



# TransLattice Automation Kit (TAK) User Guide

TransLattice, Inc.

Version 2.0

TransLattice Automation Kit (TAK) User Guide, Release 2 (2.0.0)  
9700-0002-0P  
Copyright © 2013, TransLattice, Inc. All rights reserved.

Primary Author: David Lambert  
Contributing Authors: Fred Lee

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this software or related documentation is delivered to the U.S. government or anyone licensing it on behalf of the U.S. Government, the following notice is applicable:

U.S. GOVERNMENT RIGHTS Programs, software, databases, and related documentation and technical data delivered to U.S. Government customers are “commercial computer software” or “commercial technical data” pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, duplication, disclosure, modification, and adaptation shall be subject to the restrictions and license terms set forth in the applicable Government contract, and, to the extent applicable by the terms of the government contract, the additional rights set forth in FAR 52.227-19, Commercial Computer Software License (December 2007).

This software is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure the safe use of this software. TransLattice and its affiliates disclaim any liability for any damages caused by use of this software in dangerous applications.

## **COPYRIGHT LICENSE**

This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to TransLattice, for purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. TransLattice, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. The sample programs are provided “AS IS”, without warranty of any kind. TransLattice shall not be liable for any damages arising out of your use of the sample programs.

Each copy or any portion of these sample programs or any derivative work, must include a copyright notice as follows:  
© (your company name) (year). Portions of this code are derived from TransLattice, Inc. Sample Programs.  
© Copyright TransLattice, Inc. \_enter the year or years\_. All rights reserved.

## **Trademarks**

TransLattice and the TransLattice logo are trademarks or registered trademark of TransLattice, Inc.  
Java and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.  
Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.  
Microsoft, Windows, and Windows NT are trademarks of Microsoft Corporation in the United States, other countries, or both.  
UNIX is a registered trademark of The Open Group in the United States and other countries.  
Other company, product, or service names may be trademarks or service marks of others.

TransLattice, Inc.  
2900 Gordon Avenue  
Santa Clara, CA 95051

# Table of Contents

<b>About This Guide</b> .....	<b>v</b>
Audience .....	v
System Requirements .....	v
Organization .....	v
<b>Chapter 1: TransLattice Automation Kit (TAK) Installation</b> .....	<b>1</b>
Installing TAK .....	1
Files Installed by TAK .....	8
Testing the TAK Installation On Windows .....	8
Testing the TAK Installation On Linux .....	8
Using TAK on Windows .....	9
Using TAK on Linux .....	9
<b>Chapter 2: TAK Programming Guide</b> .....	<b>11</b>
The TAK Sample Scripts .....	11
<b>Appendix A: Third-Party Licenses</b> .....	<b>13</b>
License for HTMLUNIT .....	13
License for Jython 2.1 .....	14
License for JPython 1.1.x Software License .....	15



# About This Guide

Up until now, the Administrative Interface (AI) has been the only way to create, modify, and administer TransLattice products. The AI, a Java application that runs in a supported browser, presents the administrator with a set of screens populated by the usual browser controls: tabs, buttons, checkboxes, text boxes, etc.

The TransLattice Automation Kit (TAK) was created to allow administrators to automate the manual use of the AI. This makes possible the efficient, accurate execution of a long sequence of actions, including repetitive actions such as adding a large number of nodes to a cluster.

TAK packages AI's Java code into a set of Jython version 2.5.2 classes and functions. This document contains information necessary for using TAK.

## Audience

This guide assumes the reader is familiar with TransLattice products and the Python programming language.

## System Requirements

TAK requires Java version 6 or later. TAK is supported on these operating systems:

- 32- and 64-bit versions of Windows Vista and Windows 7.
- Linux versions that support Jython 2.5.2. X-Windows must be installed.

## Organization

This user guide provides installation instructions and programming information that provides examples for creating and altering TransLattice clusters.

