



DIMETRATM

DIMETRA IP Compact (DIPC)/Scalable DIMETRA IP (SDIP) Release 3.0 onwards
DIMETRA IP Scalable (DIPS) Release 5.0 onwards
DIMETRA IP Micro (DIPM)/DIMETRA LiTE Release 3.0 onwards

DIMETRA KVL 4000 Air Interface Encryption and Authentication FLASHport Upgrade User Guide

AUGUST 2017

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	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr ⁶⁺)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
金属部件	×	○	×	×	○	○
电路模块	×	○	×	×	○	○
电缆及电缆组件	×	○	×	×	○	○
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Contact Details

Email: essc@motorolasolutions.com

Table 1: List of Telephone Numbers

Country	In Country Number to Dial
Austria	01206091087
Denmark	043682114
France	0157323434
Germany	06950070204
Italy	0291483230
Lithuania	880 030 828
Netherlands	0202061404
Norway	24159815
Portugal	0217616160
Russia	810 800 228 41044 (Alternative 810 800 120 1011)
Saudi Arabia	800 844 5345
South Africa	0800981900
Spain	0912754787
United Kingdom	02030 277499
All Other Countries	+44 2030 277499

European Systems Component Center (ESCC)

The European Systems Component Center provides a repair service for infrastructure equipment. Customers requiring repair service should contact the Customer Information Desk to obtain a Return Material Authorization number. The equipment should then be shipped to the following address unless advised otherwise.

Motorola Solutions GmbH, European Systems Component Center, Am Borsigturm 130,13507 Berlin, Germany.

Contact Details

- E-Mail: escc.admin@motorolasolutions.com
- Telephone: +49 (0) 30 66861404
- Telefax: +49 (0) 30 66861426
- Monday to Friday 08:00 am to 06:00 pm (CET)

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Document History

Edition	Description	Date
MN000397A01-A	Initial version	August 2014
MN000397A01-B	Added/updated the following sections: <ul style="list-style-type: none"><li data-bbox="493 470 1084 499">• “Running the KVL Software Installation Wizard”<li data-bbox="493 512 1084 575">• “Applying Enhanced Security Settings Through the KVL Software Installation Wizard”<li data-bbox="493 588 1105 651">• “Applying Transparent Security Settings Through the KVL Software Installation Wizard”<li data-bbox="493 663 1089 726">• “Setting Up the PDA for Connection with a Windows 10 PC”	August 2017

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Name:	RAPI2
Version:	1.2
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Name:	NLOG
Version:	2.0
Description:	NLog is a logging platform for .NET with rich log routing and management capabilities. It makes it easy to produce and manage high-quality logs for application.

Table continued...

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<http://nlog-project.org>

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PUBLICLY AVAILABLE SOFTWARE LIST – PDA

Name: NLOG

Version: 2.0

Description: NLog is a logging platform for .NET with rich log routing and management capabilities. It makes it easy to produce and manage high-quality logs for application.

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Name: Smart Device Framework - Community Edition

Version: 2.3.12004

Description: Extensions, to the NET Compact Framework core libraries, which enables calls to OS services.

Software Site: <http://www.opennetcf.com/Products/SmartDeviceFramework.aspx>

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Name: OpenNETCF Serial Library

Version: 1.0

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Version:	N/A
Description:	This Package was included by Commercial Third Party Software Development Kit, from WindRiver-Interpeak, within the Motorola Product. Copyright 2000-2005 Interpeak AB (http://www.interpeak.se). All rights reserved.
Software Site:	http://www.openbsd.org
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Author: Tatu Ylonen <ylo@cs.hut.fi>

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Functions for manipulating fifo buffers (that can grow if needed).

As far as I am concerned, the code I have written for this software can be used freely for any purpose. Any derived versions of this software must be clearly marked as such, and if the derived work is incompatible with the protocol description in the RFC file, it must be called by a name other than "ssh" or "Secure Shell".

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sccl.c, vscanf.c

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stdint.h

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About DIMETRA KVL 4000 Air Interface Encryption and Authentication FLASHport Upgrade User Guide

This manual provides instructions for upgrading/reinstalling the KVL application, upgrading the Security Adapter software, and applying security settings on the KVL.

What Is Covered in This Manual?

