FANUC

GE Fanuc Automation

Programmable Control Products

CIMPLICITY Machine Edition
Logic Developer PDA

User's Manual

GFK-2213   *March 2003*

Warnings, Cautions, and Notes
as Used in this Publication

Warning

Warning notices are used in this publication to emphasize that hazardous voltages, currents, temperatures, or other conditions that could cause personal injury exist in this equipment or may be associated with its use.

In situations where inattention could cause either personal injury or damage to equipment, a Warning notice is used.

Caution

Caution notices are used where equipment might be damaged if care is not taken.

Note

Notes merely call attention to information that is especially significant to understanding and operating the equipment.

This document is based on information available at the time of its publication. While efforts have been made to be accurate, the information contained herein does not purport to cover all details or variations in hardware or software, nor to provide for every possible contingency in connection with installation, operation, or maintenance. Features may be described herein which are not present in all hardware and software systems. GE Fanuc Automation assumes no obligation of notice to holders of this document with respect to changes subsequently made.

GE Fanuc Automation makes no representation or warranty, expressed, implied, or statutory with respect to, and assumes no responsibility for the accuracy, completeness, sufficiency, or usefulness of the information contained herein. No warranties of merchantability or fitness for purpose shall apply.

The following are trademarks of GE Fanuc Automation North America, Inc.

Alarm Master	Genius	PROMACRO	Series Six
CIMPLICITY	Helpmate	PowerMotion	Series Three
CIMPLICITY 90–ADS	Logicmaster	PowerTRAC	VersaMax
CIMSTAR	Modelmaster	Series 90	VersaPro
Field Control	Motion Mate	Series Five	VuMaster
GEnet	ProLoop	Series One	Workmaster

Contents

Introduction

Overview

CIMPLICITY® Machine Edition™ Logic Developer PDA (LD-PDA) is a software product for use on handheld PDAs running the Palm Operating System (Palm™ OS). Logic Developer PDA interfaces to GE Fanuc PLCs by way of the PDA's built-in serial connection for the purpose of monitoring, diagnostics, and maintenance. Using Logic Developer PDA and a Palm PDA, users can view and change PLC register data, manage PLC flash memory, view and clear PLC faults, manage PLC variable lists, and view PLC CPU information. When used in conjunction with a supported GE Fanuc PLC programming software package on a desktop or laptop computer, Logic Developer PDA can exchange variable lists with the GE Fanuc PLC programming software. Multiple variable lists may be exchanged with the PDA and stored on the PDA to provide the ability to work with many different PLCs and programs from a single PDA.

Product Features

The Logic Developer PDA software allows you to interface a Palm® handheld device to GE Fanuc Series 90™ and VersaMax® PLCs. With Logic Developer PDA, you can perform PLC monitoring, diagnostics and maintenance from any PLC location in the manufacturing facility - saving you time and increasing productivity.

Designed for Palm PDAs running on Palm OS 4.0 or greater, Logic Developer PDA 1.0 is a PLC Data View version of the software that displays vital information about a PLC so that you can quickly and easily assess a PLC's current state and take any corrective action needed. Version 1.0 functionality includes:

- View default reference tables
- View and modify I/O states (including Force On and Force Off) and register values
- Access such PLC specifications as CPU model and revision
- View and modify PLC CPU Run/Stop state
- Create and modify variable lists
- Transfer variable lists to and from the PDA using the Shared Name File (SNF) format. You can create these variable lists using VersaPro or CIMPLICITY Machine Edition Logic Developer PLC programming software
- View and clear PLC and I/O fault tables
- View list of forced PLC references
- Read/write/verify PLC RAM memory and Flash memory
- Log information to a Palm memo pad: fault table details, list of forced references, and PLC information

Logic Developer PDA uses the Series Ninety Protocol (SNP) networking standard to connect to any Series 90 and VersaMax PLC via the PLC's serial port.

Product Structure

The Logic Developer PDA application consists of two software applications that are installed during the software installation process.

Logic Developer PDA binaries for the PDA hardware

The Logic Developer PDA binaries are the software that is installed onto your Palm PDA hardware by the software installation process and make up the actual Logic Developer PDA application. The Logic Developer PDA installation program will automatically advise the Palm Install Program (part of the Palm Desktop Software) of the files necessary to install on the PDA for Logic Developer PDA.

Logic Developer PDA Conduit

The Logic Developer PDA conduit consists of a dynamic link library (DLL) and supporting files that are installed on your desktop PC by the Logic Developer PDA installation process. The Logic Developer PDA conduit manages the transfer of Variable Lists between your GE Fanuc PLC Programming software and the PDA by integrating automatically with the Palm Hotsync Manager.

Required Hardware/Software

Supported PDAs

Logic Developer PDA supports PDAs that run the Palm OS operating system. At time of publication, GE Fanuc officially supports the following Palm hardware platforms for Logic Developer PDA operation.

- Palm IIIx
- Palm IIIxe
- Palm IIIc
- Palm V
- Palm Vx
- Palm Vii
- Palm Viix
- Palm m125
- Palm m130
- Palm m500
- Palm m505
- Palm m515
- Palm i705
- Tungsten T

Palm, Inc. is constantly adding new models of hardware and there are numerous companies besides Palm, Inc. that manufacture PDAs that run the Palm Operating System. Although Logic Developer PDA may function on PDAs other than those listed

above, GE Fanuc has not tested on other models and cannot warrant operation of the software on non-listed models.

Supported Palm Desktop Software & Hotsync Manager Versions

Logic Developer PDA requires that you have installed the Palm Desktop Software on your desktop computer or laptop that you plan to Hotsync your PDA with. This software comes with your PDA hardware when you purchase it and may also be obtained from www.palm.com/software on the Internet.

Logic Developer PDA supports Palm Desktop Software version 3.0 and higher and Palm Hotsync Manager 3.1 or higher. Typically if you have the required Palm OS Version 4.0 or higher, then you will have the Palm Desktop Software and Hotsync Manager version required. Palm OS 4.0 and higher ships with Palm Desktop Software version 4.0 or higher and Hotsync Manager 4.0 or higher.

To determine your version of Hotsync Manager, click on the Hotsync icon in your computer's system tray and click About and the screen below will be shown.

Palm Hotsync icon that will show in your computer's system tray if Palm Desktop Software is properly installed. Click and select About to bring up version information shown below:

Supported Palm Operating System Versions

Palm Operating System (Palm OS) Version 4.0 or higher is required for use of Logic Developer PDA. Many PDAs that have an older version of Palm OS may be upgraded in the field. To determine if your PDA can be upgraded and to obtain Palm OS upgrades visit www.palm.com/software on the Internet.

For demonstration purposes, Logic Developer PDA *may* run on PDAs with Palm OS Version 3.5.x but will not connect to a PLC without Palm OS Version 4.0 or higher. Users are warned when they attempt to start LD-PDA if they do not have a supported version of Palm OS.

To determine what version of the Palm Operating System you have on your PDA, tap on the Menu icon on the Palm Keypad that will bring up the menu shown below. Select App->Info.
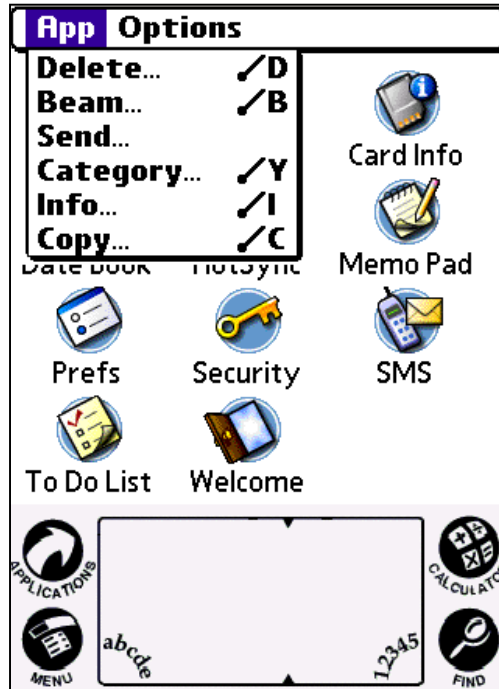
On the resulting page, tap the Version button. The Palm OS version will be shown along with your LD-PDA version in the alphabetical list of applications installed on your PDA.

Supported PLC Hardware

Logic Developer PDA will work with the following GE Fanuc hardware:

- VersaMax Micro and Nano Version 1.0 or greater

- VersaMax Modular CPUs Version 1.5 or greater

- Series 90 Micro Version 3.1 or greater

- Series 90-30 Version 8.2 or greater, depending upon CPU Model

- Series 90-70 (CPX models only) Version 8.0 or greater, depending upon CPU Model

Please note that Logic Developer PDA will operate with CPU firmware revisions prior to the above; however, the above firmware revisions are the versions used to qualify Logic Developer PDA

Supported PLC Programming Software

The Logic Developer PDA conduit can exchange information between Logic Developer PDA and the following PLC Programming software applications:

- VersaPro Version 2.0 or greater

- Logicmaster 90-30 Version 9.05 or greater

- Logicmaster 90-70 Version 7.05 or greater

- CIMPLICITY Machine Edition Logic Developer PLC, Version 2.50 or greater

Required Interface Hardware

In order to connect a PDA running Logic Developer PDA to a PLC, the proper cables and adapters are required to connect to the PLC and to connect to the PDA's built in serial port. See Chapter 3 in this manual, "Connecting the Palm Handheld to a GE Fanuc PLC", for cabling and connection details.

Related Documentation

Palm Documentation

Your Palm PDA comes with several manuals that cover the operation of the hardware and the use of the Palm Desktop Software. These manuals are also available in PDF format from www.palm.com/support.

Getting Started With (your model) Series Handhelds – covers the basics of how to get started using your particular model of Palm hardware.

Handbook for Palm (your model) Series Handhelds – provides in depth documentation for your particular Palm hardware model.

Documentation for the Palm Desktop Software is included in the help file that is accessible from the Palm Desktop Software.

GE Fanuc PLC documentation of interest

PLC Programming Software Manuals

- GFK-1918 - Getting Started Manual with LD-PLC

PLC Reference Manuals

- GFK-0467 - Series 90-30/20/Micro CPU Instruction Set Reference Manual

- GFK-0265 - Series 90-70 CPU Instruction Set Reference Manual

- GFK-1503 - VersaMax PLC User's Manual

- GFK-1645 - VersaMax Micro and Nano PLC User's Manual

Technical Support

For Logic Developer PDA Technical Support, visit www.gefanuc.com on the Internet or contact 1-800-GE Fanuc (1-800-433-2682) or 780-420-2010. You can also contact Technical Support via email at support@gefanuc.com.

GE Fanuc provides support for the Logic Developer PDA software application and conduit as used with GE Fanuc PLCs. GE Fanuc does not provide Palm PDA hardware or Palm Desktop Software support. For support for your Palm PDA hardware or Palm Desktop Software, please contact the manufacturer of your Palm PDA hardware.

Chapter **2**	*Installation*

How Logic Developer PDA is Distributed

Logic Developer PDA is distributed using a single installation set that may be run on any Windows 95/98/Me/NT/2000/XP computer with the Palm Desktop Manager software installed. The Palm Desktop Manager software comes with your Palm PDA and can also be obtained at www.palm.com/software. The Logic Developer PDA installation program will install the files necessary for the Logic Developer PDA conduit and assuming you have the Palm Desktop software loaded, it will setup the Palm Install Tool to install the Logic Developer PDA files to your PDA the next time you Hotsync your PDA.

Installing Logic Developer PDA

System Requirements

In order to install Logic Developer PDA, you need to have the following items setup.

- A desktop or laptop computer with a supported version of the Palm Desktop Manager software (version 3.0 or higher) and Hotsync manager (version 3.1 or higher) installed

- A Hotsync cable or cradle to connect your computer to your PDA – for the purposes of installing the Logic Developer PDA software on your PDA, you may Hotsync either by RS-232 connection, USB connection, or any other valid Hotsync connection method you already have setup between the PDA and your PC. Note – the time required to install LD-PDA on your PDA will be a function of the speed of your Hotsync connection and can vary from a few seconds (USB) to over a minute (serial) to several minutes (slow serial, modem, IR).

- A PDA with a supported version Palm Operating System (Palm OS version 4.0 or higher)

- On Windows NT / 2000 / XP based computers you must be logged in as an administrator, otherwise the Logic Developer PDA conduit will not be installed and setup properly which will prevent transferring PLC variable lists between the desktop computer and the PDA.

Note

Before running the Logic Developer PDA installation program, you should insure that you can successfully perform Hotsync operations between your PDA and your computer. If you cannot successfully perform a Hotsync between your PDA and your desktop computer, you should NOT proceed with the Logic Developer PDA installation. Refer to your Palm hardware and software documentation and support resources to establish a successful Hotsync session before proceeding.

Do not contact GE Fanuc Technical Support for assistance with your Palm PDA hardware and Desktop software – your PDA hardware provider should be able to help you establish a successful Hotsync session.

Installing Logic Developer PDA

To install Logic Developer PDA, the user must perform the following steps :

1. Install Logic Developer PDA software on PC

2. Hotsync the Palm Device with the PC to install the Logic Developer PDA application on the PDA.

3. Authorize the Logic Developer PDA software

To install the Logic Developer PDA software on your PC, run the setup.exe installation program found on your Logic Developer PDA CD –or- found in your files downloaded from the GE Fanuc web site. The installation program will open with a splash screen, followed by a welcoming screen.
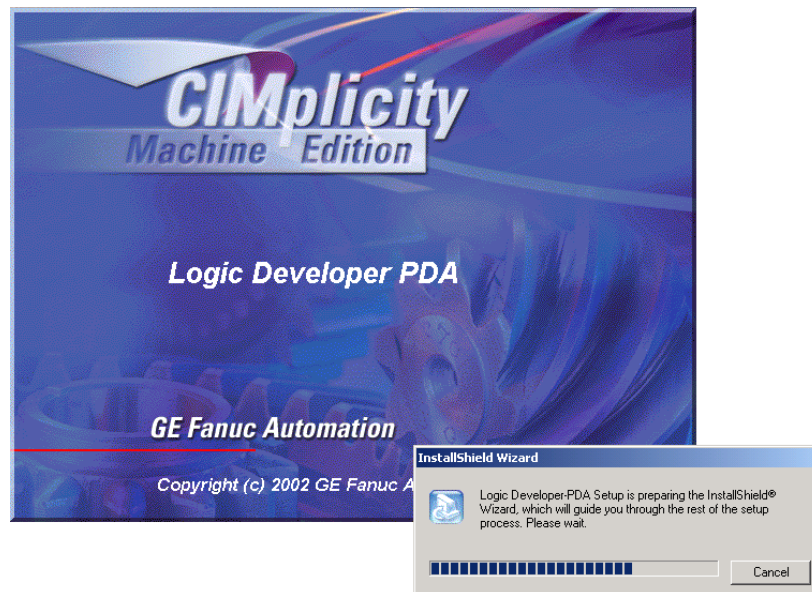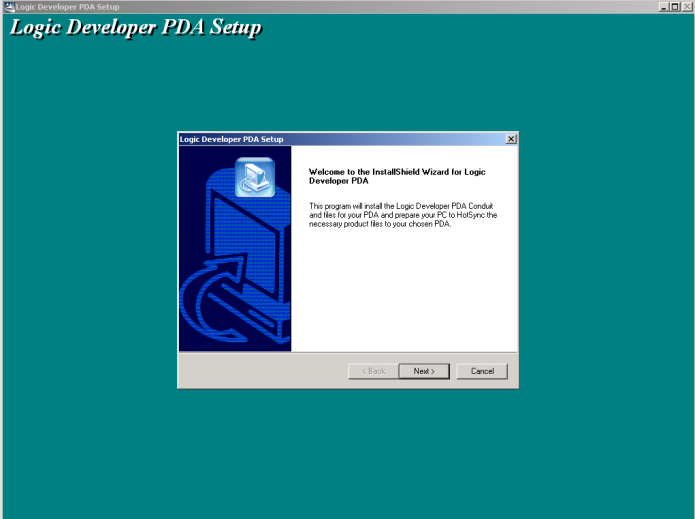
Clicking Next on the Welcome screen displays the Logic Developer PDA license agreement.   You must click "Yes" to indicate your acceptance of the license agreement to continue installing the product. Read the license agreement carefully and if you do not agree to be bound by the license agreement, clicking No will exit the installation program and not install any files on the target computer.
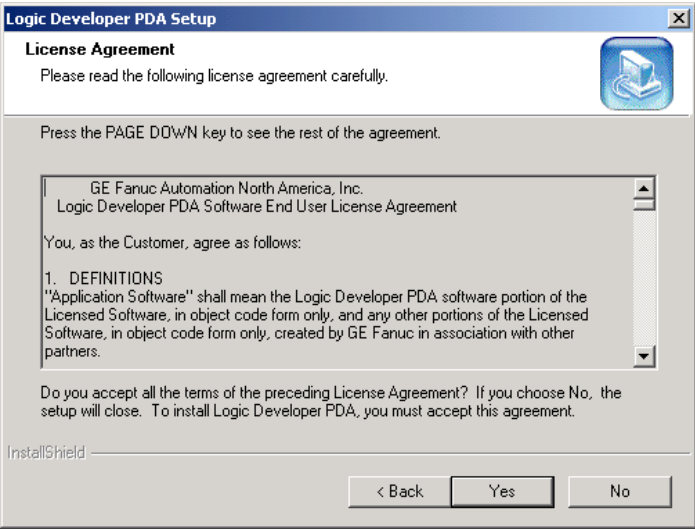
Once you have accepted the license agreement, you will be asked for the location on your computer where you would like the Logic Developer PDA binary files for the PDA to be installed. This location will also determine the location where the default Variable List will be installed and the default location for the Logic Developer PDA to

use for your Variable Lists. The default location is the operating system drive and the folder \Program Files\GE Fanuc Automation\Logic Developer PDA.

InstallShield Wizard

Choose Destination Location
Select folder where Setup will install files.

Select location where you would like the Logic Developer PDA product files and default Variable Lists Installed.