Chapter 1	TransLattice Automation Kit (TAK) Installation
Chapter 2	TAK Programming Guide
Appendix A	Third-Party Licenses



# Chapter 1

## TransLattice Automation Kit (TAK) Installation

This chapter describes how to install and test the TransLattice Automation Kit and includes the following information:

- TAK installation procedure
- TAK installed files
- Testing the TAK installation
- Using TAK

### Installing TAK

The TransLattice Automation Kit (TAK) installer can be obtained from the TAK Installation CD or the TransLattice eSupport Portal. The Windows version of the TAK installer is `tak-installer-2.0.exe` and the Linux version is `tak-izpack.jar`.

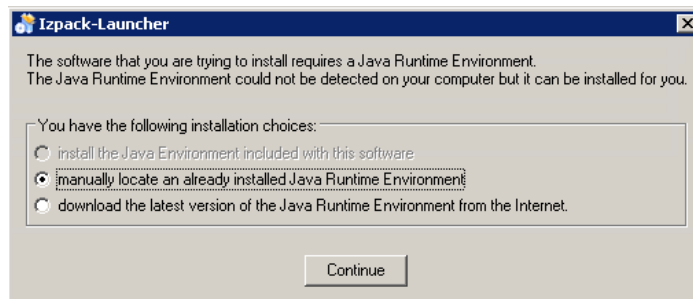
1. To start the TAK installer:

- On Windows, double-click `tak-installer-2.0.exe`.

When the TAK installer starts, a dialog box is displayed asking you to either find a java executable or to download the latest java version as shown in Figure 1-1. (Java is used to install TAK.) Proceed to Step 2 to continue with the Windows installation.

- On Linux, run `java -jar tak-izpack.jar` on the command line.

When the TAK installer starts, the TAK splash screen (Figure 1-3) is displayed, followed by the Welcome screen (Figure 1-4). Proceed to Step 3 to continue with the Linux installation.



**Figure 1-1: Izpack Launcher dialog box**

2. Select one of the following options from the Izpack Launcher dialog box.
  - To locate a java executable, select **manually locate...** and then select **Continue**. The dialog box shown in Figure 1-2 is displayed. Navigate to a java executable, select it and then select **Open**. The TAK splash screen (Figure 1-3) is displayed, followed by the Welcome screen (Figure 1-4). Proceed to Step 3.
  - To download a java executable, select **download the latest...** and then select **Continue**. The installer will quit after opening [www.java.com/en](http://www.java.com/en) in the default browser. Download java, install it, and then restart the TAK installer as described in Step 1 above. Then return to Step 2 and follow the instructions for the **manually locate...** selection.

