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DEP Documentation

RSA Key Import In Keytable User Manual

Version Management Report

Version	Name(s)	Date	Comments
01.00	David Lheureux	17/08/2006	First version
01.01	David Lheureux	17/08/2006	After review
01.02	EGS	10/07/2009	Support the import of an RSA key encrypted with an AES transport key.
01.03	David Lheureux	15/10/2010	Review document and use the Atos Worldline logo.
04.00	Anna Papayan	05/04/2011	Change the template into Atos Worldline, minor changes.

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JURISDICTION AND APPLICABLE LAW

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1. SCOPE OF THE DOCUMENT

This document describes how to import RSA Keys into the DEP Crypto Module (RSA Key Pair and RSA Public Key) using the *RSA Key Import In Keytable* program.

The document doesn't explain the functionalities of the DEP libraries on which this program is based.

1.1. REFERENCES

This document contains references to other documents about the DEP. This paragraph gives a list of all the documents referred to:

- *DEP Host Interface Protocol*
- *DEP/NMS User Manual*
- *DEP/Linux User Manual*
- *DEP/T6 Owner Manual*

There are no references made to the following documents, but they could be useful to understand this document:

- *PKI Library for DEP - Reference DFS Manual*
- *DEP Introduction to DEP*
- *DEP General Architecture*
- *DEP Glossary*
- *DEP RSA Key Generation User Manual*

1.2. CONTACTING ATOS WORLDLINE

You can visit *Atos Worldline* on the World Wide Web to find out about new products and about various other fields of interest.
URL: www.atosworldline.com.

For the documentation visit http://www.banksys.com web page.

For support on issues related to DEP, customers, partners, resellers, and distributors can send an email to the DEP Hotline:
mailto:dephotline-atosworldline@atosorigin.com.

2. PURPOSE OF RSA KEY IMPORT IN KEYTABLE PROGRAM

The purpose of this program is to import RSA Keys into the DEP Crypto Module (RSA Key Pair and RSA Public Key) and put it in a specific TAG in the DEP Keytable.

The program is intended to be used on a PC (running on Microsoft Windows 2000, Windows XP and Windows Vista) that is connected to a DEP Platform loaded with a DEP Application Software that can import and store RSA Keys. It also can be added as a plug-in in *DEP/NMS* application.

3. USE OF RSA KEY IMPORT IN KEYTABLE

The installation procedure is reported to the *Annex A on page 13*.

3.1. PREREQUISITES

- The DEP Crypto Module must be unlocked;
- A valid DEP Application Software should be loaded on DEP Crypto Module;
- A DEP Application Software that supports the import of RSA Keys should be loaded on DEP Crypto Module;
- The **K_PKI_RSA_TRANSPORT_KEY** or the **K_PKI_RSA_TK_AES** transport key should be loaded in DEP Crypto Module depending on the export method to be chosen (DES or AES);
- The CAP_STD_SAVE_KEYS capability should be loaded in DEP Crypto Module;
- To use the RSA Key Import In Keytable application as a DEP/NMS plug-in, the USB License Dongle must be present.

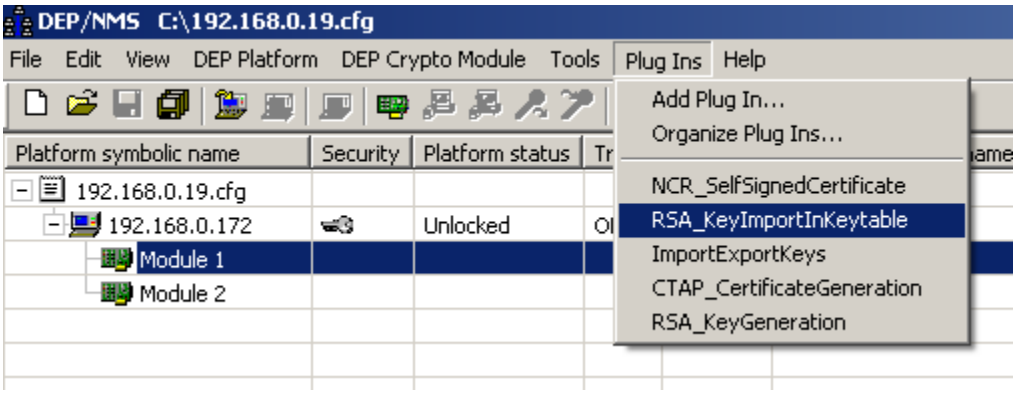
3.2. START-UP

The RSA Key Import In Keytable program can be launched by executing:

C:\Program Files\Atos Worldline\DEP_NMS_PlugIns\RSA Key Import In Keytable\RSA_KeyImportInKeytable.exe

This is the default path. Another path can also be defined during the installation (paragraph 4 on page 13).

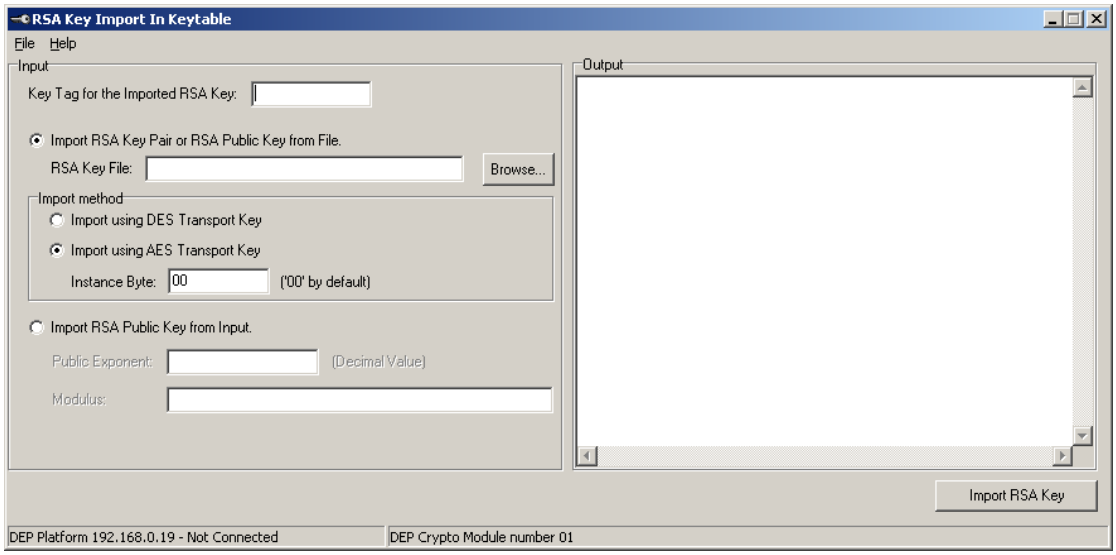
The application can also be launched directly from the *DEP/NMS* program. Select the appropriate DEP Crypto Module and run the *RSA_KeyImportInKeytable* plug-in from the **Plug Ins** menu.



Before starting the application, the communication must be defined (paragraph 3.4 on page 7).

3.3. DESCRIPTION

Once the *RSA Key Import In Keytable program* is started, the following window is opened:

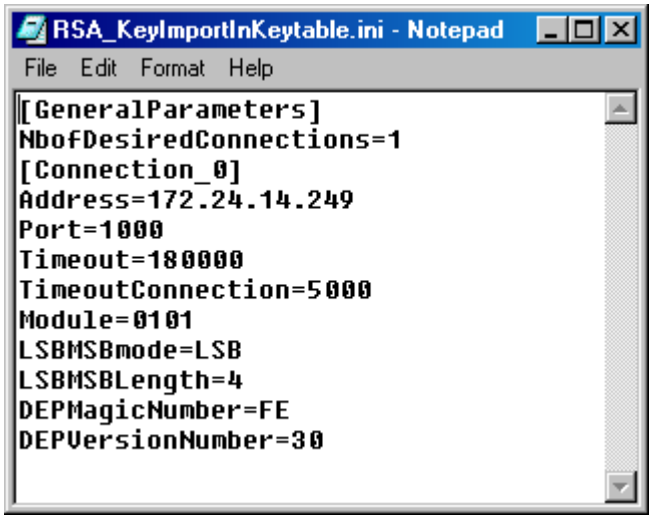


A menu at the top of the window allows to have a look at the program version (and also contact the DEP Hotline), the help files or to exit.
The *Input* section contains the list of parameters needed to import an RSA Key (see paragraph 3.5 on page 8). The *Output* section (blank part) will log the operations and their results.