Destination Folder

C:\...\GE Fanuc Automation\Logic Developer PDA   Browse...
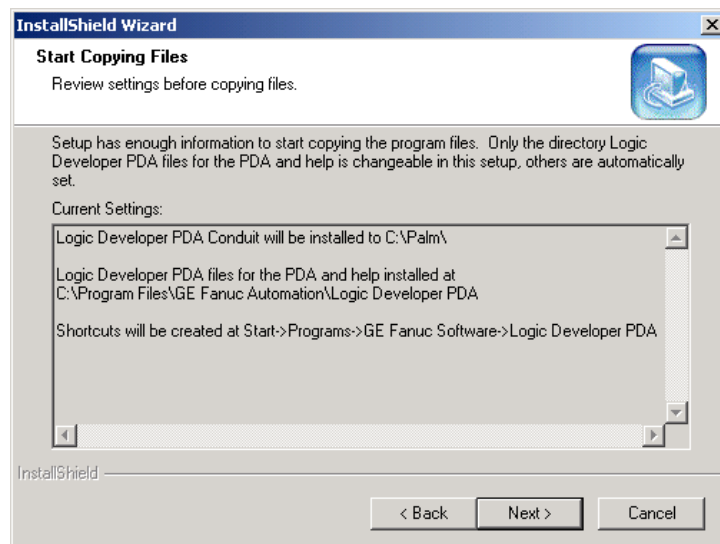
InstallShield

< Back   Next >   Cancel
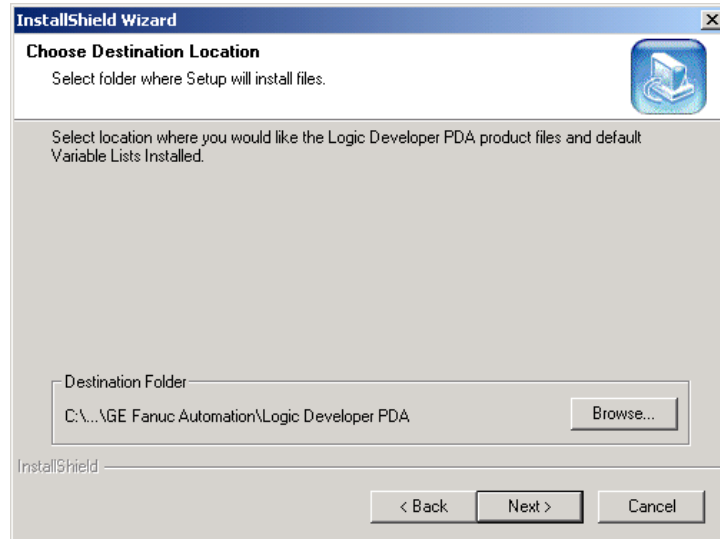
Next, the installation program will summarize where it will be installing the product files on your PC. The installation program determines where your Palm Hotsync manager software is installed on your PC and installs the Logic Developer PDA conduit in the same directory. This location cannot be changed.   The Logic Developer PDA binary files for installation on your PDA are installed in the directory chosen by the user during the installation process.

InstallShield Wizard

Start Copying Files
Review settings before copying files.

Setup has enough information to start copying the program files. Only the directory Logic Developer PDA files for the PDA and help is changeable in this setup, others are automatically set.

Current Settings:

Logic Developer PDA Conduit will be installed to C:\Palm\

Logic Developer PDA files for the PDA and help installed at
C:\Program Files\GE Fanuc Automation\Logic Developer PDA

Shortcuts will be created at Start->Programs->GE Fanuc Software->Logic Developer PDA

InstallShield

< Back   Next >   Cancel

When you click Next, the installation program will copy the necessary files to your PC and then setup your Palm Desktop Manager's Install Tool so that the Logic Developer PDA binary files will be installed to your PDA the next time you Hotsync your PDA. If you have more than one PDA that you Hotsync with your computer, then you will be presented with a screen that asks you to pick the target PDA name that you will be Hotsyncing with as shown below:
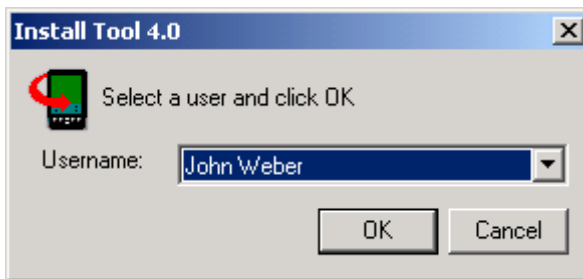

If you only have one PDA that you Hotsync with your PC then you will see the following screen summarizing the files to be installed on your PDA. This screen is provided by the Palm Install Tool. We strongly suggest that you NOT change any of the settings regarding which files will be installed. Failure to install all of the required files could result in certain functionality not being available on the PDA.
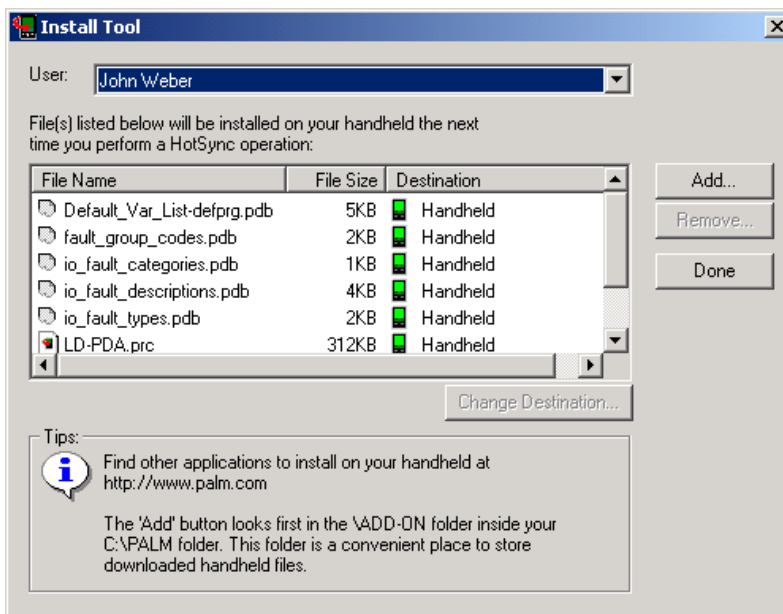
Click the Done button to dismiss the above screen, confirming that you will be installing the Logic Developer PDA files to your PDA during your next Hotsync session. If you do NOT see the Install Tool screen above presented during your installation, then there is likely a problem with your Palm Desktop Manager application. Refer to your Palm Desktop Manager documentation on the Install Tool on how to run the Install Tool manually. If you can run the Palm Install Tool manually on your PC but the Logic Developer PDA installation program does not launch the install tool as shown above, please contact GE Fanuc Technical support.

The final step in the installation of Logic Developer PDA notifies the Palm Hotsync manager of the presence of the Logic Developer PDA conduit DLL. This step takes a few seconds during which the Logic Developer PDA application installation program will be shown and the cursor will appear as an hourglass.

Once the installation process is complete, a screen indicating success will be shown.
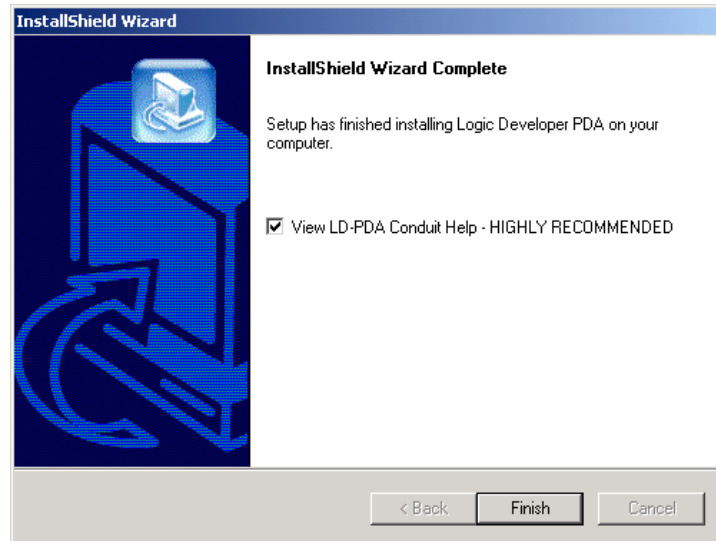
What the Install Set Does

For the experienced Palm user who is used to manually installing Palm applications and for troubleshooting purposes, we provide the following information about the details of what the Logic Developer PDA installation program does. Also, if you have purchased multiple licenses of Logic Developer PDA but plan to Hotsync them to a single computer, you do not need to re-run the Logic Developer PDA installation program. Simply run the Palm Install Tool and select the files noted below for installation on the target PDA. A separate license consisting of serial number and Authorization key is required for each PDA that you install the LD-PDA files onto.

Files installed by the installation set:

List of files and where they get installed by default

Location: In the directory you chose during Installation of LD-PDA. Default is C:\Program Files\GE Fanuc Automation\Logic Developer PDA\.

File	Description
LD-PDA.prc	Logic Developer PDA program binary – should be installed on target PDA using Palm Install Tool if doing manual install.
Various files with *.pdb extensions	Supporting files for the Logic Developer PDA binary. Must be present in order for all features of the program to operate properly. These files should be installed on target PDA using Palm Install Tool if doing manual install.
Gfk2213a.pdf	This manual in PDF format

\Program Files\GE Fanuc Automation\Logic Developer PDA\Files\Variable Lists\defprg

File	Description
Default_Var_List-defprg.snf	A default variable list that will be installed to the PDA during your first Hotsync session after installing Logic Developer PDA. Contains variable names for common %S memory locations.

Location: Palm Hotsync directory – location of which is determined by where it was installed when you installed your Palm Desktop software. Typically C:\Palm on most PCs if the default was accepted.

File	Description
LDPDA_Conduit.dll	Logic Developer PDA conduit dynamic link library. The Palm Hotsync manager calls this file during a Hotsync session to transfer Variable List data between the PDA and desktop PC.
LDPDA_ConduitHelp.hlp	The help file for the Logic Developer PDA Conduit DLL.

Note

Just copying LDPDA_Conduit.dll to the target computer will NOT properly register the Logic Developer PDA Conduit with the Palm Hotsync Manager. You must use the Logic Developer PDA installation program in order for the Logic Developer PDA Conduit to be properly installed. GE Fanuc does not support manual registration of LDPDA_Conduit.dll by the end user. Registering the conduit does not have any relation to your license or Authorization codes. The term as used here applies to the process of advising the Palm Hotsync Manager of the presence of a new conduit.

How the LDPDA files get loaded to the PDA

At the end of the LD PDA installation set execution, the Palm Install Tool is launched and the necessary PDA files are setup to install to your PDA. If you have more than one PDA that you Hotsync to your desktop, you will be asked for the Palm User Name of the target PDA.

You may manually install the Logic Developer PDA binary by running the Palm Install Tool and selecting LD-PDA.prc and all associated *.pdb files from the \Program Files\GE Fanuc Automation\Logic Developer PDA\ directory on your computer.

Un-Installing Logic Developer PDA

To uninstall Logic Developer PDA is a 2 step process if you want to completely remove it from your PDA and your computer.

To remove Logic Developer PDA and the Logic Developer PDA Conduit from your computer, simply re-run the installation program and select Remove when prompted. The installation program will remove all files that were provided with Logic Developer PDA and advise the Palm Hotsync Manager that LD-PDA Conduit has been removed.

Note

The uninstall process will NOT remove any variable lists from your computer that were placed there as a result of a Hotsync operation with a PDA or placed there by you at any time. Thus it is possible that the directory where you installed Logic Developer PDA will not be deleted automatically.

To remove Logic Developer PDA from your PDA, tap on the Menu Icon on the Palm Desktop and select App->Delete. On the resulting page select "LD-PDA" and tap the Delete button.

Warning

Deleting LD-PDA from your PDA is not an operation that can be undone. Unlike on the computer, all Variable Lists that you had on the PDA will be deleted when you delete the LD-PDA application. If backups are required, you should make sure you run a Hotsync session prior to deleting LD-PDA from your PDA.

Re-Installing Logic Developer PDA

If you perform a hard reset on your PDA which erases the contents of your PDA or otherwise lose the contents of your PDA, you can restore your copy of LD-PDA including your software authorization provided that:

1. You installed LD-PDA to your PDA using the normal Palm Install Tool which automatically creates a backup copy of the LD-PDA binary and supporting databases when it installs to your PDA.

2. You have performed at least one Hotsync operation between your PDA and your desktop or laptop computer after installing and authorizing LD-PDA. This will insure that your authorization and any Variable Lists that you have created on your PDA are backed up to your computer.

3. You are re-installing to the same PDA with the same PDA User Name. Although you can restore to a different PDA in the event your PDA has been broken or destroyed, your software Authorization will be lost and you will need to obtain a replacement Site Key. You may NOT transfer your Authorization to a different PDA nor install the same serial number for LD-PDA on multiple PDAs.

4. Your PDA uses flash memory for the operating system. Some lower end Palm PDAs do not offer flash upgradeable operating system. Although LD-PDA will work on these PDAs provided they have Palm OS 4.0 or higher, if you have to restore LD-PDA to the PDA you will need to re-enter your serial number and site key authorization information. Provided that you are using the same PDA user name on the same PDA, you should not need to obtain a new Site Key from GE Fanuc when restoring to a PDA that does not use flash memory for the operating system. An example of a PDA that does not have flash memory is the Palm M125.

Assuming you have met the conditions above and are re-installing on the same PDA, restoring is a two step process. First you will restore the LD-PDA application and supporting files during a Hotsync operations. Second you will Hotsync again so that LD-PDA conduit can install your Variable Lists.

1. The first time you Hotsync your PDA with your computer, Hotsync Manager will ask you which user name you wish to use for restoring applications and data to your PDA.

2. You MUST select the same PDA User Name that was used when you originally installed LD-PDA to your PDA and did your Hotsync sessions.

3. After selecting the User Name, Hotsync Manager will restore all of your applications to the PDA. This process could take several minutes.

4. After restoring to your PDA, your PDA will prompt you to tap a Reset button on the screen.

5. After the reset, your PDA will have your Logic Developer PDA application restored, including your Authorization, provided the conditions above are met.

6. You will then need to perform one more Hotsync operation so that the LD-PDA conduit can restore all of your Variable Lists to the PDA.

Caution

If you do not perform the 2nd Hotsync operation after restoring to your PDA, your Variable Lists will not be restored to the PDA.

How to Authorize the Logic Developer Software on the PDA

To authorize the Logic Developer PDA software, you will need the following:

1. Logic Developer PDA loaded onto your target PDA

2. A product serial number that came with your purchase

3. Access to the Internet, telephone/fax access, or email access.

To authorize your software, on your PDA

1. Run the LD-PDA application and from the Main Screen tap on the About Button that will bring up the About Box as shown below:

2. Tap on the Authorize button to bring up the Authorization page as shown in the next step.

3. Enter your Serial Number and tap the "Enter S/N" button

4. A Site Code will be displayed as shown below. Record this string carefully and contact the GE Fanuc Authorization center by:

   Email: authorization@gefanuc.com
   Phone: 800-647-4196
   Fax: 780-420-2049
   Web: www.gefanuc.com/totalcontrol/authorize.html

5. The GE Fanuc registration center will provide to you a Site Key string.

6. On the Authorization page on the LD-PDA application on your PDA, enter the Site Key string carefully, INCLUDING DASHES in the format xxxx-xxxx-xxxx-xxxx.

7. Tap the Authorize button. If your Site Key is valid, a page will appear indicating that the registration was a success and that a Palm Memo Pad entry has been created. You should Hotsync your PDA as soon as possible so that you will have a backup copy of your Authorization information for this PDA on your desktop or laptop computer.

8. In order for the Site Key to take effect and the demonstration notices and restrictions to be removed, you MUST exit the LD-PDA application and restart it on your PDA. LD-PDA will automatically exit for you once you tap OK on the Authorization success dialog.

Effect on Authorization of restoring LD-PDA to an erased PDA

In the event you have to reload LD-PDA on your PDA due to loss of data or a hard reset, your Authorization will be retained provided that you have met the conditions below:

1. You installed LD-PDA to your PDA using the normal Palm Install Tool which automatically creates a backup copy of the LD-PDA binary and supporting databases when it installs to your PDA.

2. You have performed at least one Hotsync operation between your PDA and your desktop or laptop computer after installing and authorizing LD-PDA. This will insure that your authorization and any Variable Lists that you have created on your PDA are backed up to your computer.

3. You are re-installing to the same PDA with the same PDA User Name. Although you can restore to a different PDA in the event your PDA has been broken or destroyed, your software Authorization will be lost and you will need to obtain a replacement Site Key. You may NOT transfer your Authorization to a different PDA nor install the same serial number for LD-PDA on multiple PDAs.

4. Your PDA uses flash memory for the operating system. Some lower priced PDAs do not offer flash upgradeable operating system. Although LD-PDA will work on these PDAs, if you have to restore LD-PDA to the PDA you will need to re-enter your serial number and site key authorization information. Provided that you are using the same PDA user name on the same PDA, you should not need to obtain a new Site Key from GE Fanuc when restoring to a PDA that does not use flash memory for the operating system. An example of a PDA that does not have flash memory is the Palm M125.

See topic Re-installing Logic Developer PDA for instructions on restoring to your PDA.

Replacement Authorizations

In the event your PDA is broken, destroyed or otherwise rendered inoperable and you need to install your previously authorized copy of LD-PDA on a new PDA, you should carefully and contact the GE Fanuc Authorization center by:

Email: authorization@gefanuc.com
Phone: 800-647-4196
Fax: 780-420-2049
Web: www.gefanuc.com/totalcontrol/authorize.html

Multiple PDA installations & Site Licenses

If you have multiple PDAs that you intend to install Logic Developer PDA on you will need a serial number and separate Site Key Authorization for each PDA.

For large installations, GE Fanuc offers site licenses of Logic Developer PDA with a simplified Authorization system. Please contact your local GE Fanuc distributor or GE Fanuc for more information on Site Licenses for LD-PDA.