This manual covers the following topics:

- [Performing Upgrades on page 35](#)
- [Security Settings on page 39](#)
- [Troubleshooting on page 43](#)
- [Interface Cables on page 45](#)

Helpful Background Information

Motorola Solutions offers various courses designed to assist in learning about the system. For information, go to <http://www.motorolasolutions.com/training> to view the current course offerings and technology paths.

Related Information

Refer to the following documents for associated information about the radio system.

Related Information	Purpose
Glossary	The glossary provides a list of abbreviations, acronyms and terms used in the DIMETRA IP documentation.
System Overview	This manual provides basic radio system concepts, call processing basics, and an introduction to the various components and processes associated with the DIMETRA IP system. The manual provides the background needed to comprehend the theory of operation and it provides equipment/subsystem functional descriptions. It also describes the role of the numerous network management software applications used for managing the system.
<i>DIMETRA KVL 4000 Air Interface Encryption and Authentication User Guide</i>	This manual provides instructions for using the KVL 4000 Key Variable Loader to perform Air

Table continued...

Related Information	Purpose
<i>DIMETRA KVL 4000 Authentication User Guide</i>	Interface Encryption and Authentication operations in Motorola Solutions DIMETRA systems.
<i>DIMETRA KVL 4000 AIEA/Auth Quick Start Guide</i>	This manual provides instructions for using the KVL 4000 Key Variable Loader to perform Authentication operations in Motorola Solutions DIMETRA systems.
<i>MC55 Enterprise Digital Assistant User Guide</i>	Provides basic information on KVL 4000 for DIMETRA Air Interface Encryption and Authentication.
<i>MC55 Quick Start Guide</i>	Describes how to use the MC55 EDA.
<i>Managing Authentication, Encryption, and Provisioning</i>	Describes how to get the MC55 EDA up and running.
<i>Authentication Centre (AuC) User Manual</i>	This manual discusses management of the DIMETRA IP system's Authentication and Air Interface Encryption feature. The purpose of this manual is to provide you with the knowledge and procedures necessary to successfully manage DIMETRA IP secure authentication and air interface encryption operations in both the DIMETRA IP radio system infrastructure and subscriber units. This manual is applicable to DIMETRA IP R8.0 or earlier.
<i>CryptR Instruction Manual</i>	This manual contains the installation, configuration and operation procedures for the Authentication Centre (AuC). It contains reference information and detailed descriptions of the GUI. This manual is applicable to DIMETRA IP R8.1 or later.
<i>Provisioning Centre (PrC) User Manual</i>	This manual covers hardware installation, main end-user operations and a proper maintenance of a range of devices based on the CryptR hardware platform.
<i>Provisioning Centre (PrC) User Manual</i>	This manual is intended for users of the Provisioning Centre (PrC) - a Client/Server and database application on the DIMETRA system.

Icon Conventions

The documentation set is designed to give the reader more visual clues. The following graphic icons are used throughout the documentation set.



DANGER: The signal word DANGER with the associated safety icon implies information that, if disregarded, will result in death or serious injury.



WARNING: The signal word WARNING with the associated safety icon implies information that, if disregarded, could result in death or serious injury, or serious product damage.



CAUTION: The signal word CAUTION with the associated safety icon implies information that, if disregarded, may result in minor or moderate injury, or serious product damage.

CAUTION: The signal word CAUTION may be used without the safety icon to state potential damage or injury that is not related to the product.



IMPORTANT: IMPORTANT statements contain information that is crucial to the discussion at hand, but is not CAUTION or WARNING. There is no warning level associated with the IMPORTANT statement.




NOTICE: NOTICE contains information more important than the surrounding text, such as exceptions or preconditions. They also refer the reader elsewhere for additional information, remind the reader how to complete an action (when it is not part of the current procedure, for instance), or tell the reader where something is on the screen. There is no warning level associated with a notice.

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Style Conventions

The following style conventions are used:

Convention	Description
Bold	This typeface is used for names of, for instance, windows, buttons, and labels when these names appear on the screen (example: the Alarms Browser window). When it is clear that we are referring to, for instance, a button, the name is used alone (example: Click OK).
Monospacing font	This typeface is used for words to be typed in exactly as they are shown in the text (example: In the Username field, type Admin). This typeface is used for messages, prompts, and other text displayed on the computer screen (example: A new trap destination has been added).
<i><Monospacing font in bold Italic></i>	This typeface is used with angle brackets as placeholders for a specific member of the group that the words represent (example: <i><router number></i>).  NOTICE: In sequences to be typed in, the angle brackets are omitted to avoid confusion whether to include the angle brackets in the text to be typed.
CAPITAL LETTERS	This typeface is used for keyboard keys (example: Press Y, and then press ENTER).
<i>Italic</i>	This typeface is used for citations. A citation usually is the name of a document or a phrase from another document (example: <i>DIMETRA IP System Overview</i>).
→	An → (arrow pointing right) is used for indicating the menu or tab structure in instructions on how to select a certain menu item (example: File → Save) or a certain sub-tab.

