decide whether to enable read redundancy.	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. ▶ "Verify Check Digit" must be enabled.	No
Select Length	▶ Any length ▶ One or two fixed lengths ▶ Range (1~55)	4~55
Chinese 25		**Enable**

Note: Matrix 25 and Chinese 25 are supported on 2D scan engine for 9300/9600.

Code 39		**Enable**
Convert to Code 32	Convert to Italian Pharmacode.	No
Code 32 Prefix	Prefix character "A" to Code 32 barcodes.	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.	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)	4~55
Inter-Character Gap	The Code 39 and Codabar symbologies have an intercharacter gap that is typically quite small. Due to various barcode printing technologies, this gap can grow larger than the maximum size allowed, preventing the scan engine from decoding a barcode. If this problem occurs, set it to "Large Intercharacter Gaps" to tolerate these out-of-specification barcodes. ▶ Normal intercharacter gaps ▶ Large intercharacter gaps	Normal

Note: Inter-Character Gap is supported on 2D scan engine for 9300/9600.

Code 93		**Enable**
Select Length	▶ Any length ▶ One or two fixed lengths ▶ Range (1~55)	4~55
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.<table><tr><td>**Check Digit**</td><td>**Algorithm**</td></tr><tr><td>One Check Digit</td><td>Single Modulo 10</td></tr><tr><td>Two Check Digits</td><td>▶ Mod 10/Mod 11 ▶ Mod 10/Mod 10</td></tr></table>	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)	4~55
GS1 DataBar (RSS)		**---**
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 GS1 Databar 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**
Bookland EAN (ISBN)	The EAN-13 barcode starting with 978 will be converted to ISBN.	Yes
Addon 2 / Addon 5	Refer to UPC/EAN Addon setting.	
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-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! ▸ Use "Addon Redundancy" to control auto-discrimination of the GS1-128 (right half) of a coupon code.		
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 ▸ Auto-discriminate	Ignore...
Addon Redundancy	When "Auto-discriminate" is applied, decide the number of times of supplementary decoding the same barcode that makes a valid reading.	10 times
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
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted. ▸ "Verify Check Digit" must be enabled.	No
Select Length	▸ Any length ▸ One or two fixed lengths ▸ Range (1~55)	4~55
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
Composite Codes		**---**
Composite CC-C		Enable
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 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.	UPC Always Linked

2D SYMBOLOGIES

2D Engine	Description	Default
2D Symbologies		**---**
PDF417		Enable
MicroPDF417		Disable
MicroPDF417 Code 128 Emulation	Transmit data from certain MicroPDF417 barcodes as if it was encoded in Code 128 barcodes. ▶ Transmit AIM Code Identifier must be enabled first! When applied, the MicroPDF417 barcodes are transmitted with one of these prefixes: **The first codeword of MicroPDF417 is 903-907, 912, 914, 915:** The original Code ID "]L3" will be changed to "]C1". **The first codeword of MicroPDF417 is 908 or 909:** The original Code ID "]L4" will be changed to "]C2". **The first codeword of MicroPDF417 is 910 or 911:** The original Code ID "]L5" will be changed to "]C0".	Disable
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
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.	Regular Only

	Inverse Autodetect	
	Decode both regular and inverse QR Code.	
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 Inverse, QR Code Inverse, MicroQR, Aztec and Aztec Inverse are supported on 2D scan engine for 9300/9600.

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! ▸ The transmission of the control header must be disabled.	
	Transmit Any Symbol in Set / No Particular Order	
	Transmit data from each Macro PDF symbol as decoded, regardless of the sequence. ▸ The transmission of the control header must be enabled.	
	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!

IMAGE CAPTURE

2D Engine	Description	Default
Image Capture		**Disable**
Image Capture Illumination	Decide whether to flash illumination on every image capture to aid decoding. ▶ Turn On (Internal LED) ▶ Turn Off	On
Image Capture Autoexposure	Decide whether to manually specify the exposure time (only recommended for advanced users with difficult image capture situations).	On
Exposure Time	Only applies when Image Capture Autoexposure is disabled. ▶ Exposure Time controls the amount of time the CCD is allowed to collect light, much like the shutter speed for a camera. Generally, the brighter the environment, the lower the exposure time. Increasing the exposure time past 20 ms in a handheld application increases the risk of blurring the image due to hand jitter. ▶ Set the manual exposure time to one of the following values — 5 ms, 10 ms, 15 ms, 20 ms, 25 ms, or 30 ms.	10 ms
Snapshot Aiming Pattern	Decide whether to project the aiming pattern while capturing an image.	On
Image Resolution	Decide how to alter image resolution before compression. Multiple pixels are combined to one pixel, resulting in a smaller image containing the original content with reduced resolution. **9400/9500** ▶ 640×480 (Full resolution) ▶ 320×240 (Half resolution) ▶ 212×160 (1/3 resolution) ▶ 160×120 (1/4 resolution) **9300/9600** ▶ 752×480 (Full resolution) ▶ 376×240 (Half resolution) ▶ 188×120 (1/4 resolution)	Full resolution
Image Format	Decide in which file format the image is saved. ▶ JPEG file format ▶ BMP file format	JPEG
Optimized for JPEG Quality	Decide whether JPEG images are optimized for quality. ▶ Cancel the check box so that JPEG images are optimized for size.	Enable

Select JPEG Quality	Set a value from 5 to 100, where "100" represents the highest quality image.	65
Select JPEG Size	Set a value from 5 to 150, which represents the file size in multiples of 1024 bytes (1K). For example, setting this value to 8 permits the file size to be as large as 8192 bytes.	40
Bits per Pixel	Select the number of significant bits per pixel (BPP) to use when capturing an image. ▶ 1 BPP (for black and white images) ▶ 4 BPP (to assign 1 of 16 levels of grey to each pixel) ▶ 8 BPP (to assign 1 of 256 levels of grey to each pixel)	8
Default Image Store	By default, the captured image is stored under the directory "\DiskOnChip".	\DiskOnChip
Auto Image File Name	When enabled, the image file captured by 2D scan engine will be saved to a filename following the automatic naming rule explained below.	Disable
File Title	Specify a string prefixed to the filename. It allows up to 5 characters.	None
Using default naming rule	When enabled, the format of automatic filename is xxxxxyaabbccccc.jpg (or .bmp), where ▶ "xxxxx" is the file title specified above. ▶ "y" can be the capital letter F for Form, or L for Lookup. ▶ "aa" indicates in which Form (or Lookup) the image data is saved. ▶ "bb" indicates in which "Field" of Form (or Lookup) the image data is for. ▶ "ccccc" stands for a 5-digit serial number starting from "00001". When disabled, the format of automatic filename is xxxxxccccc.jpg (or .bmp), where ▶ "xxxxx" is the file title specified above. ▶ "ccccc" stands for a 5-digit serial number starting from "00001".	Disabled

Note: (1) For JPEG files, these BPP settings are ignored for it always uses 8 bits per pixel!
(2) When the image capture feature is enabled, press the [SCAN] key on the mobile computer, and it will capture an image instead of reading a barcode.