Demo Mode of Operation

If the Logic Developer PDA software installed on the PDA is not authorized, then the software will operation in a Demo mode. When in Demo Mode, the software has the following limitations:

- User may only display the first 9 %R, %AI, and %AQ register values on the View Reference Tables page

- User may only display the first 16 %I, %Q, %M, %T, %R, and %G discrete values on the View Reference Tables page

- User may not use the Goto Button on the View Reference Tables page.

- User may not Clear Faults

- User may not perform Flash Memory operations

- User may not Clear All Forces

Using Logic Developer PDA

Connecting the Palm Handheld to a GE Fanuc PLC

Using GE Fanuc Hotsync Cable Adapters

GE Fanuc provides a set of adapters that user may purchase to connect the Palm Hotsync Cable directly to the GE Fanuc PLC serial port. Adapters are available to connect to all GE Fanuc PLC CPU programming ports.

There are four cable adapters provided by GE Fanuc that may be used to connect a standard Palm Sync Universal cable to GE Fanuc PLCs. The user may use the standard Palm Hotsync cable along with a GE Fanuc cable adapter to connect the Palm to the PLC. This is diagramed for each cable type as follows:

IC690CBLA01 - DB9 Male-to-DB9 Female Adapter - 9 Pin DB Male on one end with nuts for attaching to the Palm Synch cable, the other end a 9 Pin DB female with screws to connect to the Horner RS232-RS845 adapter. This can be used to connect to the standard 15-pin SNP ports for 90-30, 90-70, and VersaMax CPUs.
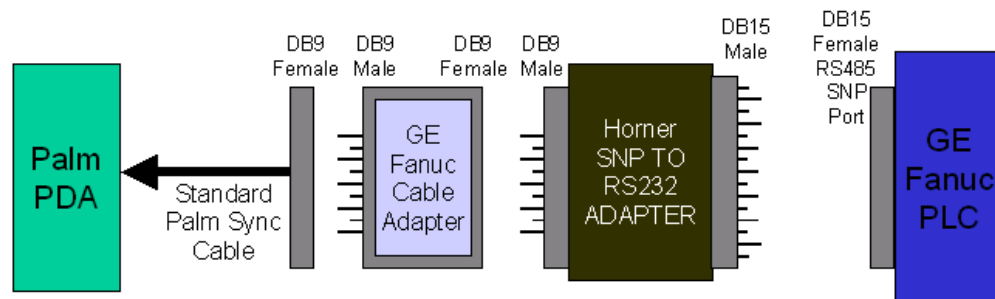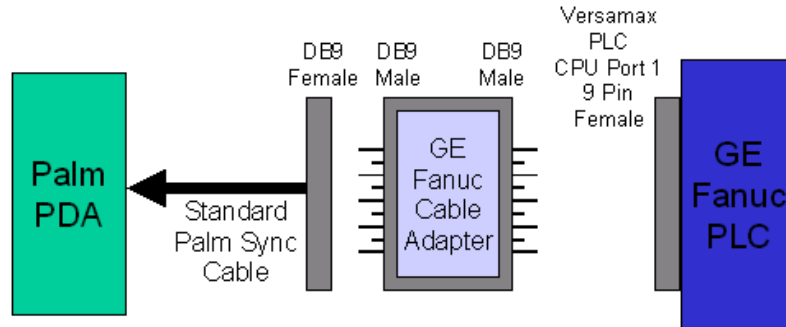

Connection using GE Fanuc
Cable Adapter IC690CBLA01

IC690CBLA02 - DB9 Male-to-DB9 Male Adapter - 9 Pin DB Male on one end with nuts for attaching to the Palm Synch cable, the other end a 9 Pin DB Male with screws to connect to the PLC (VersaMax CPU Port 1 (CPU001, CPU002, CPU005, CPUE05)).

Connection using GE Fanuc
Cable Adapter IC690CBLA02

IC690CBLA03 - DB9 Male-to-RJ11 Male Adapter - 9 Pin DB Male on one end with nuts for attaching to the Palm Synch cable, the other end a RJ11 Male on an 12" pigtail, plugs into RJ11 port on PLC (CPU351 Port1, CPU352 Port1, CPU363 Port1, CPU364 Port1, CPX772 Port 1, CPX782 Port 1,CPX928 Port 1,CPX935 Port 1,CGR772 Port 1,CGR935 Port 1)
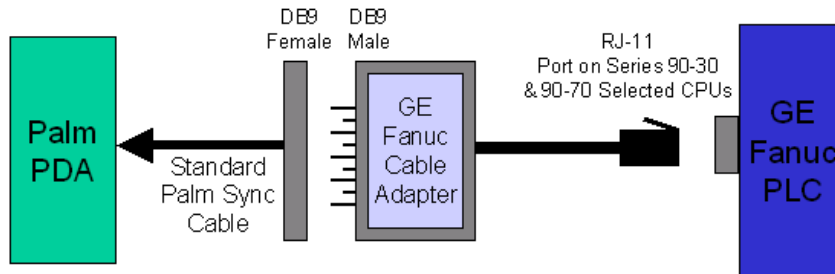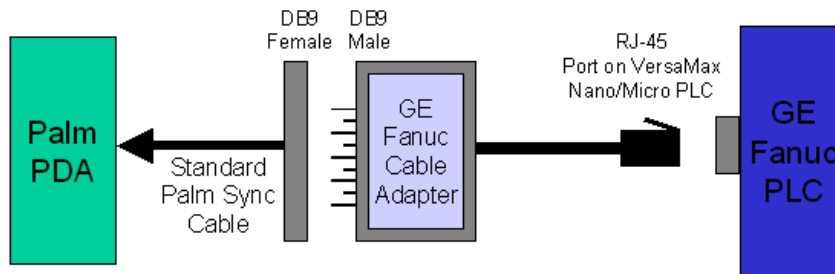
Connection using GE Fanuc
Cable Adapter IC690CBLA03

IC690CBLA04 - DB9 Male-to-RJ45 Male Adapter - 9 Pin DB Male on one end with nuts for attaching to the Palm Synch cable, the other end a RJ45 Male on an 8" pigtail, plugs into RJ45 port on PLC (VersaMax Nano/Micro).

Connection using GE Fanuc
Cable Adapter IC690CBLA04

Using GE Fanuc Programming Cables and Null-Modem Adapters

Alternatively, the user may use the standard GE Fanuc programming cables with a male to male Null Modem Adapter or a male/female null modem and a male/male Gender Adapter between that cable and the Palm Serial Hotsync Cable to connect the Palm to the PLC. This is diagramed as follows:
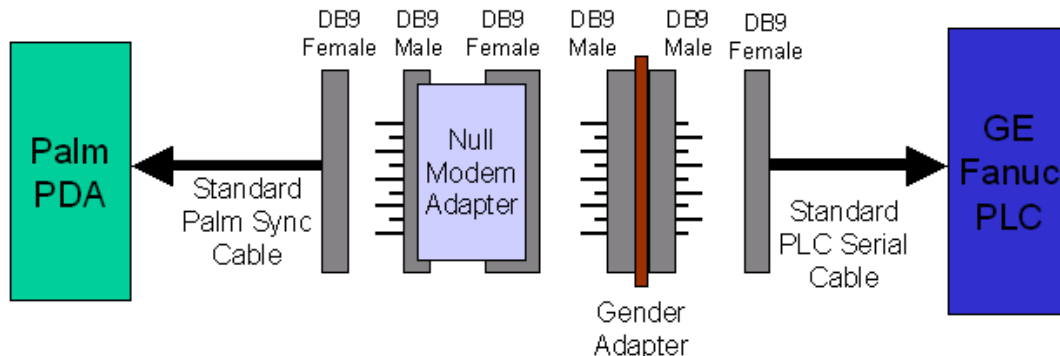
The Null Modem Adapter and Gender Adapter are available locally at electronic stores such as RadioShack®. The Radio Shack items are specified as "Null Modem Adapter, Female DB9 to male DB9" and "Male DB9 to Male DB9 Gender Adapter". Also, null modem adapters that are male to male are available, thus eliminating the need for the gender adapter. For example, B&B Electronics makes one (www.bb-elec.com), part # 9PMMNM.

The user may also connect the Palm Hotsync Cable to the PLC using a male to female null modem adapter and the Horner "SNP TO RS232 ADAPTER". This can connect the Palm Handheld to the 15-pin RS485 SNP connector available on most GE Fanuc PLCs.
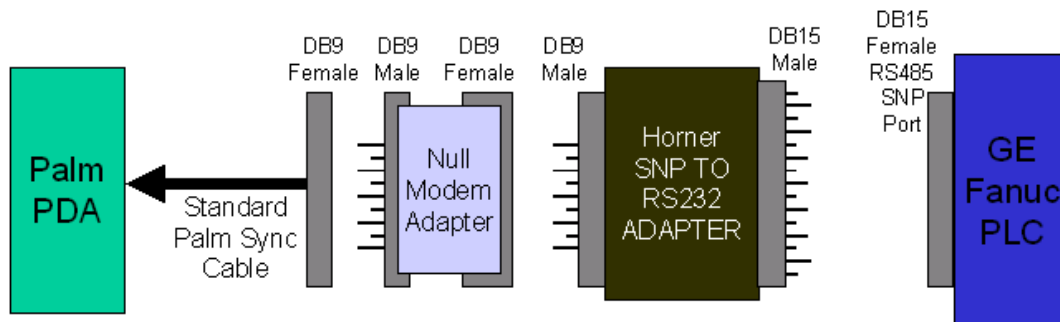
Palm Hotsync Cables

For classic model Palms (i.e. IIIx, IIIxe, IIIc, Vx, V, Vii, and Viix), Palm offers a serial cable part number. This cable is available in most computer stores that sell Palm PDAs and may be ordered online at www.palm.com.

For the newer Palms (i.e. M505, M125, M130, M515, M500, i705) you may use either a Belkin brand Hotsync cable PN F3X1082-03 (www.Belkin.com) or the Palm brand part number P10804U (www.palm.com).

Both brands of cable are often sold at local office supply stores and electronics stores. The Belkin cable can also be ordered online from www.Belkin.com. The Palm branded cable may be ordered from www.palm.com.

Launching LD-PDA

Once the LD-PDA application is installed on your PDA, it will appear on the Palm Desktop with one of the following icons with the text "LD-PDA" beneath the icon.:

On Color PDAs

On Monochrome PDAs

Tapping once on the icon will launch the LD-PDA application and bring up the Main Offline page below:
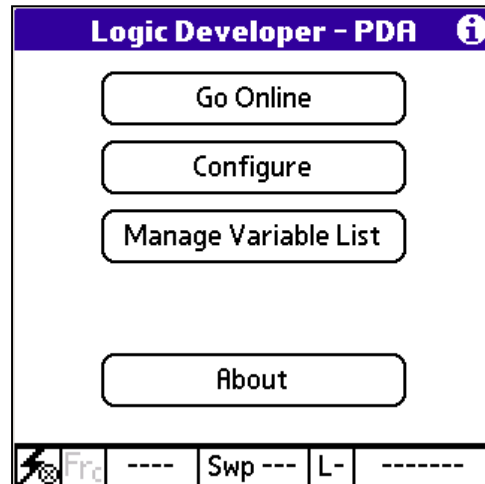
From this page you can perform the following functions:

Go Online

- The Go Online button will tell the PDA to establish serial communications with the GE Fanuc PLC.

Configure

- The user can tap this button to display the page to set the application configuration options and communications parameters for communication with the PLC.

Manage Variable List

- The user can tap this button to access the page that is used to manage Variable Lists on the PDA.

About

- The user taps this button to access LD-PDA version information and to enter product license authorization information.

Main Online Page

Once you connect successfully to a PLC with LD-PDA, the page below will be displayed.

```
┌──────────────────────────────────┐
│  Logic Developer – PDA      ⓘ    │
│     ┌────────────────────┐        │
│     │    Go Offline      │        │
│     └────────────────────┘        │
│     ┌────────────────────┐        │
│     │    PLC Status      │        │
│     └────────────────────┘        │
│     ┌────────────────────┐        │
│     │ View Reference Tables │     │
│     └────────────────────┘        │
│                                   │
│                                   │
│     ┌────────────────────┐        │
│     │ Manage Variable List │      │
│     └────────────────────┘        │
│  ⚡ │Frc│ RunE │ Fault │L1│modular│
└──────────────────────────────────┘
```
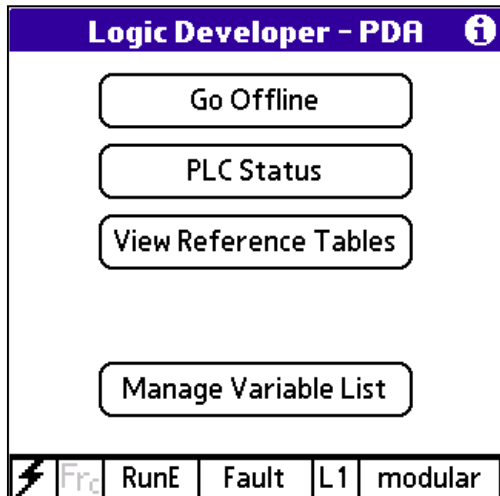
Go Offline

- Tapping the Go Offline button will terminate communications with the PLC and take the PDA offline.

PLC Status

- Tapping the PLC Status button will display the PLC Status page, which provides access to start/stop the PLC, write flash, view fault tables, view PLC information.

View Reference Tables

- Tapping the View Reference Tables button displays the page that allows access to all PLC memory areas and the ability to write values to the PLC and Force I/O.

Manage Variable List

- The user can tap this button to access the page that is used to manage Variable Lists on the PDA.

Overview of the LD-PDA Application

The LD-PDA application pages all have common features as shown in this example from the View Reference Tables page.

- Status Bar on bottom edge of the page

- A command line where buttons will appear as needed above the status bar

- Title Bar where extra information will be shown as needed as items are selected. By default the Title Bar shows the name of the page you are on.

- Data Area - where the main actions and information for a page are displayed.

- Help Icon – Tap on this to get online help information.
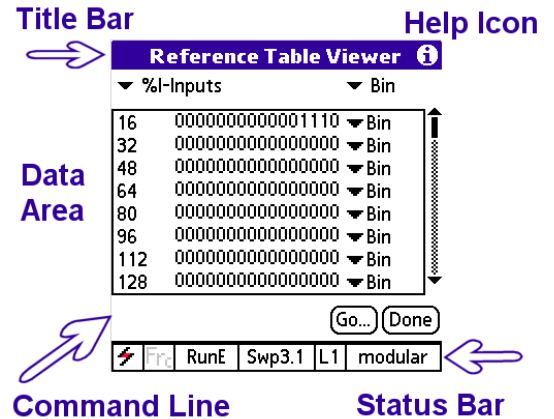
How to Access Online Help on the PDA

Online help is available throughout the LD-PDA application by tapping the letter "i" icon in the upper right corner of all pages on the LD-PDA application. Tap the Done button to dismiss the Help Page.

> **Caution**
>
> **If you are connected to a PLC with LD-PDA and launch help pages, while the help pages are displayed, your connection to the PLC may timeout. When you exit the help pages, LD-PDA will automatically attempt to reconnect to the PLC.**

Status Bar

The LD PDA Status Bar is displayed on the bottom row of all pages. The Status Bar is used to indicate key information about the state of the connection to the target PLC and the operation of the target PLC.
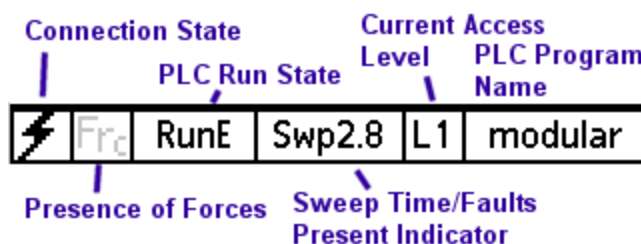
Parts of the Status Bar

- The **Connection State** icon displays 3 states:

  Disconnected

  Attempting to Connect

  Connected – alternates between 2 icons with every update of the Status Bar. The color shown is only shown on PDAs with color screens.

- The **Presence of Forces** field (Frc) indicates if any Forces (overrides) are present in the PLC. Tapping on this field will display a list of all Forces and allow you to clear all forces.

  Forces Not Present

  Forces Present

- The **PLC Run State** is shown as:
  - RunE - Run Enabled
  - RunD - Run Disabled
  - StpD - Stop Disabled
  - StpF - Stop Faulted
  - Halt - CPU Halted
  - Susp - CPU Suspended
  - StpE - Stop Enabled

- The **Sweep Time/Faults Present Indicator** (Swp x.x) field displays the PLC Sweep time in milliseconds. This field also indicates if Faults are present in the PLC. You may tap on this field to display the PLC Fault Manager. Sweep time displays in 1 decimal place up to 99.9 ms then without decimal places from 100ms up.

- The **Sweep Time** field also displays the Communications Try counter (I.e. "Try 26") when the PDA is attempting to establish communications with the PLC but has not yet successfully connected. Once a successful connection is made, you will see the other fields in the Status bar change from "----" to data from the PLC.

- The **Current Access Level** field displays the current PLC Access level by displaying L1 – L4. To Logon to the PLC at a different access level, you can tap the Access Level field. You will be prompted to enter a password to go to the new level. By default, the LD PDA software logs on to the PLC at the highest Access Level available without a password.

- The PLC Program Name is displayed in the **PLC Program Name** field. This is the name of the program that has been stored to the PLC by the PLC Programmer.

Status Bar States

The status bar takes on three states: Offline, Attempting to go Online, and Online.

Offline – when LD-PDA is not connected to a PLC, it appears as shown below. Items that have no data because no PLC is connected are shown with dash characters. The Connection State portion of the status bar shows the Disconnected icon.

| Fr | ---- | Swp --- | L- | ------- |

| Fr | ---- | Try5 | -- | ------- |
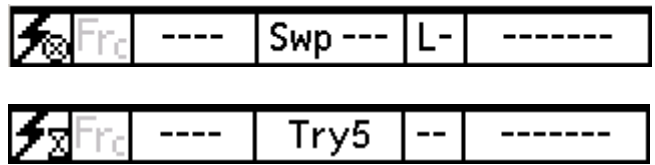
Attempting to go Online – If LD-PDA is attempting to connect to the PLC it will appear as below with a "Try" indicator showing the number of retries made while trying to connect to the PLC.