3.4. COMMUNICATION

If the application is launched by the DEP/NMS the communication is automatically set by the *DEP/NMS* program.

If the application is used as stand-alone application, the user should set the general parameters and the connection settings in the *RSA_KeyImportInKeytable.ini* configuration file.



- *NbOfDesiredConnections* must be set to '1'.
- *Address* represents the IP address of the target DEP Platform.
- *Port* represents the TCP/IP port used for the communication with the DEP Platform.
- *TimeOut* represents in milliseconds the maximum waiting time for the response from the DEP Crypto Module.
- *TimeOutConnection* represents in milliseconds the maximum waiting time for establishing a connection.
- *Module* represents the DEP Crypto Module used to import an RSA Key: the first byte will be always '01' and the second byte defines the target module: '01' to '04'.
- The four last parameters are described in the DEP Documentation (*DEP Host Interface Protocol)*

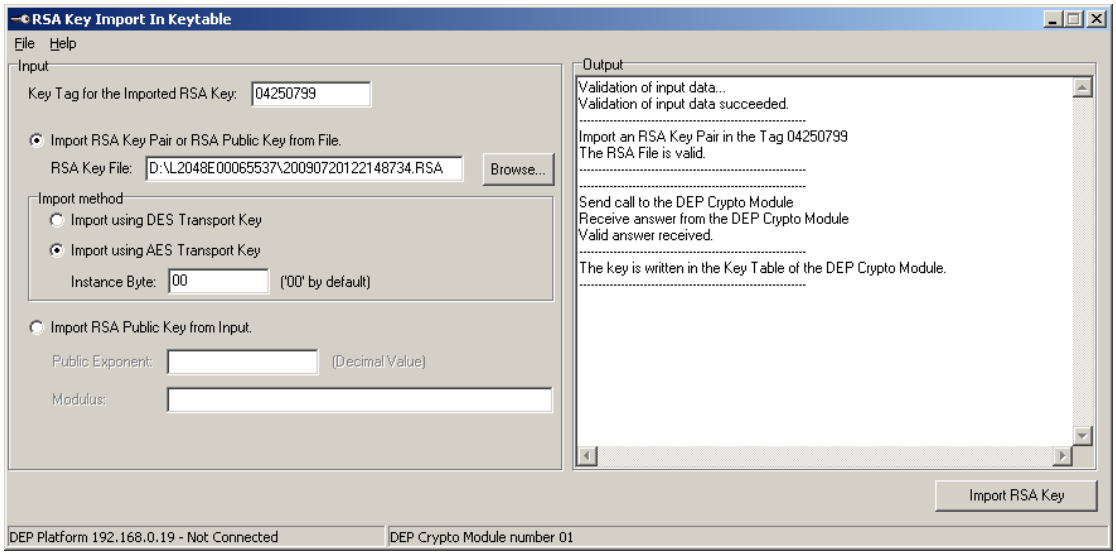
3.5. HOW TO IMPORT AN RSA KEY

There are two methods to import an RSA Key into the keytable of the DEP Crypto Module (selected by radio buttons):