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Chapter 1

Performing Upgrades

1.1

Obtaining Upgrades

When and where to use: Follow this procedure to obtain upgrades for the KVL application and the Security Adapter.

Procedure:

- 1 Place an order with Motorola Solutions to receive a KVL 4000 upgrade. You will receive a CD containing the KVL Software Installation Wizard, KVL Application software, and Security Adapter software.
- 2 To upgrade/reinstall the KVL Application and copy the Security Adapter software upgrades onto the PDA, follow [Running the KVL Software Installation Wizard on page 35](#).

1.2

Running the KVL Software Installation Wizard

By running the KVL Software Installation Wizard, you can upgrade/reinstall the KVL Application, copy Security Adapter software upgrades onto the PDA, apply Enhanced Security Settings, and install patches, ActiveSync software, and Windows Mobile Device Center software, depending on the content of the CD.

Prerequisites:

Obtain the USB Programming Cable.

For Windows XP, ensure that Microsoft ActiveSync is installed on your PC.

For Windows Vista, Windows 7, Windows 8, or Windows 10, ensure that Microsoft Windows Mobile Device Center is installed on your PC.

Procedure:

- 1 If the KVL Application software is running, exit or log out and exit the KVL Application.
- 2 Disconnect the Security Adapter from the PDA.
- 3 Connect the PDA to the PC using the USB Programming Cable.

Figure 1: PDA and PC – Connected



For Windows XP, the ActiveSync application starts.

For Windows Vista, Windows 7, Windows 8, or Windows 10, the Windows Mobile Device Center starts.

If ActiveSync or Windows Mobile Device Center does not start, ensure that the PDA is set to the **USB OTG** mode. See [Setting the PDA to the USB OTG Mode on page 43](#). If ActiveSync or Windows Mobile Device Center still does not start, launch the application manually from your PC.

For Windows 10, if the `Device is not connected` message appears, set up the PDA for connection with a Windows 10 PC. See [Setting Up the PDA for Connection with a Windows 10 PC on page 44](#).

- 4 Insert the CD provided by Motorola Solutions and run the `Setup.exe` file to start the KVL Software Installation Wizard.

The **End User License Agreement** screen appears.

- 5 Click **Accept** and follow instructions on the consecutive screens.

During the installation, the PDA may restart several times. If the PDA is password protected, you need to enter the password and tap **Unlock** after each restart.



IMPORTANT: If a prompt to disconnect and reconnect the USB Programming Cable appears, disconnect and reconnect the USB Programming Cable, and click **OK**. If the PDA is password protected, enter the password and tap **Unlock**.

- 6 When the installation is completed, exit the KVL Software Installation Wizard.
- 7 Disconnect the USB Programming Cable from the PDA.
- 8 Connect the Security Adapter to the PDA.

If the Security Adapter is not detected automatically, ensure that the PDA is set to the **USB OTG** mode. See [Setting the PDA to the USB OTG Mode on page 43](#).

- 9 If you wanted to upgrade/reinstall the KVL application, the procedure is complete. To upgrade the Security Adapter software, go to [Upgrading the Security Adapter on page 37](#).

1.3

Copying Upgrades from the PDA to the Security Adapter

Procedure:

- 1 Launch the KVL application. If your KVL uses password protection, log on as an Administrator.
If at least one upgrade for the Security Adapter or a target's crypto module is available, the **Upgrades available** screen appears.
If no upgrades are available, the KVL main screen appears.
- 2 Log on to the KVL application as an Administrator.
If at least one upgrade for the Security Adapter software is available, the **Upgrades available** screen appears. Otherwise, the KVL main screen appears.
- 3 Select **Yes, allow access**.
The upgrade image is copied from the PDA onto the Security Adapter. If there already is an upgrade image on the Security Adapter, the upgrade image is overwritten.
- 4 On the confirmation screen, tap **Done**.