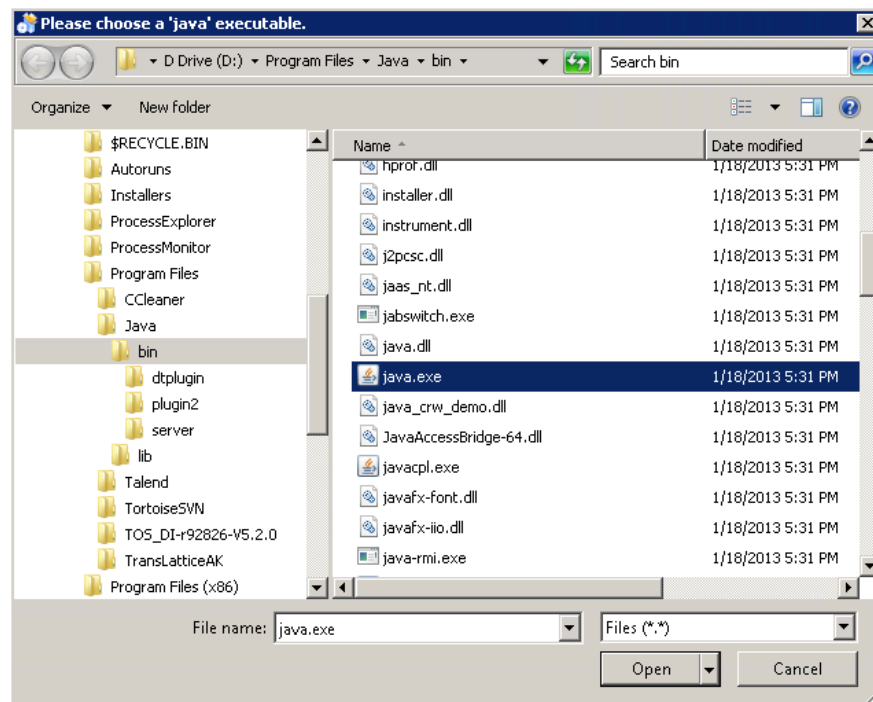


Figure 1-2: Choose a Java Executable dialog box





Figure 1-3: TAK splash screen

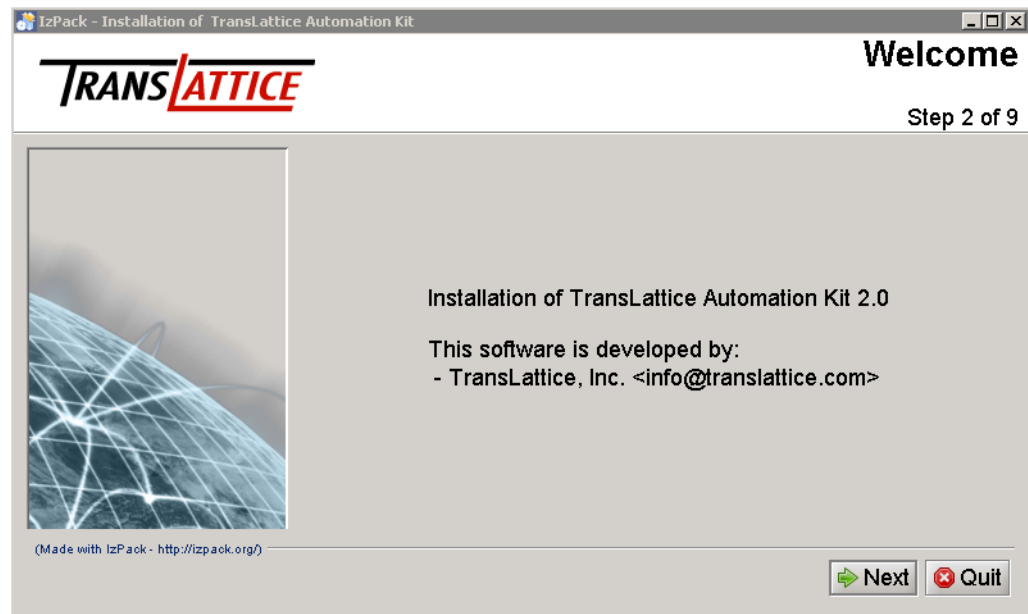


Figure 1-4: Welcome screen

3. From the Welcome screen, select **Next** to bring up the Licensing Agreements screen.

This screen contains the TAK End User License Agreement (EULA) and third-party licensing information.



Figure 1-5: Licensing Agreements screen

4. Read the EULA, select the radio button to accept the terms of the license agreement, and select **Next**.

This brings up the Target Path screen, where you can select the TAK installation folder.