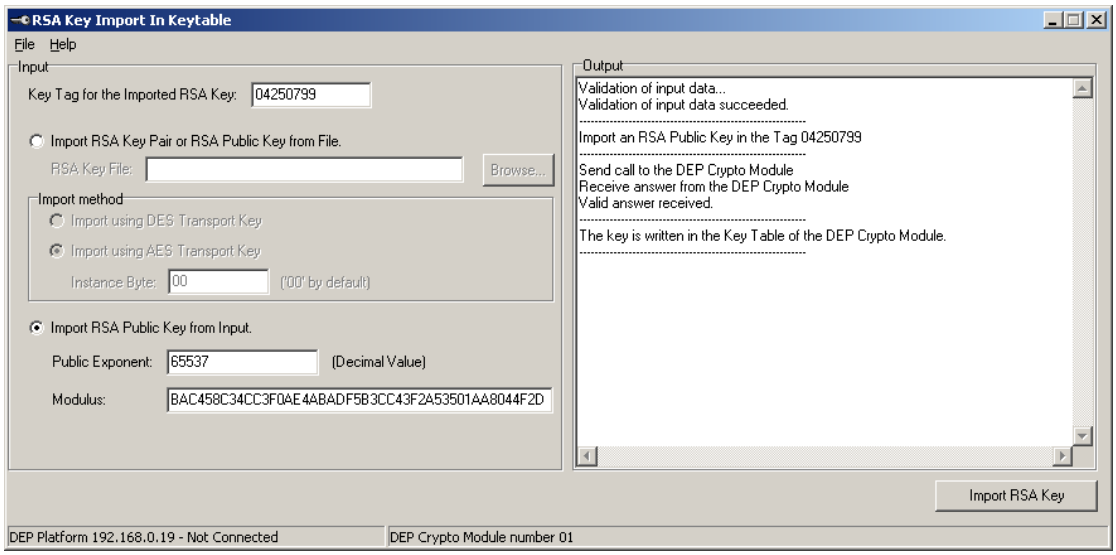
- Import an RSA Key Pair (.RSA) or an RSA Public Key (.PUB) from file. These files are generated by the *RSA Key Generation* program (refer to the *RSA Key Generation User Manual* for more information).
- Import an RSA Public key coming from the input of the user.

In both cases the Key Tag is mandatory.

If the *Import RSA Key Pair or RSA Public key from file* case is selected in the dialogue box, the valid ".RSA" or ".PUB" file should be selected by the user. Click the **Browse…** button and select the appropriate file.



If the *Import RSA Public Key from Input* is selected, then the user must fill in the *Public Exponent* and *Modulus* fields.



Description/format of the parameters:

Field Name	Length	Description	Format
Key Tag	4	This data contains the tag of an RSA key in the keytable of the DEP Crypto Module.	b
RSA Key File	/	This field contains the file name of the RSA Key to import (.RSA or .PUB).	/
Instance Byte	1	Instance of AES transport key to be used in import	h2
Public Exponent	5	Public exponent for the RSA Key to generate. The maximum value is 4294967295 (=$FFFFFFFF_{hex}$).	n10

Modulus	Max 512	Modulus for the RSA Public Key to import. (RSA 4096 bits depending on the hardware of the DEP Crypto Module).	b

User must select the importing method to be used for import of RSA Key Pair. If *Import using DES Transport key* is selected, then the private part of RSA Key Pair will be decrypted by using DES transport key. If *Import using AES Transport key* is selected, then the private part of RSA Key Pair will be decrypted by using the appropriate instance of AES transport key.

When the user clicks the **Import RSA Key** the TCP/IP connection to the DEP Crypto Module is established and the key is imported.

The right panel shows the progress of the import:

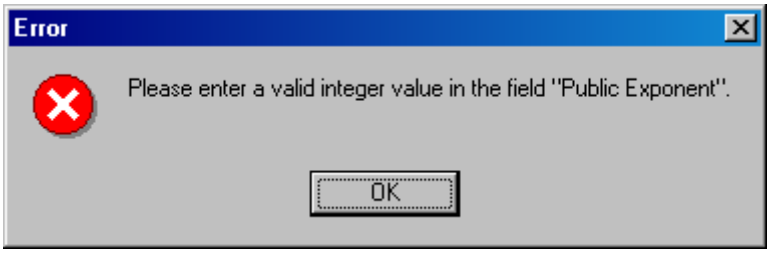
- The validation of the input data,
- The validation of the file (in case of import from file only),
- The status of the call sent to the DEP Crypto Module,
- The confirmation of the writing of the key,
- The possible errors.