Online – when the LD-PDA is connected to a PLC it will appear as shown below with live data in all fields. The connected icon will alternate between the 2 states below. On color PDAs the connected icon contains red to make it more visible to the user.

About Box and Product Authorization

The About Box is used to provide information about the version of LD-PDA software you have installed on your PDA and is where you perform the product authorization. The About Box is accessed from the Main Offline page by tapping the About button.

The first page of the About box provides information about the Version and Build of LD-PDA you have installed. Technical support engineers may require this information.

To access the Authorization page of the About box, tap the "Authorize" button on the first page. The Authorization page of the About box is used to enter license information to authorize the LD-PDA software after purchase. (See chapter 2, Installation, for information on how to Authorize the LD-PDA software on your PDA).

Tapping the OK button from either page will return you to the Main Offline Page.

About Page   Authorize Page

Configure

Tapping on the Configure button from the Main Offline form and 2 options are presented for configuration as shown below.
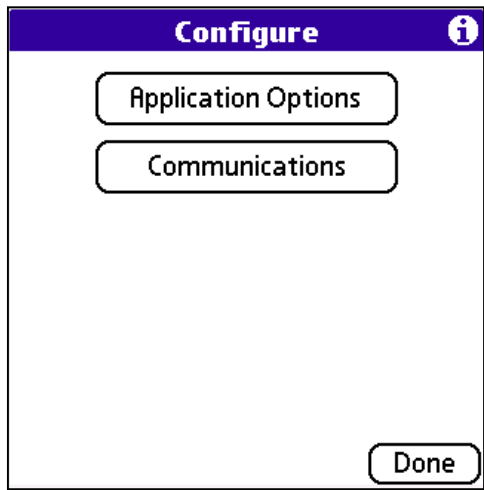
Application Options

The Application Options page is used for settings that apply throughout Logic Developer PDA.

The Online Power Down timeout is used to over-ride the Palm default power off timeout. All Palms have a timeout that is set on a global level through your Palm preferences. This timeout normally defaults to 2 minutes. If the user does not tap on the page during the timeout period, the Palm will automatically power down to save battery power. Although useful, one often needs to watch data when monitoring a PLC for a much longer period of time, many times without tapping the PDA page at
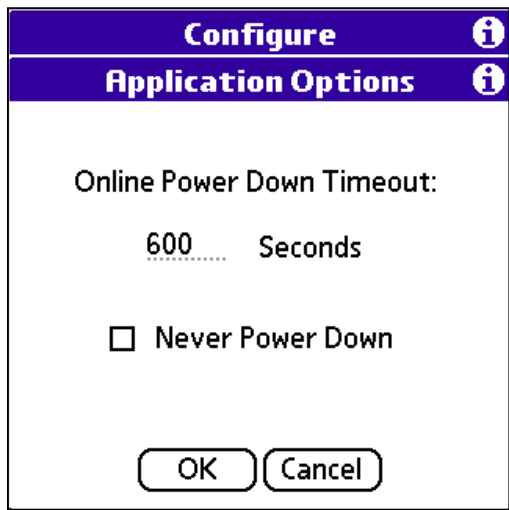
all.

For this reason, this option is provided. This option over-rides the Palm default timeout *only* when Logic Developer PDA is online and connected to a PLC. If the

PDA is not online and connected to a PLC, the normal global Palm default is used. The default Logic Developer PDA Online Power Down Timeout is 10 minutes or 600 seconds. You can change the value by entering a value from 120 to 32767 and tapping OK, or selecting Never Power Down.

Caution

If you choose to enable the Never Power Down option on this page, you should carefully monitor your PDA's battery life and insure that you have a full backup of your PDA. With this option enabled, the PDA will remain on while connected and online with a PLC until it is turned off or battery power is exhausted. You are responsible for any data loss that occurs on your PDA if the battery power is completely exhausted and you do not have a backup of your PDA.

Communications

The Configure Communications page is used to configure LD-PDA for communicating to your target PLC.

```
┌──────────────────────────────────┐
│       Configure           ⓘ       │
│      Communications       ⓘ       │
│                                   │
│   Baud:     ▼ 19200               │
│   Stopbits: [1] 2                 │
│   Parity:   [N][O][E]             │
│                                   │
│   SNPId:    <NULL>......  ▼        │
│                                   │
│                                   │
│         ( OK ) ( Cancel )         │
└──────────────────────────────────┘
```
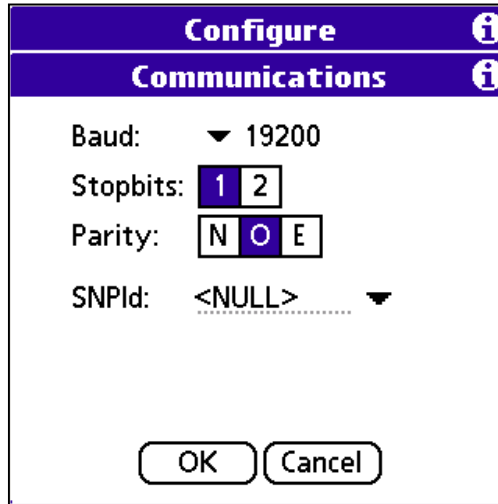
Available settings on this page are:

Baud

> Used to set the baud rate at which LD-PDA will attempt to connect to the target PLC. Valid settings are 1200,2400,4800,9600, 19200, and 38400 baud. Default is 19200 baud.

Stopbits

> Used to set the number of stop bits – valid choices are 1 or 2. Default is 1.

Parity:

> Used to set the parity used in communications. Valid choices are N=none, O=Odd, and E=Even. Default is O=Odd.

SNPID:

> Used to set the SNP ID of the target PLC that you wish to connect to. For point to point (single PDA to single PLC) connections, a value of <NULL> may be used and is the default setting for this option.

<div align="center">

SNPId: <NULL>...... ▼

</div>

> Tapping on the arrow on the SNPID setting combo box will bring up a list of previously used SNPIDs. The last 5 SNP ID's used are remembered in the list and may be chosen for reuse by tapping the desired SNP ID.

To clear the recently used SNP Ids list, open the recently used list 3 times and each time, do NOT select any member of the recently used list. After the 3rd time, the list will be cleared automatically.

View Reference Tables

This page is used to display the default PLC reference tables in the PLC for all available memory types. The page allows you to view a specific PLC memory type, format the display with a variety of display formats, and write data including forcing discrete I/O points. This page is integrated with the Variable Lists you have loaded into the Variable List Manager so that when you tap on a memory location, the Variable Name and Variable Description for the memory location are available on the page.

Reference Table Viewer ⓘ	
▼ %I-Inputs	▼ Bin
16	0000000000001110 ▼Bin
32	0000000000000000 ▼Bin
48	0000000000000000 ▼Bin
64	0000000000000000 ▼Bin
80	0000000000000000 ▼Bin
96	0000000000000000 ▼Bin
112	0000000000000000 ▼Bin
128	0000000000000000 ▼Bin
	(Go...) (Done)
⚡ Frc RunE Swp3.1 L1 modular	
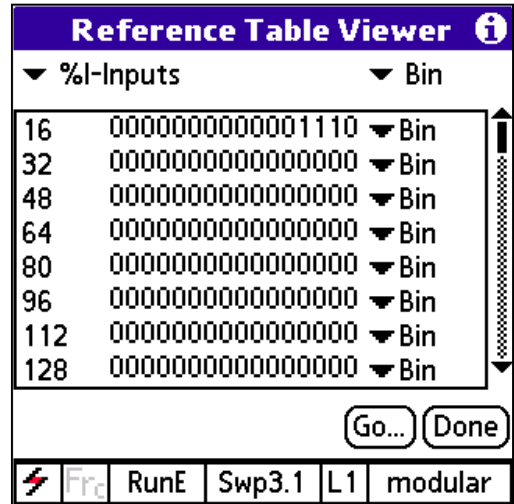
Selecting Which Memory Location Type to View

Single PLC memory types may be displayed on the page at a given time. Tapping the combo box in the upper left corner of the page provides a list of PLC memory types to choose from. Picking a memory type causes the table to refresh with data from the
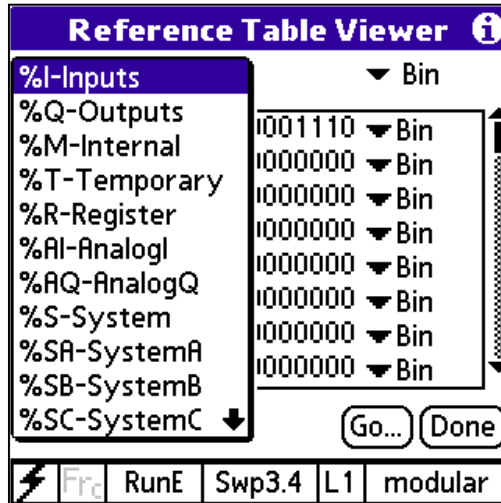
selected PLC memory type.

Supported Memory types are %I, %Q, %M, %T, %R, %AI, %AQ, %S, %SA, %SB, %SC, %SD, and %G. Where available (Series 90-70), %GA, %GB, %GC, %GD, and %GE are also supported.

Choosing the Display Format for the Entire Table

Tapping the combo box in the upper right corner of the page provides a list of Display Formats to use for the full table.
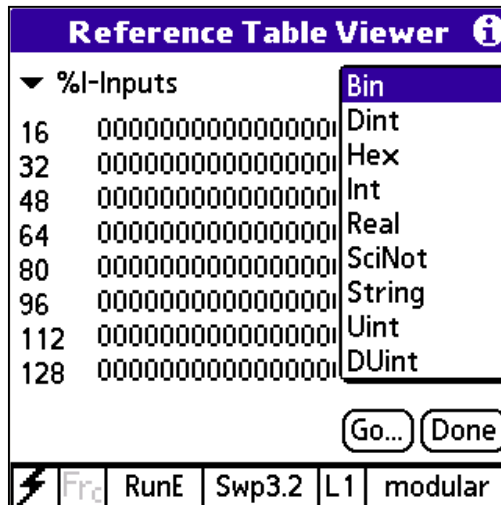
Selecting a parameter for this field will set all of the individual display types to that format.

Display format examples:

Binary (Bin)

▼ %I-Inputs		▼ Bin
16	0000000000001110	▼ Bin
32	0000000000000000	▼ Bin
48	0000000000000000	▼ Bin
64	0000000000000000	▼ Bin
80	0000000000000000	▼ Bin
96	0000000000000000	▼ Bin
112	0000000000000000	▼ Bin
128	0000000000000000	▼ Bin

Double Integer (Dint)

▼ %R-Register		▼ Dint
1	3307348	▼ Dint
2	------------------	--------
3	127722382	▼ Dint
4	------------------	--------
5	-1610148984	▼ Dint
6	------------------	--------
7	32768088	▼ Dint
8	------------------	--------

Hexadecimal (Hex)

Hex values are preceded by the text 16# and are displayed as MSBLSB, i.e Most Significant Byte followed by Least Significant Byte.

▼ %R-Register		▼ Hex
1	16#779D	▼ Hex
2	16#0032	▼ Hex
3	16#E395	▼ Hex
4	16#1094	▼ Hex
5	16#1388	▼ Hex
6	16#A007	▼ Hex
7	16#013E	▼ Hex
8	16#01F4	▼ Hex

Integer (Int)

1	30693	▼ Int
2	50	▼ Int
3	-7778	▼ Int
4	1387	▼ Int
5	5000	▼ Int
6	-24569	▼ Int
7	32	▼ Int
8	500	▼ Int

▼ %R-Register   ▼ Int

Real

If NaN is displayed then the binary value does not convert to a valid real number.

▼ %R-Register   ▼ Real

2041	9.9600001	▼ Real
2042	------------------	--------
2043	8.54	▼ Real
2044	------------------	--------
2045	8.2130003	▼ Real
2046	------------------	--------
2047	1.23569	▼ Real
2048	------------------	--------

Scientific Notation (SciNot)

If NaN is displayed then the binary value does not convert to a valid Scientific Notation number.

▼ %R-Register   ▼ SciNot

2041	9.9600000e00	▼ SciNot
2042	------------------	--------
2043	8.5400000e00	▼ SciNot
2044	------------------	--------
2045	8.2130003e00	▼ SciNot
2046	------------------	--------
2047	1.2356900e00	▼ SciNot
2048	------------------	--------

String

All string (ASCII) values are shown as either the printing character or if non printing as # followed by the hexadecimal value for the ASCII character code contained in the byte.

▼ %R-Register		▼ String
497	#00 #00	▼ String
498	#00 #00	▼ String
499	b u	▼ String
500	y #00	▼ String
501	g e	▼ String
502	p l	▼ String
503	c s	▼ String
504	#00 #00	▼ String

Unsigned Integer (Uint)

▼ %R-Register		▼ Uint
1	32393	▼ Uint
2	50	▼ Uint
3	57771	▼ Uint
4	1273	▼ Uint
5	5000	▼ Uint
6	40964	▼ Uint
7	21	▼ Uint
8	500	▼ Uint

Double Unsigned Integer (Duint)

▼ %R-Register		▼ DUint
1	3309236	▼ DUint
2	-------------------	--------
3	39379684	▼ DUint
4	-------------------	--------
5	2684687240	▼ DUint
6	-------------------	--------
7	32768454	▼ DUint
8	-------------------	--------

Choosing Display Format for a Single Row

Users can change the format of a single row in the View Reference table by tapping on the Data Format selector on each row as shown below:
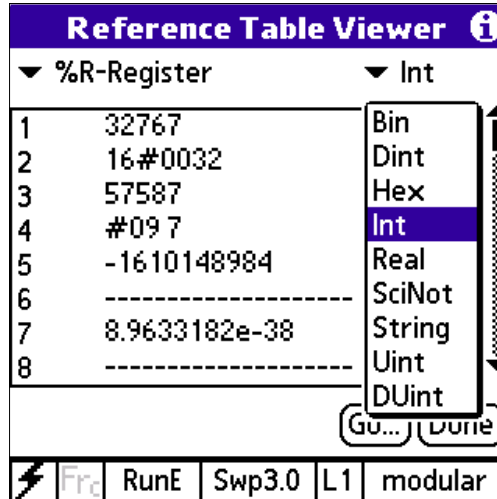
Each row in the table can have it's own unique format. Note that if a format requires 2 words of data (Real, SciNot, Dint, Duint) then the 2nd word will show "----------" for the
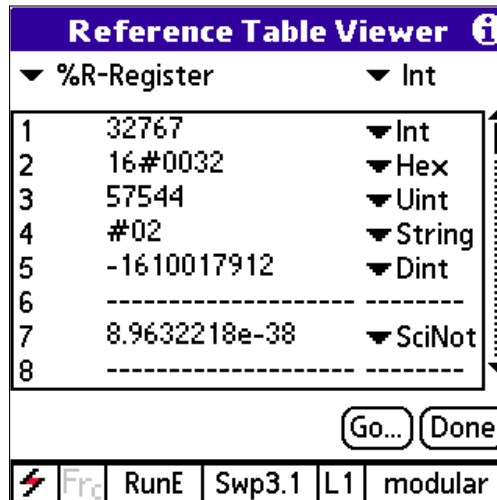
data.

Users can reset the display format for the entire memory segment shown by tapping on the Display format selector at the top of the table.

Contents of the Reference Table Viewer Page

There are 3 columns in the Reference Table Viewer.

Memory Offset of Left Bit　　　　**Data Format Selector**

16　　0101010100000110　▼Bin

Data - MSB on the left

Address - the address into the chosen memory type for each row in the table.

Data

Display format selector for individual rows.

Tap the triangle in the Display Format Selector to bring up a list of available display formats for a single row. As

Selecting And Viewing Data Points

Tapping on a row in the Data column will select the value shown. If the row is in Binary (Bin) display mode then tapping on a single bit will highlight the bit and enable the On/Off and FrcOn, FrcOff buttons.

In either case, when you tap on a data value, the associated Variable Name for that PLC address will be shown in the title bar of the page.

Tapping on the Variable Name shown in the title bar will then show the Variable Description until you release the stylus from the page, after which the Variable Description will be hidden.

Moving Different Memory Addresses in the View Reference Table

In the Reference Table Viewer, the command line on the bottom row above the status bar will always show 2 buttons on the right side.
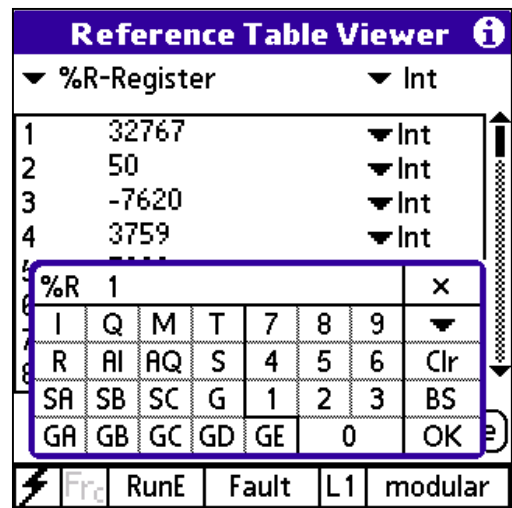
Go... used to jump to a specific PLC memory location by entering it on a keypad

Done - closes this page.

Go Button

Tapping the Go Button brings up the screen shown at the right. The user can enter the desired PLC memory location and tap OK to go directly to that location. If a location is entered that is beyond the maximum address in the memory segment, the user will be taken to the last page of that memory segment. Tapping the arrow key on the keypad will provide the user with a list of recently used addresses.

The SCROLL BAR on the right edge of the page is used to scroll through the reference table. You can tap the arrowheads on the top and bottom of the scroll bar to move 1 row at a time. Or you can tap, hold, and slide on the handle box on the scroll bar to move in larger increments through the table.