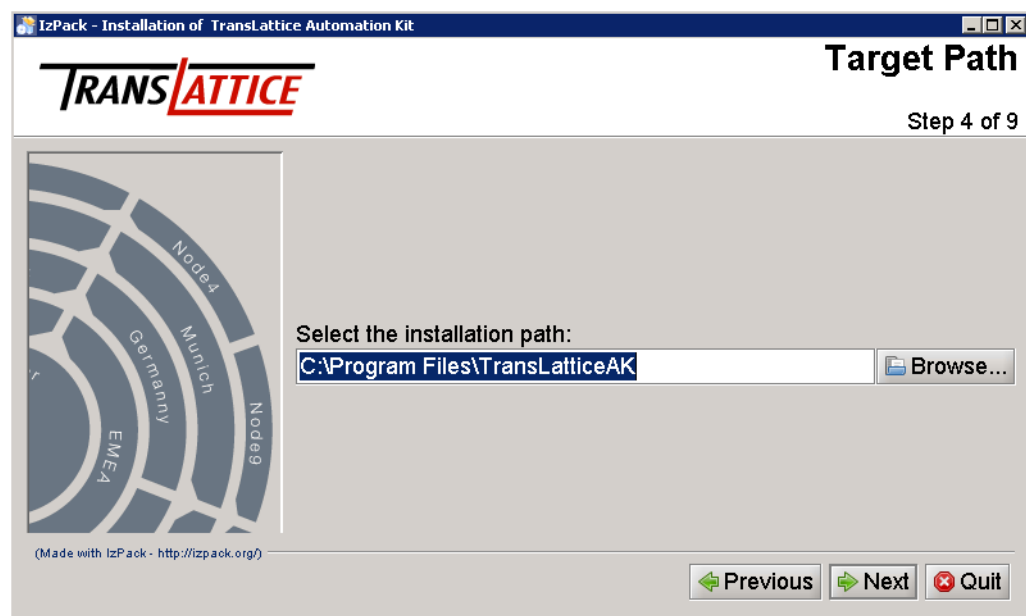


Figure 1-6: Target Path screen

5. Select the TAK installation folder using one of the following options:
    - Accept the default location displayed in the text box on the screen (“C:\Program Files\TransLatticeAK” on Windows and “~/TransLatticeAK” on Linux),
    - Type the desired path in the text box on the screen, or
    - Select the **Browse** button and navigate to the desired location.
  6. Once the desired installation folder is displayed on the screen, select **Next**.
- Note:** If the installation folder does not exist, the following message appears, indicating that the selected installation directory will be created. Select **OK** to accept and continue with the installation.