3.6. ERRORS DURING EXECUTION

3.6.1. Validation of input data

Before sending the call to the DEP Crypto Module some verifications are made and messages are displayed.

For example:



Selecting the **OK** button sets the focus to the erroneous field for correction.

3.6.2. Validation of the DEP Crypto Module

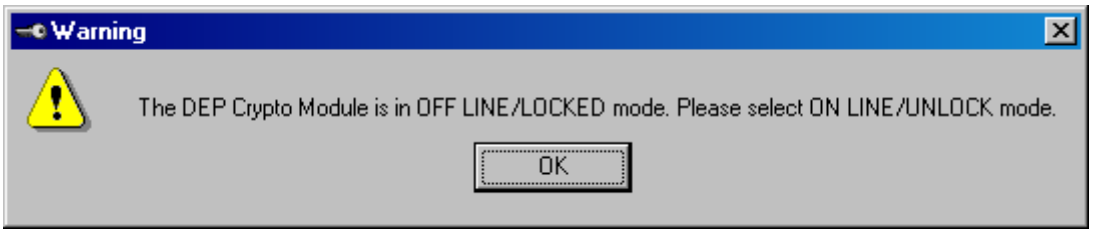
After the input validation, the application performs a DEP Crypto Module validation: The following conditions will be checked:

- If the DEP Crypto Module is on-line/unlocked;
- If the DEP Crypto Module contains a valid DEP Application Software;
- If the DEP Application Software is able to import RSA Keys;

- If the **K_PKI_RSA_TRANSPORT_KEY** (DES transport key) or the **K_PKI_RSA_TK_AES** (AES transport key) key is loaded in the DEP Crypto Module.
- If the CAP_STD_SAVE_KEYS capability is loaded in the DEP Crypto Module.

If one of the verification failed, a warning window is displayed:

All warning windows disappear automatically when the problem is solved. For example: when the correct capability is loaded or when the DEP Crypto Module is set on-line/unlocked.

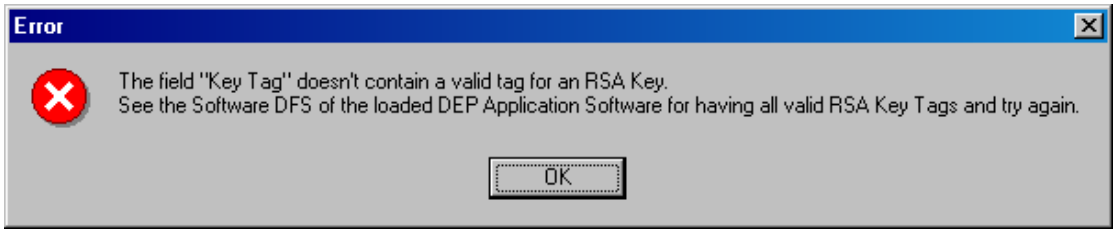


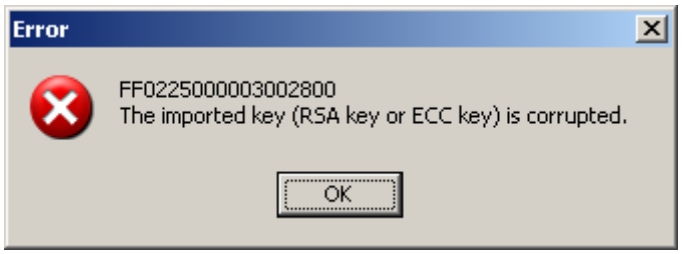
The user can also click on the **OK** button, solve the problem and click again on **Import RSA Key** button.