Note – data in the table will stop updating while you scroll. When the stylus is removed from the scroll bar, updates will resume.
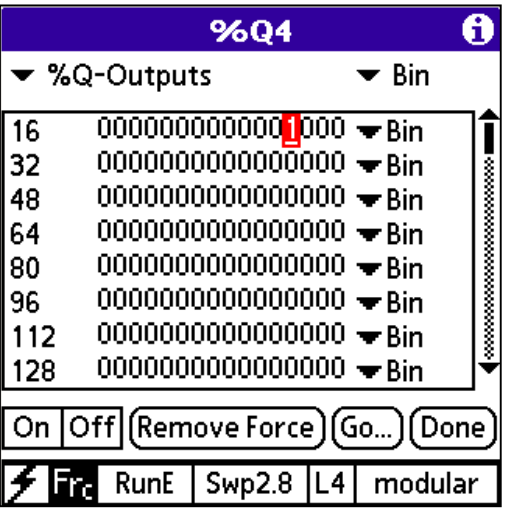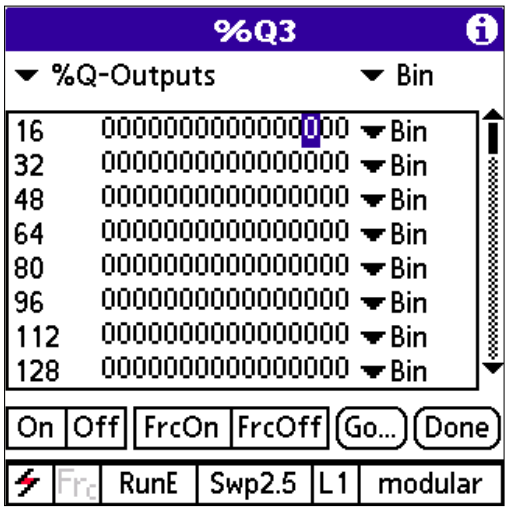
Writing Data To The PLC

> ### Warning
>
> **WARNING – THE USER IS RESPONSIBLE FOR PROPER SAFETY PRECAUTIONS WHEN WRITING DATA TO A PLC FROM THE PDA, ESPECIALLY IF THE PLC IS IN RUN MODE AND/OR HAS OUTPUTS ENABLED.**

Writing In Binary Display Mode (Bin)

When a row is in binary display mode (Bin), you can tap on a single bit to select it. When you tap on the bit, the command line at the bottom of the page shows 6 buttons as shown below.

%Q3	%Q4
▼ %Q-Outputs ▼ Bin	▼ %Q-Outputs ▼ Bin
16 0000000000000000 ▼Bin	16 0000000000001000 ▼Bin
32 0000000000000000 ▼Bin	32 0000000000000000 ▼Bin
48 0000000000000000 ▼Bin	48 0000000000000000 ▼Bin
64 0000000000000000 ▼Bin	64 0000000000000000 ▼Bin
80 0000000000000000 ▼Bin	80 0000000000000000 ▼Bin
96 0000000000000000 ▼Bin	96 0000000000000000 ▼Bin
112 0000000000000000 ▼Bin	112 0000000000000000 ▼Bin
128 0000000000000000 ▼Bin	128 0000000000000000 ▼Bin
[On] [Off] [FrcOn] [FrcOff] [Go...] [Done]	[On] [Off] [Remove Force] [Go...] [Done]
⚡ Frc RunE Swp2.5 L1 modular	⚡ **Frc** RunE Swp2.8 L4 modular

The On/Off buttons are used to toggle the state of a bit. If the bit cannot be toggled due to restrictions in the PLC such as a real world outputs under program control, a real world input, etc., then these buttons will have no effect.
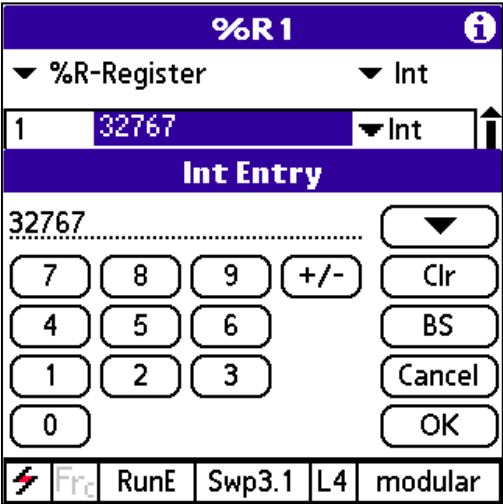
Tapping the FrcOn and FrcOff buttons will put the selected bit into Forced mode and set it to the desired on/off state based on which button you tapped. Once a bit is forced it is shown with an underline on the display with red background on color PDAs, black on monochrome PDAs, and the FrcOn/FrcOff buttons are replaced with a "Remove Force" button. The On and Off buttons may be used to toggle the state of the Forced Bit as shown here.

Tapping Remove Force button will clear the force in the PLC and allow the bit to return to its normal state as controlled by I/O or the PLC program.

Writing In Non-Binary Modes

When displaying data in a non-binary mode, tapping on a value one time will select the value. Tapping a second time once the value is highlighted will bring up a keypad that will allow entry of data to be written to the PLC as shown below. The keypad that appears will be a function of the present display format.

In the example below, the display format is Int and a keypad for entering integer values is shown. The Int keypad supports values from –32768 to +32767. Attempts to enter values greater than the maximum or less than the minimum value allowed will cause the PDA to beep and the value not be accepted.

%R 1	ⓘ
▼ %R-Register	▼ Int
1 32767	▼ Int

Int Entry

32767 .... [▼]

7	8	9	+/-	Clr
4	5	6		BS
1	2	3		Cancel
0				OK

⚡ Fr RunE Swp3.1 L4 modular

Values may be entered on the keypad using 2 methods:

- Tapping on numbers in the keypad enters numbers

- Using the most recently used values list – see below.

Special keys on all keypads:

+/-	Toggles the sign on the displayed value between positive and negative
▼	Displays a list of the 10 most recently used values. A value tapped on the most recently used list is automatically entered into the input area on the keypad.
Clr	Clears the value currently shown in the keypad
BS	Backspaces one character
OK	Accepts the new value and writes it to the PLC and closes the keypad
✕	Closes the keypad without writing a value to the PLC.

Other Keypads

Dint

The Dint (32-bit signed integer) keypad shown below is shown when a value formatted in Dint display format is tapped. Maximum value allowed for data entry is + 2147483647.   Minimum value allowed for data entry is – 2147483648. Attempts to enter values greater than the maximum or less than the minimum value allowed will cause the PDA to beep and the value not
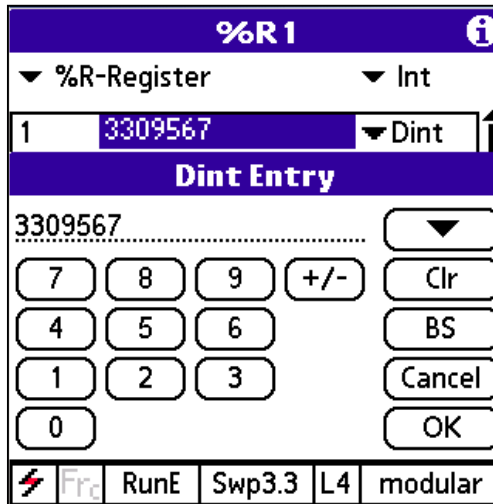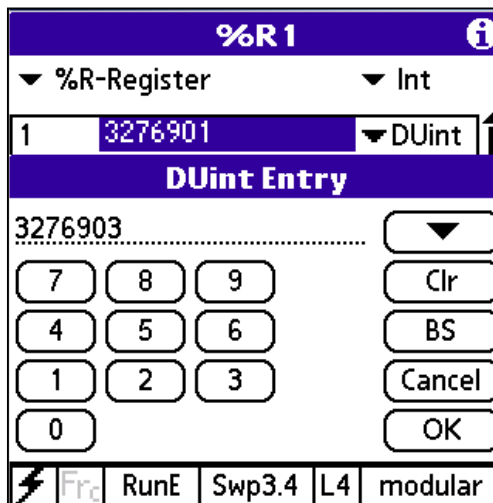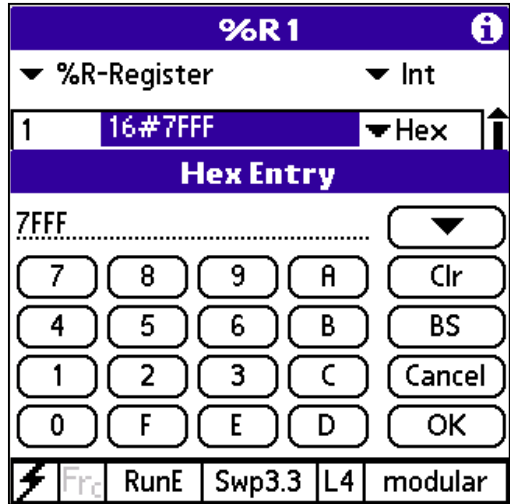

be accepted.

DUint

The Duint (32-bit unsigned integer) keypad shown below is shown when a value formatted in DUint display format is tapped. Maximum value allowed for data entry is 4294967295.   Attempts to enter values greater than the maximum allowed will cause the PDA to beep and the value not be accepted.

Hex

The Hex keypad shown below is shown when a value formatted in Hex display format is tapped. Maximum value allowed for data entry is FFFF hex. Attempts to enter values greater than the maximum allowed will cause the PDA to beep and the value not be accepted.

ASCII

When a value displayed in ASCII display format is tapped, the keypad below is displayed for data input. The user can enter up to 2 characters using either Graffiti or the standard Palm Keypad. Non-printing character input is not supported.
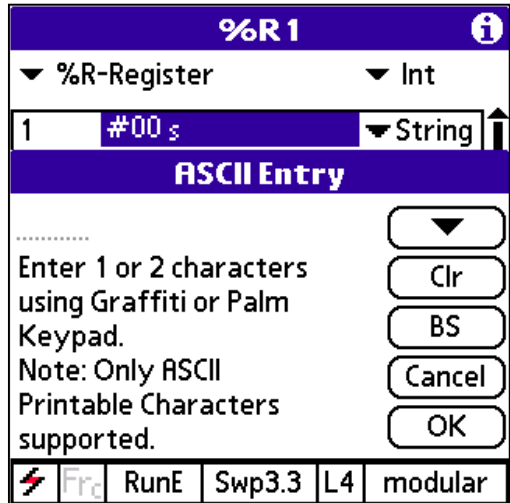
Real

The Real format data entry keypad shown below is shown when a value formatted in Real display format is tapped. Maximum value allowed for data entry is 999999999999. Minimum value allowed is –999999999999. If the user needs to enter a value greater or less than these values, which are allowed in the IEEE 32-bit real data type, they should use the SciNot display format and resulting keypad. Attempts to enter values greater than the maximum allowed will cause the PDA to beep and the value not be accepted.

SciNot

The SciNot format data entry keypad shown below is shown when a value formatted in Scientific Notation (SciNot) display format is tapped. Minimum value allowed for data entry is 1.401298E-45. Maximum value allowed for data entry is 3.402823E+38. Attempts to enter values greater than the maximum allowed will cause the PDA to beep and the value not be accepted.
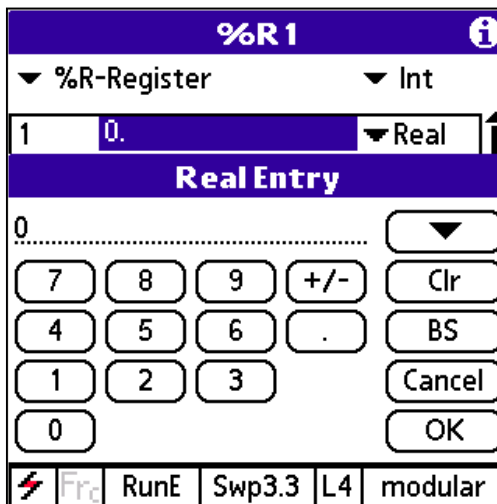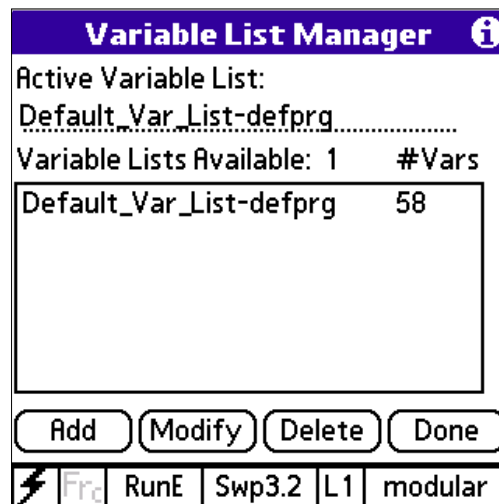
Chapter 3 Using Logic Developer PDA
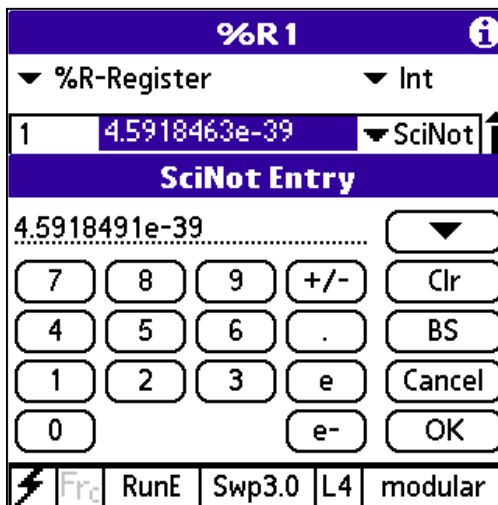
Manage Variable List

Variable List Manager

This page is used to manage the variable lists that are stored in your Palm.Variable lists can be downloaded to your Palm via Hot Syncing with your desktop PC to import them from Logic Developer PLC VersaPro, or Logicmaster or may be added and

edited on the PDA.

From this page, you can see the total # of Variable lists presently stored in the Palm, view the list names, and Add new lists, Modify the variable definitions in an existing list, or Delete a list.

You can scroll through the list of Variable Lists using the scroll bar on the right side of the page if more lists than will fit on a single page are loaded on the PDA.

To Add a list, tap on the Add button and you will be asked for the list name

To Modify an existing list, first tap on the list name, then tap on the Modify button.

To Delete an existing list, tap on the list name then tap on the Delete button. All deletions will ask for confirmation.

Note

To perform a bulk deletion of Variable Lists from the PDA you may use the LD-PDA Conduit that supports a bulk delete and bulk reload function. See Chapter 4 in this manual for more information on this option.

To exit the Variable Manager tap on the Done button.

Default Variable List

LD-PDA comes pre-loaded with a Variable List named Default_Var_List-defprg. This list contains the Variable Names and Variable Descriptions for %S System memory locations in all GE Fanuc PLCs. This list may not be deleted.

Add Variable List

```
┌─────────────────────────────────────┐
│ Variable List Manager        ⓘ       │
├─────────────────────────────────────┤
│ Add New Variable List        ⓘ       │
│                                      │
│ Name of List:                        │
│                                      │
│ ...................................  │
│                                      │
│ Associated Program Name:             │
│                                      │
│ ...................                  │
│                                      │
│       ( OK )( Cancel )               │
│                                      │
│ ⚡Frc  ----  Swp ---  L-  -------      │
└─────────────────────────────────────┘
```

This page is used to create a new variable list. Two pieces of information are required.

Name of the list – should be 32 characters long or less and contain letters, numbers or the underscore character. The name may NOT contain spaces, the dash "-" character, or any other special character.

Associated PLC program name – should be 7 characters long or less and contain letters, numbers or the underscore character. The name may NOT contain spaces, the dash "-" character, or any other special character.

These 2 pieces of data will be used to make a file name that is used during synchronization with your desktop to form an SNF file name.
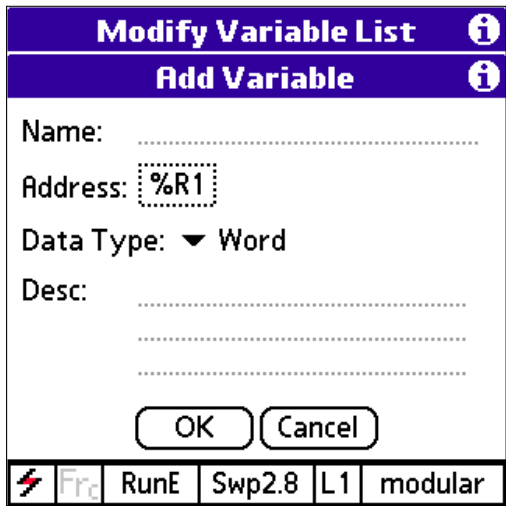
Note

In order for Variable Lists to properly synchronize with your PC it is very important the list naming rules stated above be followed. Variable lists that do not follow the naming rules above will NOT be transferred to the desktop during Hotsync operation.

Tap OK to accept the variable list name.

Tap Cancel to return to the MANAGE VARIABLE LIST Page.

Add Variable

Modify Variable List ⓘ

Add Variable ⓘ

Name: ....

Address: ⌐%R1⌐

Data Type: ▼ Word

Desc: ....
....
....

(OK) (Cancel)

⚡ |Frc| RunE | Swp2.8 |L1| modular

This page is used to add a variable to your variable list.

Each variable in your list consists of the following parts:

Required:

Variable Name (Name) – up to 24 letters, numbers or the underscore character.

PLC memory address (Address)

Data display format (Format)

Optional:

Variable description (Desc)

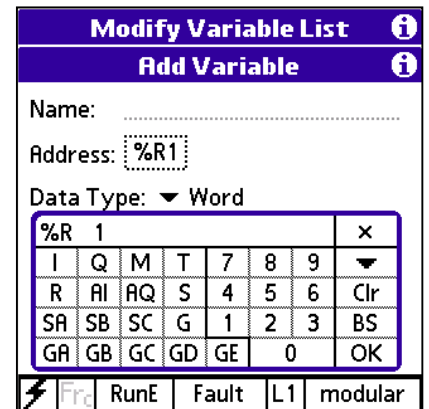You may enter text in this page using either Palm Graffiti input or the Palm keyboards.

Keypad For PLC Memory Address Entry

To enter the PLC Memory Address tap on the word "Empty" next to the Address: field and a keypad will be displayed for entering GE Fanuc PLC memory addresses as shown here.