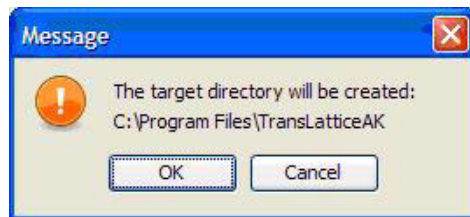


Figure 1-7: Directory creation message

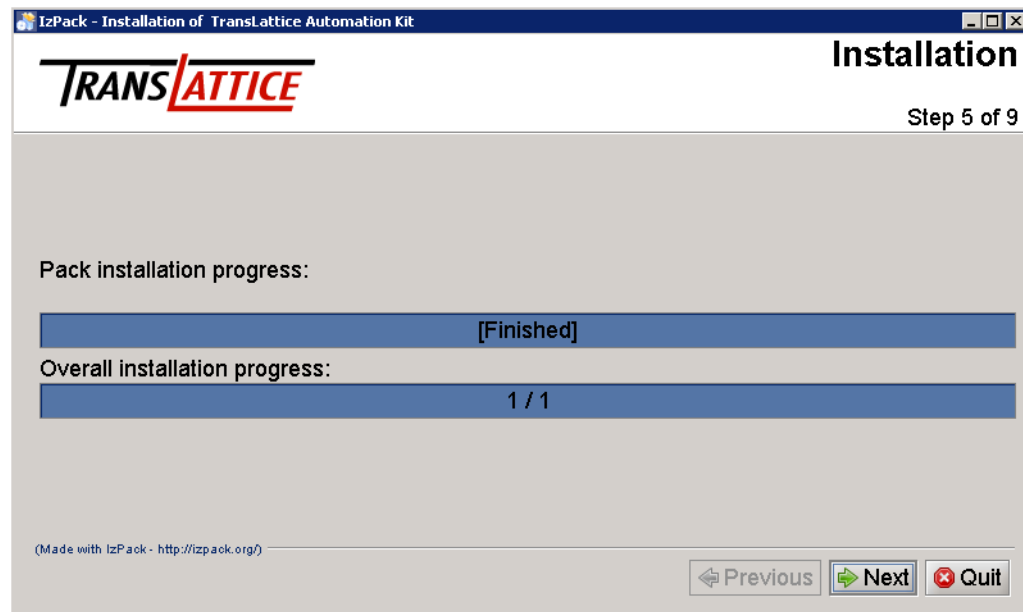


Figure 1-8: Installation screen

7. As TAK is installed, the progress is displayed on the Installation screen. Once the installation is complete, select **Next**.
- This brings up the Setup Shortcuts screen, where you can add shortcuts to TAK in the Start menu or to the desktop.

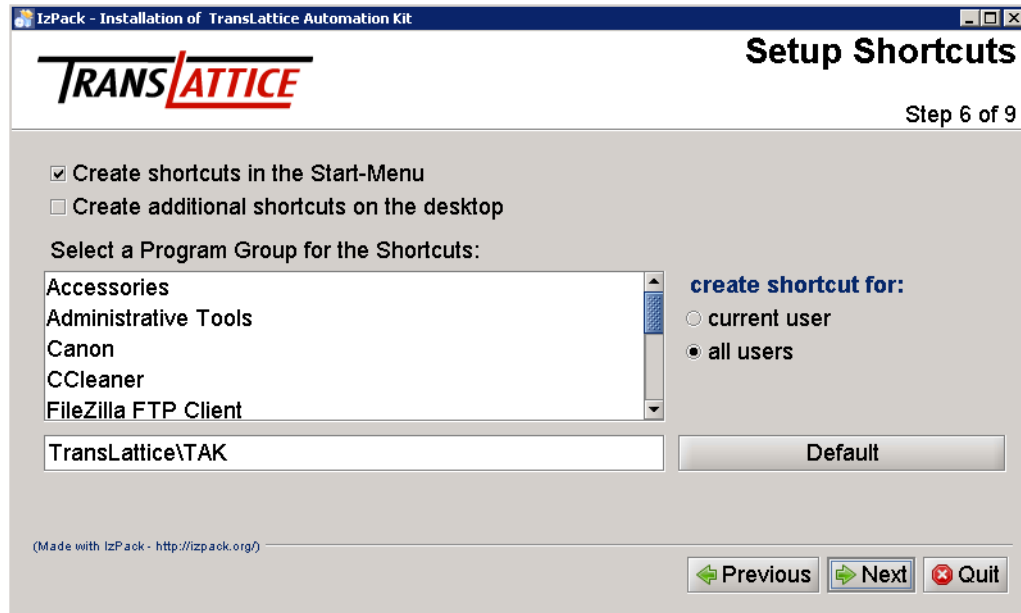


Figure 1-9: Setup Shortcuts screen

8. Make the desired selections from the Setup Shortcuts screen. Then select **Next** to bring up the User Data screen.
9. To view the readme file, select the check box on the User Data screen and then select **Next**. To skip the readme file, select **Next** and go to the next step.