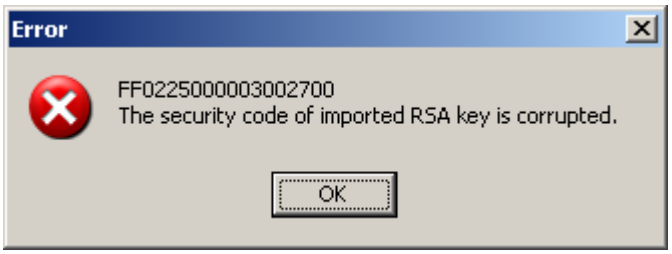
3.6.3. Error code from the DEP Crypto Module

After all verifications are done successfully, a call is sent to the DEP Crypto Module. When no problem occurs the RSA Key is imported into the key table, otherwise an error message is returned.

For example:





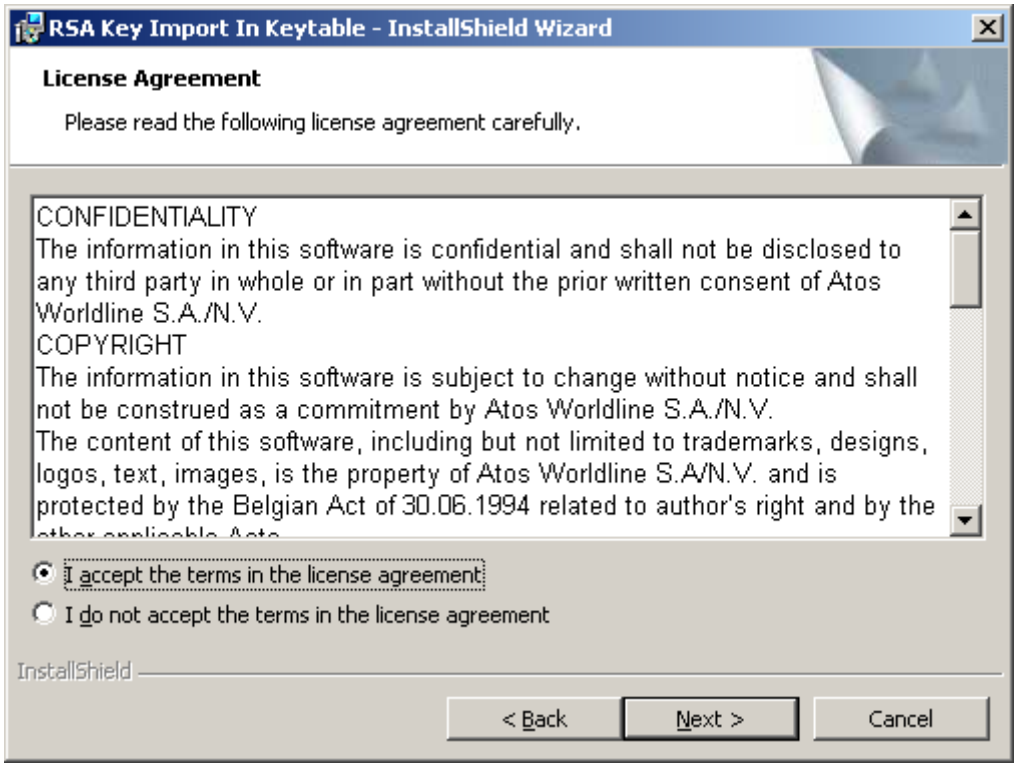

Error
FF0225000003002700
The security code of imported RSA key is corrupted.
OK

4. ANNEX A: INSTALLATION PROCEDURE

An installation procedure exists for the RSA Key Import In Keytable program. It is a wizard-driven procedure that lets you to install the RSA Key Import In Keytable program. To begin the installation wizard, execute the **setup.exe**.