Memory type is chosen by tapping on the appropriate memory type key.

Addresses may be entered using taps on the buttons on the keypad or by Graffiti or Palm keypads.

On the keypad it will remember your last 10 memory addresses used. These are accessible from the triangle button on the keypad.

Modify Variable List ⓘ

Add Variable ⓘ

Name: ....

Address: ⌐%R1⌐

Data Type: ▼ Word

%R	1						×
I	Q	M	T	7	8	9	▼
R	AI	AQ	S	4	5	6	Clr
SA	SB	SC	G	1	2	3	BS
GA	GB	GC	GD	GE		0	OK

⚡ |Frc| RunE | Fault |L1| modular

Use the "x" button to dismiss the keypad without making any changes.

Tap the "BS" button to backspace on an address that you are entering.

When done choosing your address, tapping on the OK button on the keypad will accept your changes.
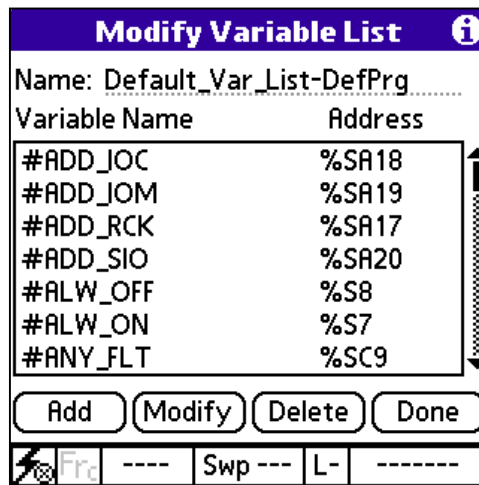
Data Types:

Display types for a variable are selected using a combo box that is accessible by tapping on the triangle button next to the "format" caption.

To accept a new variable and store it, tap the OK button.

To cancel the addition of a new variable, tap the Cancel button.

Modify Variable List

To modify an existing Variable List, tap on the list name in the Variable List Manager page and then tap the Modify button.

Variable Name	Address
#ADD_IOC	%SA18
#ADD_IOM	%SA19
#ADD_RCK	%SA17
#ADD_SIO	%SA20
#ALW_OFF	%S8
#ALW_ON	%S7
#ANY_FLT	%SC9

Modify Variable List — Name: Default_Var_List-DefPrg
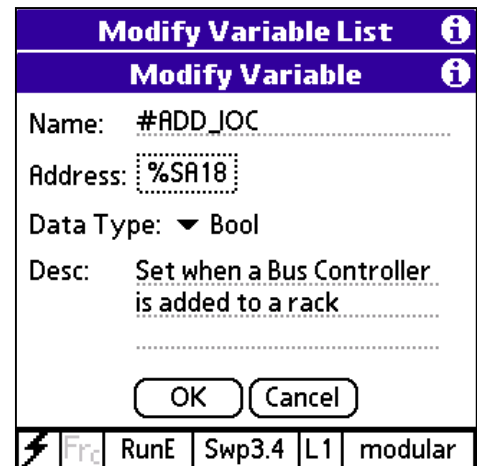
Buttons: Add, Modify, Delete, Done

To delete an item in the list, tap on the item and tap the Delete button. All deletions of items will be confirmed before the deletion is made final.
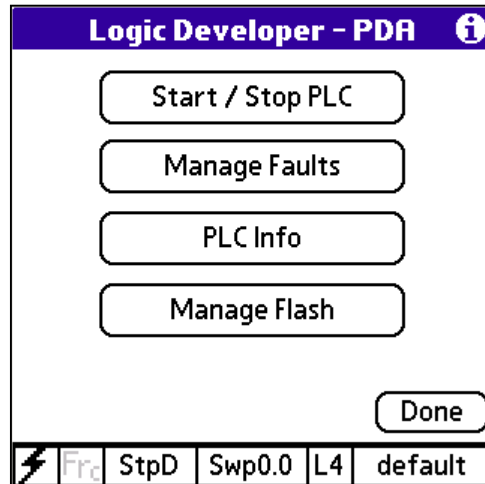
To add an item to the list, tap the Add button that brings up the Add Item page.

Modify Variable

To modify a variable in an existing Variable List, tap on the desired variable name in the list and tap the Modify button. The page below will appear. This page is the same page as the Add Variable page but the existing definitions for the Variable are already loaded into memory. For more information on using this page see the topic "Add Variable" since the operation of this page is the same.
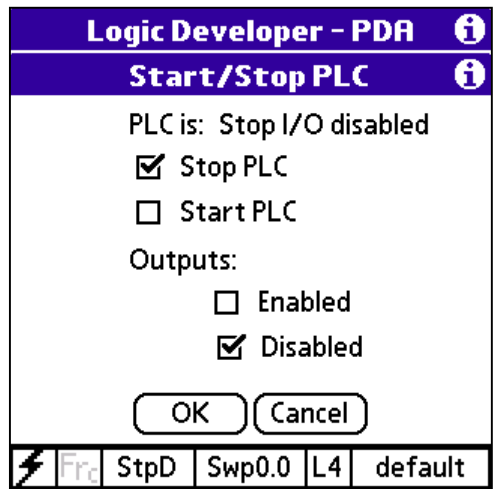
Modify Variable
Name: #ADD_IOC
Address: %SA18
Data Type: ▼ Bool
Desc: Set when a Bus Controller is added to a rack
OK Cancel
RunE | Swp3.4 | L1 | modular

PLC Status

Tapping on any of the large buttons on the page will bring up pages for additional action.

* Start/Stop the PLC - allows the user to change the PLC Run/Stop state.

* Manage Faults – shows the current number of faults in the PLC and IO Fault tables and allows viewing of the faults.

* PLC Info – provides details about the CPU model, firmware revision, SNPID, program name, PLC Date/time, etc. Also is the place where the user can select the Variable list to be used when displaying reference tables to associate PLC memory addresses with names.

* Manage Flash – allows the user to transfer information between the PLC RAM and Flash memory.
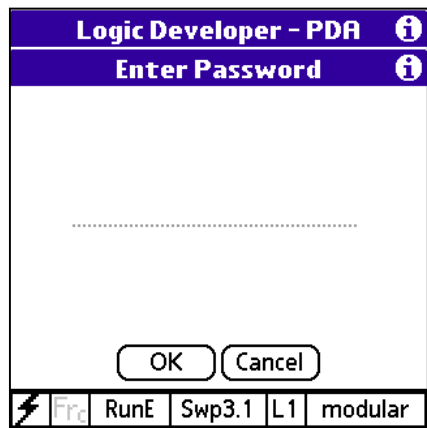
* Done button – used to return to the Main Online Page.

Start/Stop PLC

```
Logic Developer – PDA  ℹ
     Start/Stop PLC     ℹ
PLC is: Stop I/O disabled
  ☑ Stop PLC
  ☐ Start PLC
Outputs:
        ☐ Enabled
        ☑ Disabled
   ( OK )( Cancel )
⚡ Frc StpD  Swp0.0 L4  default
```

This page will show the current PLC state. By tapping on the check boxes and then tapping on the OK button, you will change the state of the PLC.

Change Access Level

On this page you may enter a password to change the current access level of your connection with the PLC. This page is displayed by tapping on the Access Level field on the status bar.

```
Logic Developer – PDA  ℹ
    Enter Password      ℹ




   ........................................




     ( OK )( Cancel )
⚡ Frc RunE  Swp3.1 L1  modular
```

The password that you enter is the one assigned in the PLC by your PLC programming software.

The abbreviations used on the status bar are as follows. Privileges are additive, meaning that L2 has all of L1 & L2 privileges, L3 has all of L1, L2, & L3 privileges:

L1=Level One Read CPU Only

L2=Level Two Write data and clear the fault tables

L3=Level Three Write data and configuration, CPU stopped.

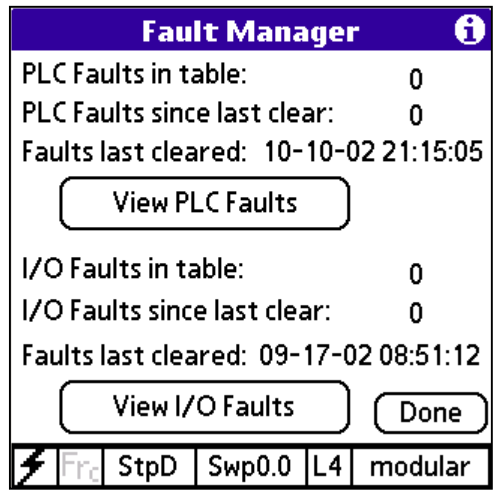L4=Level Four Change passwords, write logic and configuration.

LIMITATIONS

* OEM Password not supported
* Changing of the passwords in the PLC not supported.
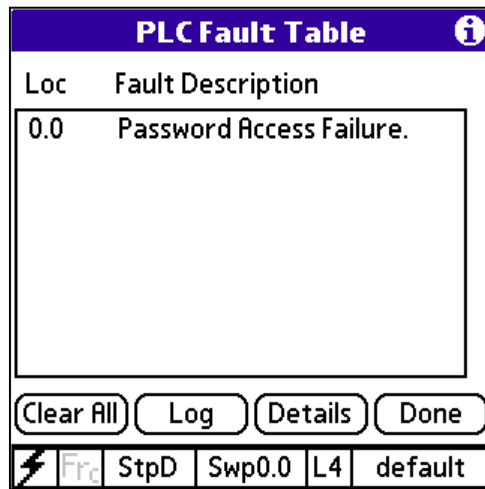
Manage Faults

On this page, the number of PLC and I/O Faults will be shown.

You can tap on the PLC Faults or I/O Faults buttons to bring up a list of the faults in the PLC where you can view and clear faults.

Tapping the Done button will take you back to the PLC Status Page.

View PLC Faults

PLC Fault Table ⓘ

Loc	Fault Description
0.0	Password Access Failure.

(Clear All) (Log) (Details) (Done)
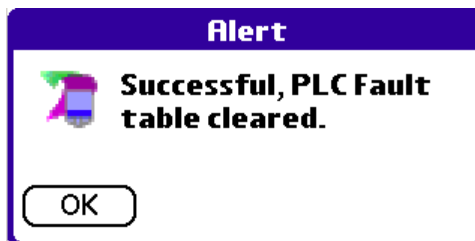
⚡ |Frc| StpD | Swp0.0 |L4| default

Tapping on the View PLC Faults page from the Fault Manager page will display the list of all current PLC faults with the most recent fault on the top of the list. If more faults are present than will fit on the page, a scroll bar will be present.
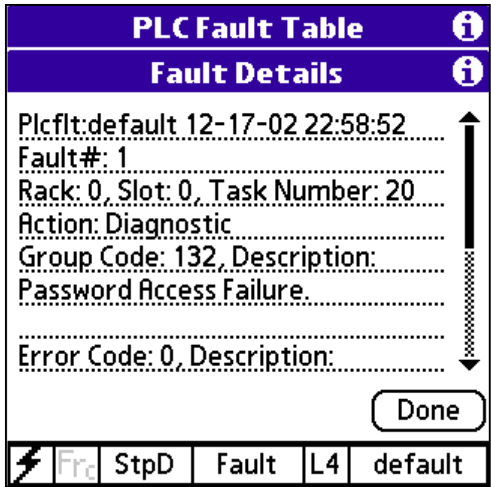
Tapping the Clear All Button will first check for proper privilege level access and then present a confirmation request for clearing all faults:

Alert

Do you really want to clear PLC Fault table?

(Yes) (No)
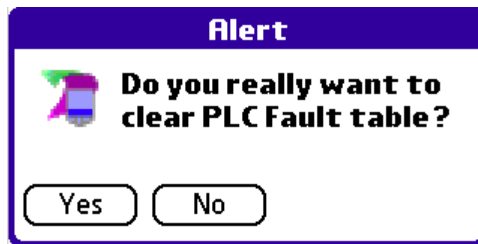
Tapping No will return to the PLC Fault Table. Tapping Yes will initiate the clear faults action which if successful will present the following page:

Tapping the Log button will log the contents of the PLC Fault table shown to a Palm Memo Pad entry. Tapping a specific fault entry then tapping Details will display all details for that fault including any extra fault data:
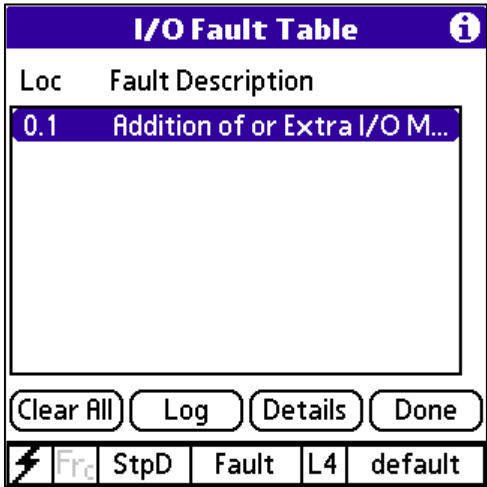
Alert

Successful, PLC Fault table cleared.

(OK)

PLC Fault Table ⓘ

Fault Details ⓘ

Plcflt:default 12-17-02 22:58:52
Fault#: 1
Rack: 0, Slot: 0, Task Number: 20
Action: Diagnostic
Group Code: 132, Description:
Password Access Failure.

Error Code: 0, Description:

[Done]

⚡ Frc | StpD | Fault | L4 | default

Tapping Done returns to the PLC Fault Table.

Tapping Done from the PLC Fault Table returns to the Manage Faults page.

View IO Faults

I/O Fault Table ⓘ

Loc   Fault Description

0.1   Addition of or Extra I/O M...

(Clear All)(Log)(Details)(Done)
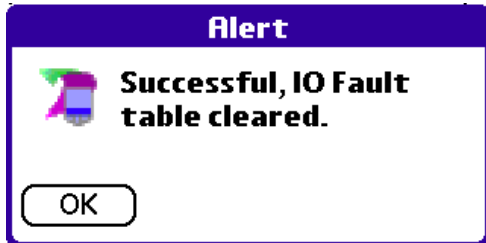
⚡ Frc | StpD | Fault | L4 | default

Tapping on the View IO Faults page from the Fault Manager page will display the list of all current I/O faults with the most recent fault on the top of the list. If more faults are present than will fit on the page, a scroll bar will be present.

Alert

Do you really want to clear I/O Fault table?

(Yes) (No)
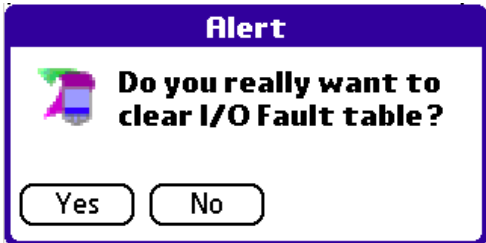
Tapping the Clear All Button will first check for proper privilege level access and then present a confirmation request for clearing all faults:
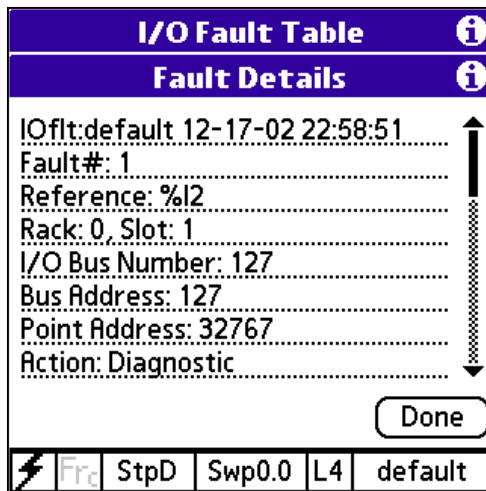
Tapping No will return to the IOFault Table. Tapping Yes will initiate the clear faults action which if successful will present the following page:

Tapping the Log button will log the contents of the IO Fault table shown to a Palm

```
┌─────────────────────────────┐
│          Alert              │
│  ┌──┐  Successful, IO Fault │
│  │  │  table cleared.       │
│  └──┘                       │
│  ┌──────┐                   │
│  │  OK  │                   │
│  └──────┘                   │
└─────────────────────────────┘
```

Memo Pad entry.

Tapping a specific fault entry then tapping Details will display all details for that fault including any extra fault data:

```
┌─────────────────────────────┐
│  I/O Fault Table        ⓘ   │
│  Fault Details          ⓘ   │
├─────────────────────────────┤
│ IOflt:default 12-17-02 22:58:51 ▲│
│ Fault#: 1                   │
│ Reference: %I2              │
│ Rack: 0, Slot: 1            │
│ I/O Bus Number: 127         │
│ Bus Address: 127            │
│ Point Address: 32767        │
│ Action: Diagnostic        ▼ │
│               ┌──────────┐  │
│               │  Done    │  │
│               └──────────┘  │
├─────────────────────────────┤
│ ⚡│Frz│ StpD │ Swp0.0│L4│ default│
└─────────────────────────────┘
```

Tapping Done returns to the IO Fault Table.

Tapping Done from the IO Fault Table returns to the Manage Faults page.

PLC Info

You can view the PLC Info page quickly from most pages with an active status bar by tapping on the PLC program name field on the right side of the status bar. You can also view this page by tapping the PLC Info button on the PLC Status page. The PLC Info page displays information about the PLC Logic Developer PDA is presently attached to, including:

- CPU model

- Hardware Revision, Software Revision, & Build Number

- SNP ID

- Current Date & Time

- Sweep mode and constant sweep time

- PLC memory limits

Tapping on the Log button will write the contents of the PLC info table to a Palm Memo Pad entry. Tapping the Done button will return you to the PLC Status page.