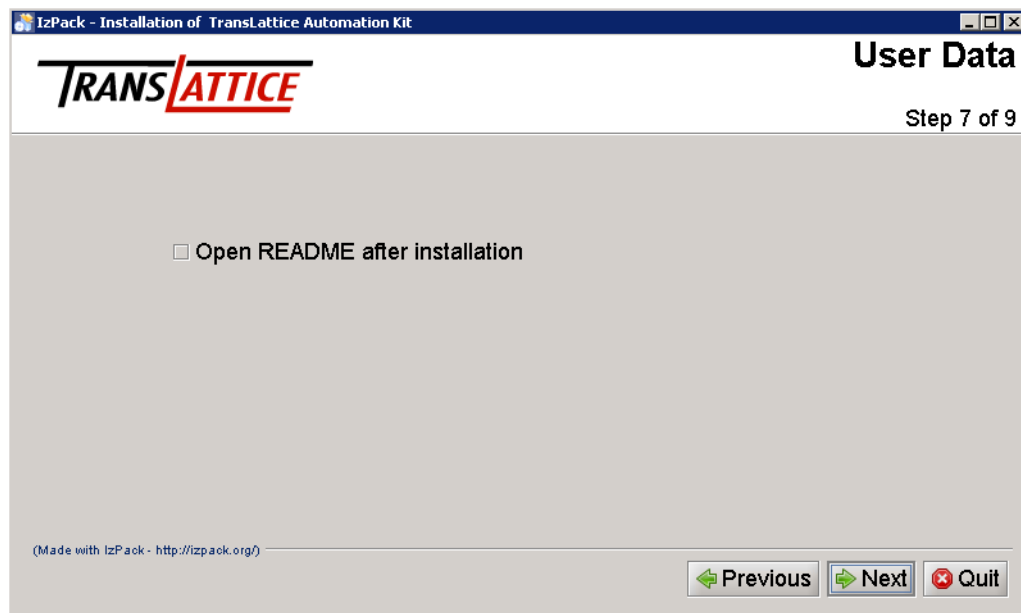
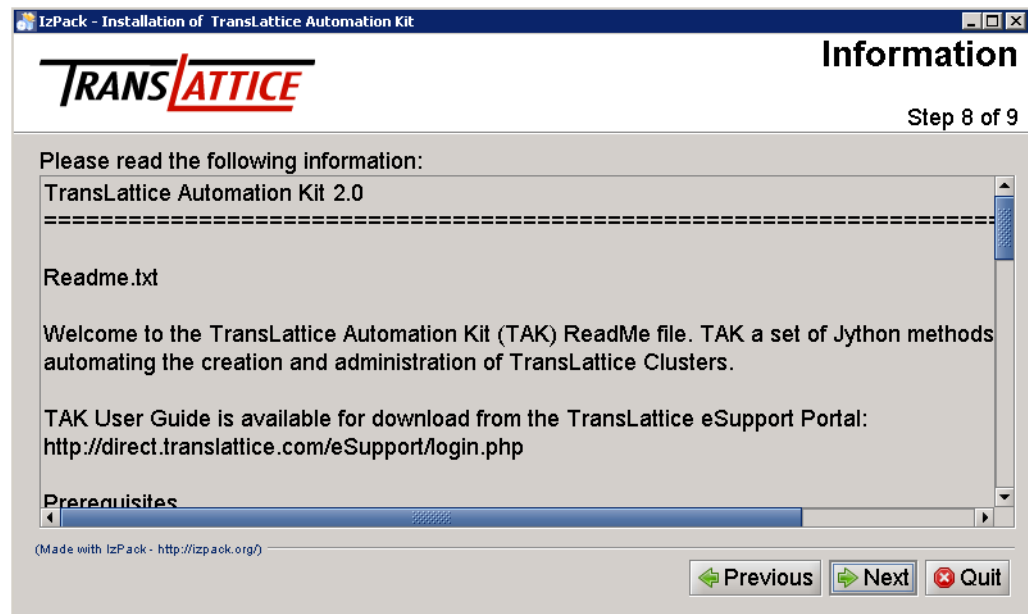