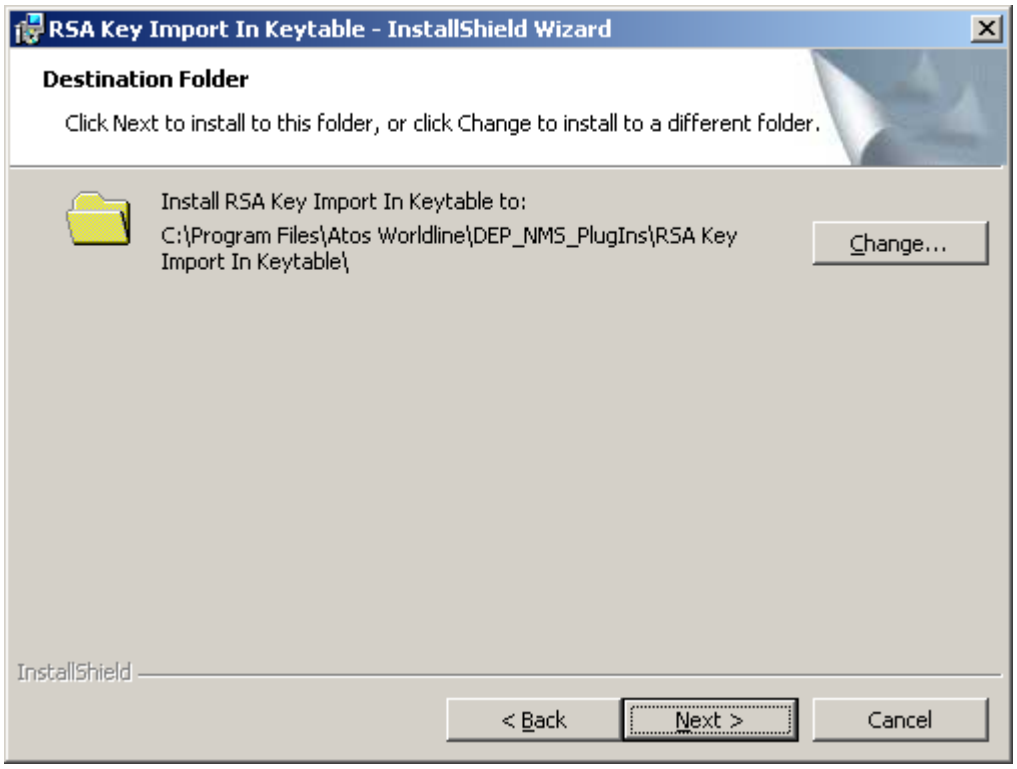
Click **Next** to continue.

Read and accept the License Agreement.



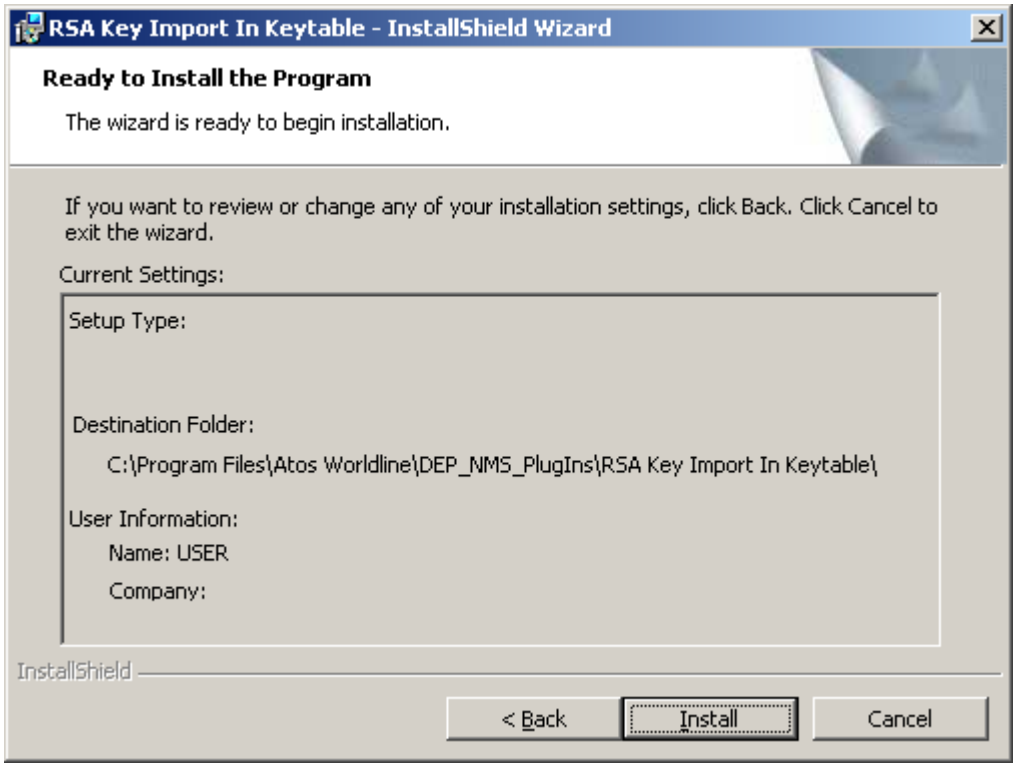
Click **Next** to continue.