Logic Developer – PDA	
PLC Info	
CPU Model:	CPU001
Prg Name:	modular
H/W Rev:	11.01
S/W Rev:	1.50
Build#:	49A3
SNP ID:	GEVMM1
PLC Date:	03-16-03
PLC Time:	22:50

Log   Done

RunE | Swp3.0 | L4 | modular

Logic Developer – PDA	
PLC Info	
Qty System %SB:	32
Qty System %SC:	32
Qty Genius %G:	1280
Qty Genius %GA:	0
Qty Genius %GB:	0
Qty Genius %GC:	0
Qty Genius %GD:	0
Qty Analog Input %AI:	128

Log   Done

RunE | Swp3.2 | L4 | modular

Logic Developer – PDA	
PLC Info	
Sweep Mode:	Normal
Const. Sweep Time:	100.0
Qty Input %I:	2048
Qty Output %Q:	2048
Qty Internal %M:	1024
Qty Temporary %T:	256
Qty System %S:	32
Qty System %SA:	32

Log   Done

RunE | Swp2.8 | L4 | modular

Logic Developer – PDA	
PLC Info	
Qty Genius %G:	1280
Qty Genius %GA:	0
Qty Genius %GB:	0
Qty Genius %GC:	0
Qty Genius %GD:	0
Qty Analog Input %AI:	128
Qty Analog Out %AQ:	128
Qty Register %R:	2048

Log   Done

RunE | Swp2.8 | L4 | modular

Manage Flash

Logic Developer – PDA

Manage Flash

▼ Write RAM to Flash/EEProm

☑ Logic

☑ Initial/Stored Values

☑ Hardware Configuration

(OK) (Cancel)

| ⚡ | Frc | StpD | Swp0.0 | L4 | modular |
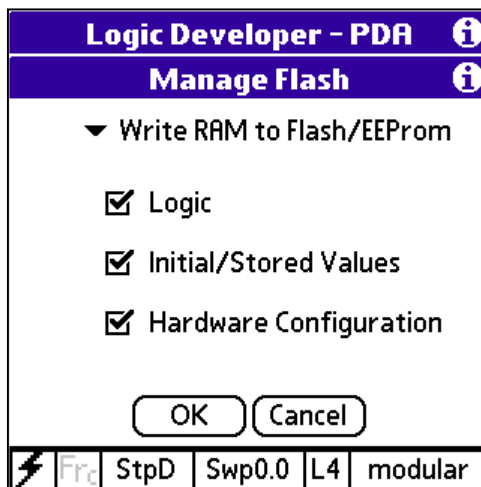
This page is used to commit PLC RAM data to the Flash EEPROM on the PLC or retrieve data from the Flash EEPROM if the PLC is equipped to do so.

The PLC MUST be in Stop/Disabled mode in order for you to use this operation and you must have Level 3 or 4 password access. You are responsible for changing the state of the PLC before doing this action-the software will not do it for you.

Use the combo box at the top of the page to select the desired action:

- Read Flash/EEProm to RAM

- Write RAM to Flash/EEProm

- Verify Flash/EEProm with RAM

Use the check boxes to select the combination of items you wish to take the chosen action on.

Tapping the OK button will ask you to confirm the desired operation. For example, below is the confirmation for a Write Flash operation.

Confirm

Do you really want to copy to EEPROM?

(Yes) (No)
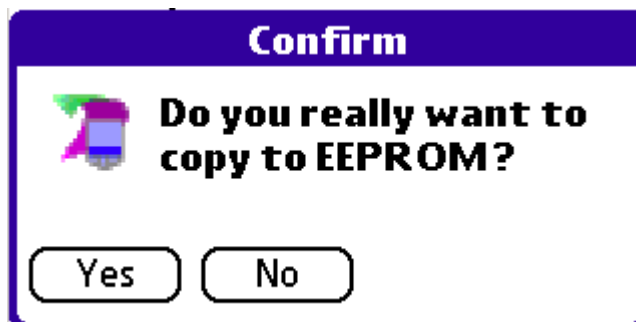
Tapping No will cancel the Flash operation and return you to the Manage Flash page.

Tapping Yes will perform the selected action, which if successful will display the page below.

Confirm

Successful copy to EEPROM.

OK
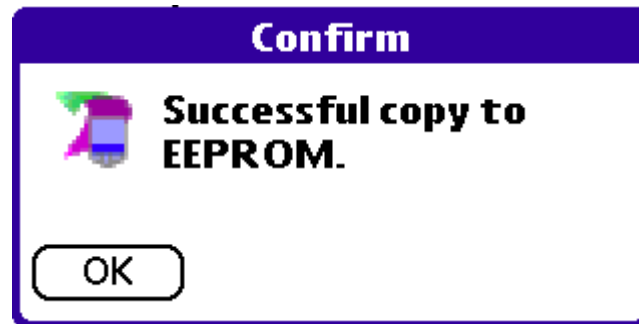
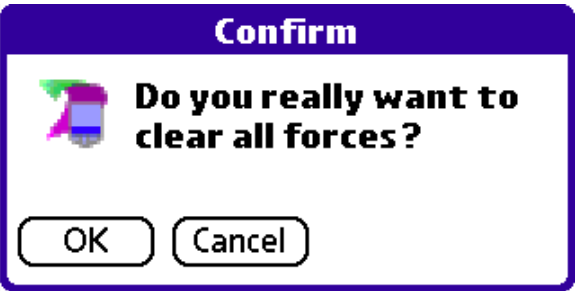## List of Forced References

Tapping on the Forces field in the Logic Developer PDA Status bar displays the List of Forced References page.   In the sample below, 2 forces are present - one at %I72, one at %Q14. If the currently active variable list includes matching names for the forced memory references, the names will be shown in the middle column. Only the first 100 forced references for each memory segment are shown on this page. If more than 100 forced references exist, a line indicating that more forces exist will be shown for that memory type.   All forced references can be viewed using the your PLC

List of Forced References 🛈

Ref	Name	Status
%I72	-	Forced
%Q14	-	Forced
%M Mem		No Forces
%G Mem		No Forces

(Clear All) (Log)   (Done)

⚡ Frc StpD | Swp0.0 | L4 | modular

programming software on your laptop or desktop computer.

Tapping Log will log the contents of the List of Forced References to a Palm Memo Pad entry with the title of "Forces" followed by the CPU model and program name.

Tapping the Clear All button will if you have the proper password access ask you to confirm that you want to clear all forces.

Confirm

Do you really want to clear all forces?

(OK) (Cancel)

Tapping Cancel will return you to the List of Forced References Page. Tapping OK will clear all forces. If the clear all forces is successful then a confirming page will be shown.

Alert

Successful clear of all forces.

(OK)

Logic Developer PDA Conduit
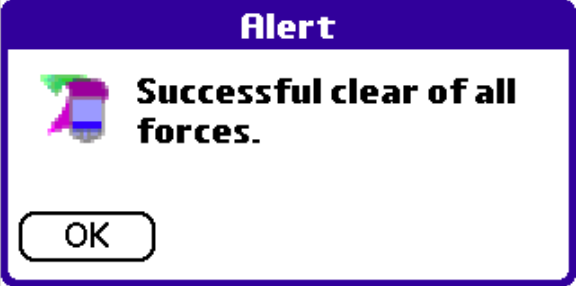
Introduction

The Logic Developer-PDA Conduit (LD-PDA Conduit) is a software program that works with the Palm HotSync Manager on your desktop or laptop computer and provides the following functionality:

- Transfer of Variable List files from the PDA to the Desktop PC.

- Transfer of Variable List files from the Desktop PC to the PDA.

- Backup of Variable List files from the PDA to the Desktop PC.

The Variable List Files on your computer are files ending in a *.snf extension that are exported from supported versions of Logicmaster 90, VersaPro, and CIMPLICITY Machine Edition Logic Developer PLC programming software packages.

The LD-PDA Conduit is not a standalone application. It is a Dynamic Link Library (DLL) that is launched by the Palm Hotsync Manager when you Hotsync your Palm PDA with your desktop or laptop computer. Therefore, you must have the Palm Desktop Software, which includes the Palm Hotsync Manager, installed if you wish to use the LD-PDA Conduit.

Logic Developer PDA requires the Palm Desktop Software to be installed on the desktop or laptop computer that you plan to Hotsync your PDA with. This software comes with your PDA hardware when you purchase it and may also be obtained from www.palm.com/software on the Internet.

Logic Developer PDA supports Palm Desktop Software version 3.0 and higher and Palm Hotsync Manager 3.1 or higher. Typically if you have the required Palm OS Version 4.0 or higher, then you will have the Palm Desktop Software and Hotsync Manager version required. Palm OS 4.0 and higher ships with Palm Desktop Software version 4.0 or higher and Hotsync Manager 4.0 or higher. To find out the version of your Hotsync manager, click on the Hotsync icon in your PC's systems tray and select "About".
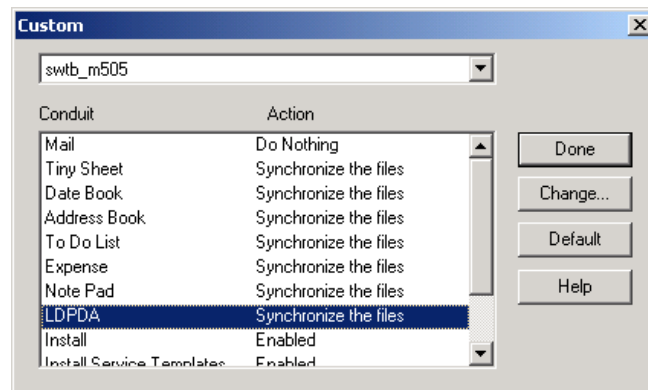
Setup and Configuration

Configuring LD-PDA Conduit

Logic Developer PDA Conduit Configuration Screen

To access the LD-PDA Configuration Screen, you right click on the HotSync Manager icon in the System Tray on your PC and select "Custom" from the menu that appears. The dialog below will appear – choose the LDPDA option and click the Change button.

The screen below is used to configure the LD-PDA Conduit HotSync Action for a specific Palm username.
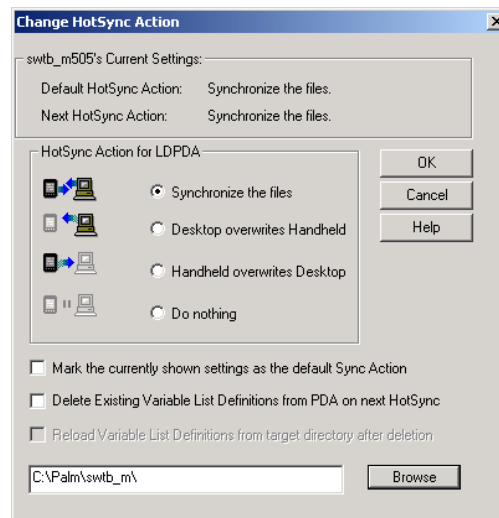
Description of parts of the configuration screen:

In the **Current Settings** portion of the screen, the type of HotSync Action that is the Default for all sessions for the chosen Palm username is shown and the action that will be taken one time only on the next HotSync session is shown. Clicking on the **Help** button on the configuration screen will open an online help file that contains the contents of this chapter of this manual organized as a help file.

In the **HotSync Action for LDPDA** portion of the screen, options are shown for the type of HotSync Actions available to the user.

Types of HotSync Actions:

- **Synchronize the files** – Variable Lists on the PDA are copied to the PC if the Variable List on the PDA is newer than the one on the PC or does not exist on the PC. Variable Lists on the PC are copied to the PDA if the Variable List on the PC is newer than the one on the PDA or does not exist on the PDA. Note: If there are changes to a variable list on the PC and on the PDA, the version of the Variable List with the most current date/timestamp between the PDA and the PC will be the one that is moved – LD-PDA conduit does not support record level synchronization within a Variable List.

- **Desktop overwrites Handheld** – setting this action will force the PC to overwrite the PDA's Variable Lists regardless of whether there is a newer version on the PDA.

- **Handheld overwrites Desktop** - setting this action will force the PDA to overwrite the PC's Variable Lists regardless of whether there is a newer version on the PC.

- **Do Nothing** – Disables the LD-PDA Conduit. No action will be taken on Variable Lists.

In the area below the HotSync Action choices, you are given check boxes that are used to perform the following functions that are described in further detail later in this document.

- Mark the currently shown settings as default

- Delete Existing Variable List Definitions from the PDA

- Reload Variable List Definitions from target directory

- Target Directory

Setting Variable List File Location

When the LD-PDA Conduit installed, it set the location of the Variable Lists to the directory \Program Files\GE Fanuc Automation\Files\Variable Lists\., you must perform one key step before the conduit will do anything during a HotSync session. If you are storing your Variable Lists in a different location, you need to set the location of the variable lists so the LD PDA Conduit will know where to look and find the Variable List files on your PC.

When organizing your Variable List files, you put all your variable list files into subfolders off of a single master folder location. To tell the Logic Developer PDA Conduit where the Master Variable Lists Location is, you open the Conduit Configuration Screen and on the bottom of the screen there is an area to type in a

path name as shown below:

You may type a valid pathname or you may click the browse button that will allow you to browse your PC for the location of your Master Variable Lists Location as shown below.

If you do not set a valid location for the Master Variable Lists Location then the Logic Developer PDA conduit will not take any actions and all errors will be logged to the HotSync manager log file

Note

If you type the pathname, you MUST put a "\" character at the end of the pathname in order for the LD-PDA Conduit to function properly.

Organizing Variable List Files

In order for the Logic Developer PDA Conduit to transfer Variable Lists from your PC to your PDA, the Variable List files (*.snf files) must be placed in a specific directory structure on the PC. If this structure is NOT strictly followed, the variable lists will not be transferred to your PDA.

Master Variable Lists Location– you may place your variable lists in any location on your computer's hard drive provided that you insure that you put ALL Variable Lists that you wish to synchronize with the PDA in a single common folder location with sub folders for each PLC program name that you wish to have Variable List Files transferred to the PDA.

Example: you might create a folder named "LD PDA Variable Lists" at c:\LD PDA Variable Lists

You enter this folder name when you set the location of your Variable Lists in the Conduit Configuration.

Format of the sub-folder structure – because you may have many variable lists associated with many different PLC programs and the SNF file format used by Variable Lists does not include the target PLC program name, it is necessary to tell the Logic Developer PDA what PLC program name you wish to associate with a particular set of Variable List SNF files. This is done through the name of subfolders placed under the Master Variable Lists Location folder specified above.

For each PLC program you wish to maintain Variable Lists on the PDA for, create a single sub-folder off of the Master Variable Lists Location. The subfolders should follow these rules

- Numbers and letters and underscore "_" characters only

- No spaces

- No "-" characters

- Max length = 7 characters. Longer program names will be truncated to the right 7 characters of the folder name. For example, MYPLCPROGRAM will be truncated to PROGRAM.

Warning

It is your responsibility to name your subfolders for each PLC program in such a way that they each have unique names, even when truncated to the right x characters if they are too long. Failure to do this can result in ambiguous names for your Variable Lists on the PDA.

Example: The user has PLC programs named PLC_PRG and MACHINE1 and creates a folder structure as shown below:

C:\LD PDA Variable Lists

PLC_PRG

MACHINE1

Format of Variable List Filenames

When you export Variable Lists from your PLC programming software package, you will give them a filename. The following rules apply to filenames:

- The filename MUST end in the extension *.snf, otherwise the LD-PDA conduit will not recognize them.

- Filenames should be chosen so they are unique between different lists.

- The maximum length of a Variable List file name without counting the *.snf extension is a function of the length of the folder you place the SNF file in.

- On the PDA, the maximum length for a variable list name is 32 characters total.

- On the PDA, Variable list names consist of the rightmost 7 characters of the folder name plus the character "-" plus the Variable List filename less the *.snf extension.

- Thus if you have a folder name that is 7 characters, then your maximum variable list filename length is 32 – 7 characters – 1 character for the "-" delimiter = 24 characters.

How Variable List File name and Folder name become a Variable List name on the PDA

As stated previously in this document, on the PDA, the Variable List Names take on the format:

VariableListFilename-PLCProgramName

Where:

VariableListFilename = the portion of an SNF filename to the left of the *.snf extension

PLCProgramName = the name of the sub folder the Variable List files are placed into.

Example:

User creates a folder named PLC_PRG with 2 variable list files in it named VarList1 and VarList2.

On the PDA, the resulting Variable Lists are

Varlist1-PLC_PRG

Varlist2-PLC_PRG

Setting Action for a Single Sync Session

If the user opens the Conduit Configuration Screen and sets the HotSync Action for LDPDA and then clicks OK on the Conduit Configuration Screen, the chosen HotSync action will only apply for the NEXT HotSync session. Subsequent HotSync sessions will use the Default Hotsync Action settings.

Setting the Default Sync Action

To set the Default Sync Action for the Logic Developer PDA conduit, go to the Conduit Configuration Screen and set the HotSync action to your preferred actions then check the box labeled "Mark the currently shown settings as the default Sync Action". Once you do this, the settings will be used for every HotSync session until you change them either for a single Hotsync session or change the defaults again.
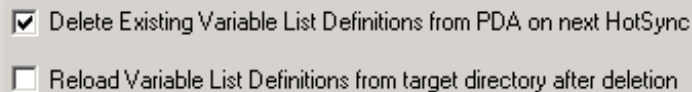
☐ Mark the currently shown settings as the default Sync Action

Deleting Variable Lists

There are 2 ways to delete variable lists from the PDA:

1. Individually on the PDA by running the LD-PDA application on the PDA and using the Manage Variable Lists function

2. Delete all Variable Lists from the PDA using the Logic Developer PDA conduit.

The 2nd method is discussed here. To delete all variable lists from the PDA during a Hotsync session, check the box on the Conduit Configuration Screen for "Delete Existing Variable List Definitions from PDA on next HotSync".

When the user checks this box, another selection on the Conduit Configuration Screen will become enabled that will allow you to have the Logic Developer PDA conduit reload all Variable Lists defined in your Variable List Location to the PDA. This feature is useful if you need to reload the PDA for any reason. To enable this feature for a sync session, check the box labeled "Reload Variable List Definitions from target directory after deletion" on the Conduit Configuration Screen.

> **Warning**
>
> Do NOT set the action to Delete Existing lists and then also mark the currently shown settings as the default unless you wish to clear out the PDA's list of Variable Lists on EVERY HotSync session.

Importance of PDA and PC Date/Time Settings When HotSync Action is set to "Synchronize the Files"

When you edit a Variable List on LD-PDA using the Manage Variable lists function, the PDA Date/Time is used to mark the last edit time on the Variable List in the PDA.