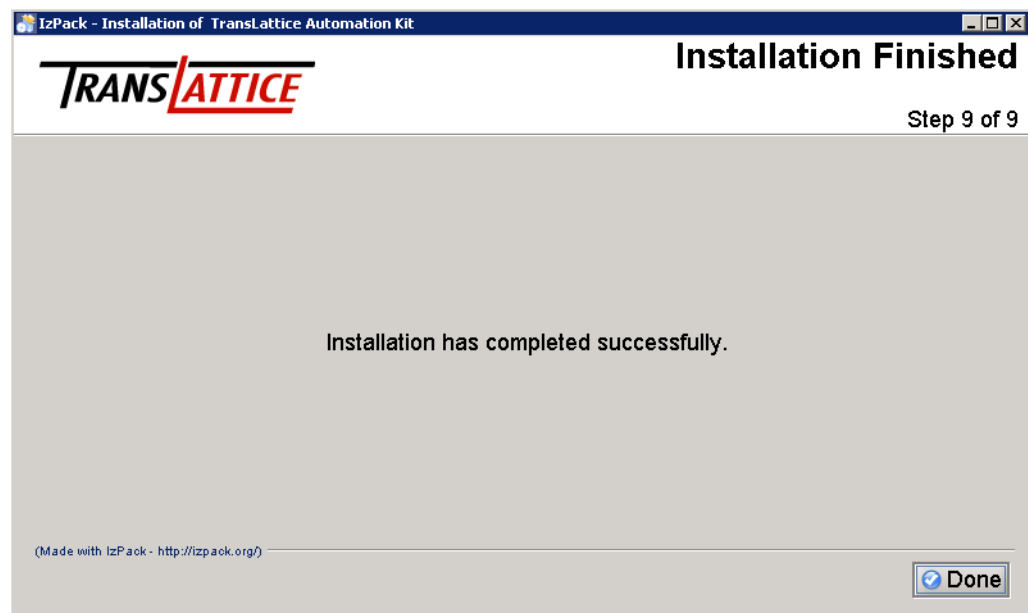
Figure 1-10: User Data screen

10. Read the text on the Information screen and then select **Next** to complete the installation.



**Figure 1-11: Information screen**

The Installation Finished screen shows whether or not the installation has been successfully completed.



**Figure 1-12: Installation Finished screen**

11. Select **Done** to complete the installation.

## Files Installed by TAK

Upon completion of the TAK installation, the following files can be found in the folder where TAK is installed (by default in “*C:\Program Files\TransLatticeAK*” on Windows and “*~/TransLatticeAK*” on Linux):

- the Windows TAK executable file (`tak.exe`)
- the Linux TAK executable (`tak.sh`)
- the `ak.py` file, which defines the Jython classes and functions available for use in TAK
- a Windows dll file (`COIOSHelper.dll`)
- 20 jar files (including `jython.jar`)
- the `AK_eula.html`, `readme.txt` and `third-partylicenses.txt` files
- the `.installinformation` file, which is generated by the installer
- the `samples` folder, which contains a comprehensive set of sample code scripts

**Note:** This document assumes that the TAK installation folder has been added to the `PATH` variable.

## Testing the TAK Installation On Windows

To ensure that TAK is installed properly:

1. Create an ASCII file named `HelloWorld.py` that includes the following line:

```
print "Hello World!"
```

2. Open a command prompt window.
3. At the command prompt, execute the following command:

```
tak -V
```

The output from this command should be “`Jython 2.5.2`”

4. At the command prompt, execute the following command:

```
tak HelloWorld.py
```

The output from this command should be “`Hello World!`”

## Testing the TAK Installation On Linux

To ensure that TAK is installed properly:

1. Create an ASCII file named `HelloWorld.py` that includes the following line:

```
print "Hello World!"
```

2. Open a command prompt window.
3. At the command prompt, execute the following command:

```
tak.sh -V
```

The output from this command should be “Jython 2.5.2”

4. At the command prompt, execute the following command:

```
tak.sh HelloWorld.py
```

The output from this command should be “Hello World!”