Related Links

[Upgrading the Security Adapter](#) on page 37

1.4

Upgrading the Security Adapter

Prerequisites:

Copy upgrades onto the Security Adapter. See [Copying Upgrades from the PDA to the Security Adapter on page 37](#).

If your KVL uses password protection, log on as an Administrator.

Procedure:

- 1 Connect the KVL to the power supply.
- 2 On the KVL main screen, select **Settings** → **Upgrade** → **Upgrade this KVL** → **Upgrade Now**.
- 3 When the upgrade process is complete, tap **Done**.
- 4 On the **Licensing agreement** screen, if you accept the agreement, select **Accept**.
The KVL main screen appears.

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Chapter 2

Security Settings

By default, the KVL uses Transparent Security Settings. If required by your organization's policies, apply Enhanced Security Settings on your KVL.

2.1

Applying Enhanced Security Settings Through the KVL Software Installation Wizard

Applying Enhanced Security Settings causes the KVL to:

- prevent installation and launching of any unsigned applications
- disable the use of wireless modem (Bluetooth and WiFi are disabled)
- require you to set a password on the Operating System

Prerequisites:

Ensure that you have the USB Programming Cable.

For Windows XP, ensure that Microsoft ActiveSync is installed on your PC.

For Windows Vista, Windows 7, Windows 8, or Windows 10, ensure that Microsoft Windows Mobile Device Center is installed on your PC.

When and where to use: By default, the KVL uses Transparent Security Settings. If required by your organization's policies, follow this procedure to apply Enhanced Security Settings.

Procedure:

- 1 If the KVL Application software is running, exit or log out of the KVL.
- 2 Disconnect the Security Adapter from the PDA.
- 3 Connect the PDA to the PC using the USB Programming Cable.

Figure 2: PDA and PC – Connected



For Windows XP, the ActiveSync application starts.

For Windows Vista, Windows 7, Windows 8, or Windows 10, the Windows Mobile Device Center starts.

If ActiveSync or Windows Mobile Device Center does not start, ensure that the PDA is set to the **USB OTG** mode. See [Setting the PDA to the USB OTG Mode on page 43](#). If ActiveSync or Windows Mobile Device Center still does not start, launch the application manually from your PC.

For Windows 10, if the `Device is not connected` message appears, set up the PDA for connection with a Windows 10 PC. See [Setting Up the PDA for Connection with a Windows 10 PC on page 44](#).

- 4 Insert the CD provided by Motorola Solutions and run the `Setup.exe` file to start the KVL Software Installation Wizard.

The **End User License Agreement** screen appears.

- 5 If you accept the agreement, click **Accept**.
- 6 In the window that appears, select the check box next to **Your device is using Transparent Security Settings (default)**, and click **Next**. The Enhanced Security Settings will be applied after the KVL application reinstallation/upgrade.

During the process, the PDA may restart several times. If the PDA is password protected, you need to enter the password and tap **Unlock** after each restart.



IMPORTANT: If a prompt to disconnect and reconnect the USB Programming Cable appears, disconnect and reconnect the USB Programming Cable, and click **OK**. If the PDA is password protected, enter the password and tap **Unlock**.

When the process is completed, a message appears, asking you to configure your device according to the security policy.

- 7 Check your PDA screen and follow the instructions to renew your password settings.
- 8 When you have entered and confirmed the password on your PDA, click **OK** on the message on your PC.

The Enhanced Security Settings are applied successfully.

- 9 Click **Next** → **Exit** to close the KVL Software Installation Wizard.
- 10 Disconnect the USB Programming Cable from the PDA.
- 11 Connect the Security Adapter to the PDA.

If the Security Adapter is not detected automatically, ensure that the PDA is set to the **USB OTG** mode. See [Setting the PDA to the USB OTG Mode on page 43](#).

Related Links

[Running the KVL Software Installation Wizard on page 35](#)

2.2

Applying Transparent Security Settings Through the KVL Software Installation Wizard

Prerequisites:

Ensure that you have the USB Programming Cable.

For Windows XP, ensure that Microsoft ActiveSync is installed on your PC.

For Windows Vista, Windows 7, Windows 8, or Windows 10, ensure that Microsoft Windows Mobile Device Center is installed on your PC.

Procedure:

- 1 If the KVL Application software is running, exit or log out of the KVL.
- 2 Disconnect the Security Adapter from the PDA.
- 3 Connect the PDA to the PC using the USB Programming Cable.