The Logic Developer PDA Conduit depends on comparisons of the date/time stamp on Variable Lists in the PDA and on the computer you are Hotsyncing with in order to determine which Variable List is newer (PDA or PC) and whether or not to transfer the Variable List during a Hotsync session.

When the Logic Developer PDA Conduit transfers a variable list to the PDA, after the file is transferred to the PDA, it insures that the date/time stamp on the PDA is set to match that of the source file on the PC. It does the same when transferring from the PDA to the PC.

Through this process, when the Hotsync Action in the Logic Developer PDA conduit is set to "synchronize the files", the conduit should only transfer Variable Lists from the PC to PDA or PDA to PC when the date/time stamps differ. The newer date/time stamp determines which file is newer and thus whether the Variable List is copied PDA to PC or PC to PDA.

Note

> If the Hotsync Action is set to "Desktop Overwrites Handheld" or
> "Handheld Overwrites Desktop", then the date/time stamps are ignored and
> all Variable Lists are handled according to the Hotsync Action.

For these reasons, if the user wants to minimize the duration of their Hotsync sessions, they may wish to insure that the time on their PDA matches that on their computer or laptop.

Recognizing that it can be difficult to maintain time synchronization between your PDA and the user's computer, it is important to note that the only harm caused by a time mismatch will be

1. A longer Hotsync time if due to a time mismatch LD-PDA conduit believes a file is newer on the PDA or PC when it really is not.

2. Failure to transfer a Variable List that has been edited from the PDA to the PC or overwriting of newer lists on the PDA by what are actually older lists on PC because although you know you have changed it on the PDA, the PDA time is behind the PC and thus the conduit believes the files on the PC are newer than those on the PDA.

Example:

For example, if your PDA clock is set to 12:40 PM, and your PC is at 12:45 PM. You edit a Variable List on the PC at 12:46 PM on your PC and thus that SNF file is time stamped 12:46 PM. Then you edit the same variable list at 12:42 PM on the PDA which causes LD-PDA to set the timestamp on that list to 12:42 PM. You expect that your changes on the PDA which you made AFTER you made changes on the PC will overwrite those on the PC. However, during the Hotsync session, LD-PDA conduit sees that the Variable List on the PC has a timestamp of 12:46 PM and it overwrites the Variable List on the PDA which has an older timestamp of 12:42 PM.

3. Failure to transfer a Variable List that has been edited from the PC to the PDA or overwriting of newer lists on the PC by what are actually older lists on PDA because although the user knows they have changed the list on the PC, the PC time is behind the PDA and thus the conduit believes the files on the PDA are newer than those on the PC.

Example:

For example, if your PDA clock is set to 4:20 PM, and your PC is at 3:20 PM because local time just reverted from daylight savings time to standard time and your PC reset but your PDA did not (because you did not have that setting enabled in your PDA preferences).

You edit a Variable List on your PDA at 4:20 PM (which is really 3:20 PM but your PDA clock is wrong). The Variable List on the PDA is time stamped 4:20 PM. Then you edit the same Variable List on the PC at 3:20 PM on your PC and thus that SNF file is time stamped 3:20 PM. You expect that your changes on the PC which you made AFTER you made changes on the PDA will overwrite those on the PDA. However, during the Hotsync session, LD-PDA conduit sees that the Variable List on the PDA has a timestamp of 4:20 PM and it overwrites the Variable List on the PC that has an older timestamp of 3:20 PM.

To minimize the risks of these types of issues, the user should:

- Periodically check that the time on their PDA matches that on their PC and adjust times as necessary.

- The user may wish to in their PDA preferences set the PDA to follow daylight savings time changes to prevent problems that seasonally occur two times a year.

- Be careful if they regularly change the clock on a laptop or in their PDA because they are traveling to different time zones.

Before contacting GE Fanuc Technical support regarding problems with Variable Lists being over-written or not transferring in the right direction (PDA to PC or PC to PDA), the user should take care to insure that they do not have a time synchronization mismatch problem between their PDA and PC clocks.
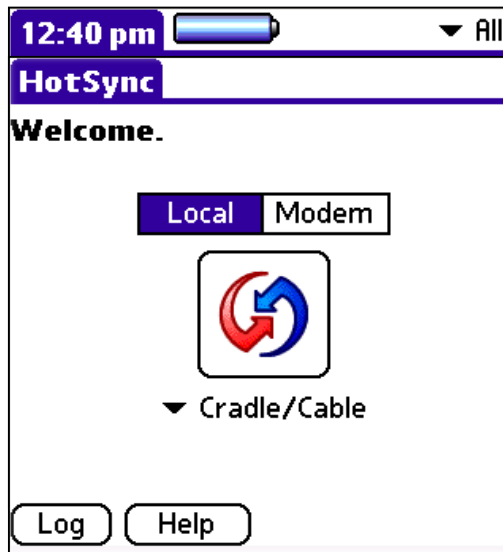
HotSync Operations

Performing a Hotsync operation

For full detailed instructions on performing regular Hotsync operations please refer the documentation that came with your PDA hardware.

To perform a Hotsync operation, the Palm Hotsync manager should be running and visible in the system tray on your PC with the icon shown here.

Connect your PDA to your PC using either a Hotsync cable or your desktop cradle or other means you may have chosen for your Hotsync operations.

From the desktop on your PDA tap on the Hotsync icon shown below:

The Hotsync manager will start with the screen shown below.   Make the necessary settings and tap the Hotsync icon to start the Hotsync operation.

Note

Since you must exist the LD-PDA application on the PDA to start the Hotsync manager, the LD-PDA application will not be communicating with the PLC while you Hotsync.

Performance Expectations

Large Variable Lists can take a several seconds to transfer from the PC to PDA or back. During that time, it is best not to interrupt the Hotsync operation. For example, a Variable List with 1600 variables can take a minute or more to transfer depending upon the speed of the serial RS-232 connection between your PDA and your PC.

HotSync Errors

If errors occur during a HotSync session, they will be logged to a standard log file that the Palm Hotsync manager uses. To access the HotSync error log, right click on the HotSync manager icon in your system tray and click "View Log". The screen below will appear and any errors encountered by the Logic Developer PDA conduit will be logged. You may be asked to provide information from this log file during technical support calls.

Below is a list of common error messages that the LD-PDA Conduit may generate in the HotSync Errors Log. The errors generated by the LD-PDA conduit attempt to be as descriptive as possible. This is accomplished by including data from your SNF files that caused problems, filenames, directory names and the like. In the sample messages below, variables are used as described below.

Variable names used in the sample HotSync errors listed on this page

Variable	Meaning
FileName or SNFFileName	The name of an SNF file on the PC that had a problem during a Hotsync operation
FullRecord	Displays a full single line (record) of an SNF file when there was a problem with that line.
PDBName or RemoteDBName	The name of a Palm Database File (PDB file) that had problems during the Hotsync operation. PDB files are on your PDA – each SNF file you Hotsync has an associated PDB file.
DirectoryName	The name of a directory on your PC where a problem occurred during a Hotsync operation
Type	A data type value from the DataType field in an SNF file.
OFFSET	A location in a specific PLC memory table – i.e. in the location %R005, the value 5 is the OFFSET and %R is the ADDRESS as used in the LD-PDA conduit error messages
ADDRESS	A PLC memory type (i.e. %I, %Q, etc)
InvalidCharacter	Used in errors related to an invalid directory name for the Variable List Location - displays the invalid character.

Error Message Details

Error Message:	Possible causes and resolution
LogicDeveloperPDAConduit Error: File FileName is Empty	Request to Hotsync file with an SNF file that is empty. Check the contents file specified by FileName.
LogicDeveloperPDAConduit Error: File FileName Doesn't have Valid Field Names FullRecord and file was not synchronized	The SNF file specified by FileName does not have valid columns for an SNF file. The header line with the field names is shown in Full Record. Check the contents file specified by FileName.
LogicDeveloperPDAConduit Error: Invalid Field Value: FullRecord	One or more of the fields in a record in the SNF file has an invalid value – inspect the contents of FullRecord
LogicDeveloperPDAConduit Error: ADDR Field Not Found FullRecord	In the SNF file record FullRecord, the ADDR field is not found – this is a required field. Inspect your SNF file and correct and/or regenerate it from your PLC programming software.
LogicDeveloperPDAConduit Error: PT_ID and ADDR Fields are NULL: FullRecord	In the SNF file record FullRecord, the PT_ID and ADDR fields are empty – both fields cannot be empty. Inspect your SNF file and correct and/or regenerate it from your PLC programming software.
LogicDeveloperPDAConduit Error: Unable to Add Record: FullRecord	An error occurred when adding a record to your PDA – check the available memory on your PDA and check the contents of the displayed SNF file record that failed to insure it is a valid record.
LogicDeveloperPDAConduit Error: Invalid PDB Name from PDA: PDBName	A Variable List on the PDA that was requested to be Hotsynced to the PC has a filename that does not meet the filename requirements.
LogicDeveloperPDAConduit Error: Unable to Create new Directory on PC DirectoryName it Contains InvalidCharacter char	The Variable List Location chosen by the user does not meet the directory name requirements for Variable Lists. Correct Directory name and re-run the HotSync session.
LogicDeveloperPDAConduit Error: ADDR field Can't have more then one comma: FullRecord	Inspect your SNF file and correct and/or regenerate it from your PLC programming software.
LogicDeveloperPDAConduit Error: Invalid Data Type Type	In the Data Type field in an SNF record, an invalid data type was included. Inspect your SNF file and

Error Message:	Possible causes and resolution
	correct and/or regenerate it from your PLC programming software.
LogicDeveloperPDAConduit Error: OFFSET is invalid: OFFSET	Inspect your SNF file and correct and/or regenerate it from your PLC programming software.
LogicDeveloperPDAConduit Error: Memory segment is invalid: ADDRESS	Inspect your SNF file and correct and/or regenerate it from your PLC programming software.
LogicDeveloperPDAConduit Error: Unable to Create new Directory on PC DirectoryName it Contains InvalidCharacter char	This error will occur if a Variable List name on the PDA contains a program name (which is used to make the Directory name on the PC) that does not meet the directory name requirements. Fix the variable list name on the PDA and re-run the Hotsync session.
LogicDeveloperPDAConduit Error: Invalid PDB Name from PDA: PDBName	Check the Variable List name under Manage Variable Lists in LD-PDA on your PDA to see if the Variable List name meets the file name requirements. Correct on the PDA and re-run the Hotsync session.
LogicDeveloperPDAConduit Error: Unable to Create new Directory on PC DirectoryName	Check the Variable List name under Manage Variable Lists in LD-PDA on your PDA to see if the program name used in the Variable List name meets the directory name requirements. Correct on the PDA and re-run the Hotsync session.
LogicDeveloperPDAConduit Error: Skipping The Directory on PC DirectoryName: Contains Space	Check the Variable List name under Manage Variable Lists in LD-PDA on your PDA to see if the program name used in the Variable List name meets the directory name requirements. Correct on the PDA and re-run the Hotsync session.
LogicDeveloperPDAConduit Error: Skipping The Directory on PC DirectoryName: Contains – character	Check the Variable List name under Manage Variable Lists in LD-PDA on your PDA to see if the program name used in the Variable List name meets the directory name requirements. Correct on the PDA and re-run the Hotsync session.
LogicDeveloperPDAConduit Error: DirectoryName on PC directory does not have any SNF files	Check the contents of the directory named DirectoryName on the PC – if no SNF files are present then nothing

Error Message:	Possible causes and resolution
	will be HotSynced from this directory until SNF files are present. Re-export any SNF files needed in this directory from your PLC Programming Software and re-run the Hotsync session.
LogicDeveloperPDAConduit Error: Invalid File Name SNFFileName under DirectoryName on PC directory	Inspect the filename specified and correct filename to meet Variable List filename requirements and re-run Hotsync session.
LogicDeveloperPDAConduit Error: Fail in getting SNF file list on PC	Check to see if SNF files are present on the PC in the directory specified for Variable Lists. .If SNF files are present then the user may have placed the SNF files in a folder that has access rights restricted to a user other than the presently logged in user. You may want to check with other users of your PC to see if you have access rights to read the files. This can particularly be an issue if you are on NT/2000/XP and are referencing a network directory for your variable list SNF files.
LogicDeveloperPDAConduit Error unable to delete file on PDA : RemoteDBName	During a "clear all" operation where the user has told the LD-PDA conduit to delete Variable Lists, attempts to delete a variable list on the PDA failed. This could be because the Variable List has already been deleted or a sophisticated Palm user has used a 3rd party utility to set read-only bits on files.
LogicDeveloperPDAConduit Error: Registry Error, Unable to Reset DeleteSnfPDBs key	Reinstall LD-PDA Conduit. If on Windows NT/2000/XP, insure that you have administrative rights.
LogicDeveloperPDAConduit Error: Registry Error, Unable to read DeleteSnfPDBs key value	Reinstall LD-PDA Conduit. If on Windows NT/2000/XP, insure that you have administrative rights.
LogicDeveloperPDAConduit Error:Unable to Open Browse Dialog, User can't select the SNF directory. But user can directly type SNF file directory path.	Reinstall LD-PDA Conduit. If on Windows NT/2000/XP, insure that you have administrative rights.
LogicDeveloperPDAConduit Error: Registry Error, Unable to open SOFTWARE\SNF key	Reinstall LD-PDA Conduit. If on Windows NT/2000/XP, insure that you have administrative rights.

Frequently Asked Questions

What is HotSync ?

From the Palm Desktop Manager manual, it defines a HotSync as:

A HotSync operation is a two-way synchronization of records between your handheld and your computer. Changes that you make on your handheld or your computer are updated on both platforms after a HotSync operation. You can also install applications and data from your computer to your handheld or to a Palm OS® compatible expansion card during a HotSync operation.

To perform a HotSync operation, HotSync Manager must be running. HotSync Manager is an independent application that oversees the HotSync operation. HotSync Manager monitors your computer's serial port, USB port, IR (infrared) port, and/or modem, and listens for a HotSync command from your handheld.

Copyright © 1997-2000 Palm, Inc. or its subsidiaries. All rights reserved.

How do I connect my PDA to the PC for a Hotsync?

In general, you connect your PDA to the PLC using a combination of a standard, off-the-shelf Palm HotSync cable, a null-modem adapter, and a standard, off-the-shelf GE Fanuc PLC programming cable. See topic Connecting your PDA to a GE Fanuc PLC in this manual for more information.

What software is needed on my PC in order to Hotsync?

The Palm Desktop Manager must be installed on your PC before you can use the LD-PDA conduit. Your Palm PDA should have come with this application. If you are able to Hotsync your Palm to your PC to transfer address book data, memo pad data etc, then you have this application installed. If you are not able to locate the Palm Desktop Manager CD that came with your PDA, the software can be downloaded free from http://www.palm.com/support

To be more specific, the part of the Palm Desktop Manager that the Logic Developer PDA Conduit uses is the Hotsync Manager. At this time, the Logic Developer PDA conduit supports HotSync Manager version 3.0.3 or higher. To find out what version of Hotsync Manager you have, click on the HotSync icon in your system tray and select "About". This will bring up the screen below that shows your version of Hotsync Manager.

    Palm Hotsync Icon shown in PC system tray

What is a conduit ?

A conduit is a program that works with the Palm Hotsync manager to perform customized file transfers between an application on your PDA and your desktop PC. When you install the Palm Desktop software on your PC, a set of default conduits are installed that handle the PDA's address book, memo pad, and other data for the default PDA applications. For applications that are not loaded on the PDA at the factory, they can rely on the default Palm Hotsync conduits for backup of data or supply their own custom conduit. The Logic Developer PDA is a custom conduit that takes Variable List data on the PDA and stores it on the PC in *.snf file format and takes *.snf files from the PC and loads them on the PDA as Variable Lists.

Is there a limit on how many Variable Lists you can load on the PDA ?

The practical limit is the available memory on your PDA.   The size of a variable list is a function of the length of the variable names and descriptions in your Variable Lists. Some sample variable list sizes

Default_Var_List-DefPrg – the default list that comes with LD-PDA: has 58 records and uses 5536 bytes on the PDA

A 239 record sample list used 13,728 bytes

A 1671 record sample list used 126,556 bytes

Can the LD-PDA conduit load Variable Lists onto Expansion Memory cards in my PDA ?

No it cannot. Variable Lists must be stored in the Palms main battery backed ram in order for the LD-PDA application to use them.

Are the Default Hotsync settings applicable to all users or just one ?

When you set the Default settings for the LD PDA Conduit, those settings apply only to the current Palm User name. If you have multiple Palm User names on a single PC that you HotSync to multiple PDAs, the LD-PDA settings are unique for each one and may be different for each PDA that you HotSync to your PC.

Can I have different Hotsync settings for different named Palm users if I own multiple Palms and want to Hotsync them to the same PC ?

Yes.

I edited a Variable List on my PDA after the last edit on the PC but during a Hotsync session the edited file on the PDA was overwritten by one on the PC

Most likely, the clock on the PC is ahead of the clock in the PDA. See the topic "Importance of PDA and PC Date/Time Settings When HotSync Action is set to 'Synchronize the Files'" in this manual for help.

I edited a Variable List on my PC after I edited it on the PDA but during a Hotsync session the edited file on the PC was overwritten by one on the PDA

Most likely, the clock on the PDA is ahead of the clock in the PC. See the topic "Importance of PDA and PC Date/Time Settings When HotSync Action is set to 'Synchronize the Files'" in this manual for help.

My hotsync sessions take a long time. If I disable LD-PDA conduit, the speed of the Hotsync session improves.

Large Variable Lists can take a long time to transfer. Also the more Variable Lists you have on your PDA, the longer your hotsync time can be IF changes are made. If you have a time mismatch between your PDA and PC under some circumstances, unnecessary transfers of Variable Lists can occur.

See topics "Peformance Expectations" and "Importance of PDA and PC Date/Time Settings When HotSync Action is set to 'Synchronize the Files'" for more information on this topic.

There are *.bak files created in the directories where my *.snf files are located – what are those files for ?

The LD PDA Conduit makes a backup of your *.snf files on the PC before it overwrites them during Hotsync operations. The backup file has a *.bak extension instead of a *.snf extension.