The **Destination Folder** window allows defining the path where the application is installed. It is recommended to use the default path, yet you can specify a different folder by clicking **Change…** and selecting the desired folder for the installation.



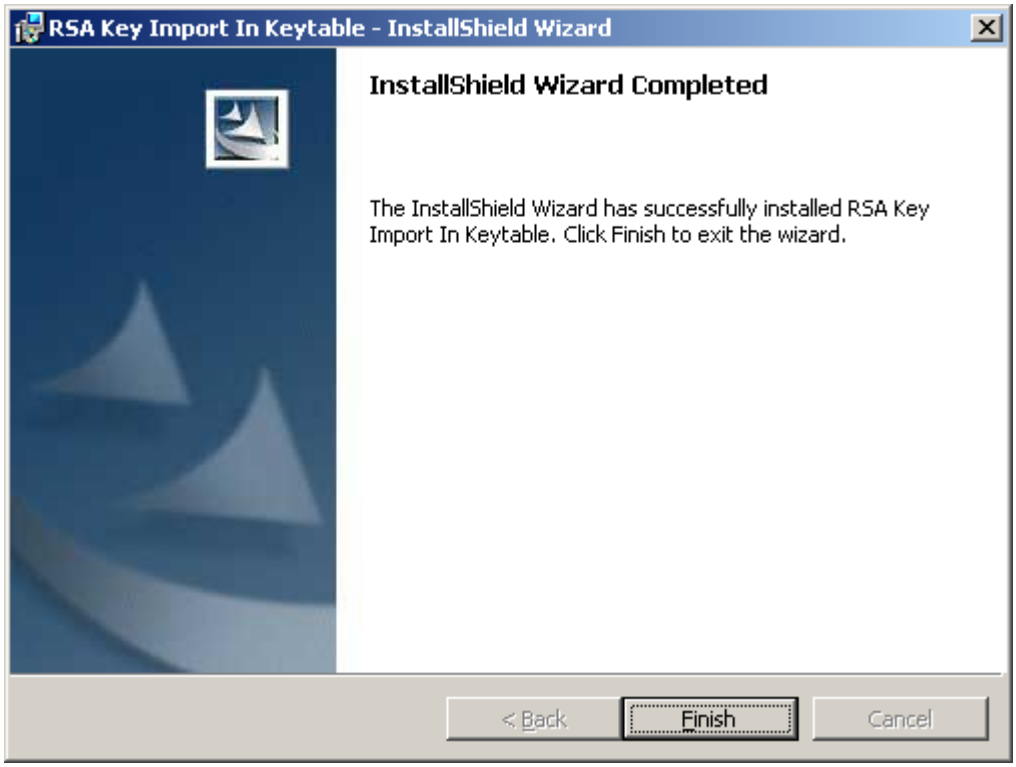
Click the **Next** button.

Click the **Install** button to start an installation process. If you want to return to the previous screen, press **Back** or if you want to abort the procedure, click **Cancel.**



Once you have confirmed the installation options, the actual installation starts.

Click **Finish** to exit the installation procedure.



5. ANNEX B: NOTATIONS

The following abbreviations are used in this document.

b	Binary
n	Numeric
h	Hexadecimal