Figure 3: PDA and PC – Connected



For Windows XP, the ActiveSync application starts.

For Windows Vista, Windows 7, Windows 8, or Windows 10, the Windows Mobile Device Center starts.

If ActiveSync or Windows Mobile Device Center does not start, ensure that the PDA is set to the **USB OTG** mode. See [Setting the PDA to the USB OTG Mode on page 43](#). If ActiveSync or Windows Mobile Device Center still does not start, launch the application manually from your PC.

For Windows 10, if the `Device is not connected` message appears, set up the PDA for connection with a Windows 10 PC. See [Setting Up the PDA for Connection with a Windows 10 PC on page 44](#).

- 4 Insert the CD provided by Motorola Solutions and run the `Setup.exe` file to start the KVL Software Installation Wizard.

The **End User License Agreement** screen appears.

- 5 If you accept the agreement, click **Accept**.
- 6 In the window that appears, clear the check box next to **Your device is using Enhanced Security Settings**, and click **Next**. The Transparent Security Settings will be applied after the KVL application reinstallation/upgrade.

During the process, the PDA may restart several times. If the PDA is password protected, you need to enter the password and tap **Unlock** after each restart.



IMPORTANT: If a prompt to disconnect and reconnect the USB Programming Cable appears, disconnect and reconnect the USB Programming Cable, and click **OK**. If the PDA is password protected, enter the password and tap **Unlock**.

- 7 When the process is completed, click **Next** → **Exit** to close the KVL Software Installation Wizard.

The Transparent Security Settings are applied successfully.

- 8 Disconnect the USB Programming Cable from the PDA.
- 9 Connect the Security Adapter to the PDA.

If the Security Adapter is not detected automatically, ensure that the PDA is set to the **USB OTG** mode. See [Setting the PDA to the USB OTG Mode on page 43](#).

Chapter 3

Troubleshooting

3.1

Operational Errors

This section lists upgrade operational errors along with their probable causes and remedies.

Table 2: Operational Errors


Error/Status Message	Probable Cause	Remedy
Unable to upgrade No upgrades are available at this time.	You have already used the number of unit upgrades that were purchased or you have not purchased any upgrades.	Purchase more upgrades.
Out of memory	The KVL internal database is full and cannot store any more data.	Delete any items stored in the KVL to make room for new data. This includes items such as unused keys and log records.
Error Access to upgrades failed. Upgrades could not be verified.	The upgrade image supplied to the KVL is corrupted or damaged.	Place another copy of the upgrade image onto the KVL and try again. If the problem persists, contact Motorola Solutions.
Upgrade failed. KVL Security Adapter was not responding.	The attempt to upgrade the Security Adapter has timed-out.	Detach and reattach the Security Adapter to the PDA and restart the KVL application. Retry the upgrade. If the problem persists, contact Motorola Solutions.

3.2

Setting the PDA to the USB OTG Mode

When and where to use: If the PDA does not automatically detect whether it should work in a Host mode (when connected to the Security Adapter) or in a Client mode (when connected to a PC), ensure that the PDA is set to the USB OTG mode.

Procedure:

- 1 On the **Today** screen, select .
- 2 Select **Settings** → **System** → **USBConfig**.
- 3 Select **USB OTG** to allow the KVL to auto-detect whether it is connected to the Security Adapter or a PC.



NOTICE: If the **USB OTG** option is not available, ensure that the SPR 17953 patch is installed.

Related Links

[Running the KVL Software Installation Wizard](#) on page 35

[Applying Enhanced Security Settings Through the KVL Software Installation Wizard](#) on page 39

[Applying Transparent Security Settings Through the KVL Software Installation Wizard](#) on page 41

3.3

Setting Up the PDA for Connection with a Windows 10 PC




IMPORTANT:

This procedure is not recommended for Windows versions prior to Windows 10.

Perform this procedure if you connected the PDA to a Windows 10 PC and the `Device is not connected` message appears on the KVL Software Installation Wizard.

Procedure:



- 1 On the **Today** screen, select .
- 2 Select **Settings** → **Connections** → **USB to PC**.
- 3 Clear the **Enable advanced network functionality** check box. Click **OK**.
- 4 If the Windows Mobile Device Center does not detect the PDA, restart the PDA.
- 5 At the error message, exit the KVL application.

Appendix A

Interface Cables

Table 3: Interface Cables

Item	Part Number	Used with
USB Programming Cable	25-108022-02	PDA to PC

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