## Using TAK on Windows

The program `tak.exe` sets up an execution environment by loading the installed jar files and then invokes Jython for the purpose of using TAK’s classes and functions. The program `tak.exe` can execute Jython code in these ways:

- In command line mode, where code is interactively executed line by line
- Running `tak.exe <Script-Name>.py`
- Invoking `tak.exe` in an IDE

## Using TAK on Linux

The program `tak.sh` sets up an execution environment by loading the installed jar files and then invokes Jython for the purpose of using TAK’s classes and functions. The program `tak.sh` can execute Jython code in these ways:

- In command line mode, where code is interactively executed line by line
- Running `tak.sh <Script-Name>.py`
- Invoking `tak.sh` in an IDE





# Chapter 2

## TAK Programming Guide

The process of creating and altering TransLattice clusters can be automated with scripts written in Jython 2.5.2 (a Java implementation of Python) that use TAK's classes, methods and functions.

We recommend trying a desired sequence of operations in the Administrative Interface and carefully observing how you interact with the AI to help you design the code to execute this desired sequence of operations.

Also, be aware that TAK is designed to support only a single instance on a single cluster. Having more than one TAK script running at the same time on a single cluster is not recommended.

### The TAK Sample Scripts

When TAK is installed, inside the installation directory (by default "*C:\Program Files\TransLatticeAK*" on Windows and "*~/TransLatticeAK*" on Linux) is the subdirectory `samples` which contains a set of well-commented TAK sample scripts. Taken together, the sample scripts are comprehensive: all TAK methods are exercised and each method is described in detail in comments in its script.

The sample scripts are designed to be used to create a cluster from scratch, provided they are correctly modified to match the configuration of the cluster to be created (for example, the number of nodes and their IP addresses and serial numbers). If the modifications are not done correctly and the sample code was placed in a single large script, the script might fail partway through, leaving a partially constructed cluster.

To avoid that situation, the sample code has been divided into a set of sample code modules, with each code module exercising one set of functionally related TAK methods. Once the sample scripts have been correctly modified, they can be called from another script. To make the sample scripts easier to maintain, we also recommend calling TAK methods using parameters defined in separate parameter files imported into the relevant scripts.

In addition to the comments in the sample scripts, there is also useful information in the readme files in the `samples` directory.



# Appendix A

## Third-Party Licenses

This appendix contains licensing information about certain third-party products included with the TransLattice Automation Kit 2.0. Unless otherwise specifically noted, all licenses herein are provided for notice purposes only.

The sections in this appendix describe the following third-party licenses:

- HTMLUNIT
- Jython 2.1
- JPython version 1.1.x

### License for HTMLUNIT

Copyright (c) 2002-2009 Gargoyle Software Inc.

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at <http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

#### A. TERMS AND CONDITIONS FOR ACCESSING OR OTHERWISE USING JYTHON

##### PYTHON SOFTWARE FOUNDATION LICENSE VERSION 2

1. This LICENSE AGREEMENT is between the Python Software Foundation ("PSF"), and the Individual or Organization ("Licensee") accessing and otherwise using this software ("Jython") in source or binary form and its associated documentation.

2. Subject to the terms and conditions of this License Agreement, PSF hereby grants Licensee a nonexclusive, royalty-free, world-wide license to reproduce, analyze, test, perform and/or display publicly, prepare derivative works, distribute, and otherwise use Jython alone or in any derivative version, provided, however, that PSF's License Agreement and PSF's notice of copyright, i.e., "Copyright (c) 2007 Python Software Foundation; All Rights Reserved" are retained in Jython alone or in any derivative version prepared by Licensee.

3. In the event Licensee prepares a derivative work that is based on or incorporates Jython or any part thereof, and wants to make the derivative work available to others as provided herein, then Licensee hereby agrees to include in any such work a brief summary of the changes made to Jython.
4. PSF is making Jython available to Licensee on an "AS IS" basis. PSF MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED. BY WAY OF EXAMPLE, BUT NOT LIMITATION, PSF MAKES NO AND DISCLAIMS ANY REPRESENTATION OR WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR THAT THE USE OF JYTHON WILL NOT INFRINGE ANY THIRD PARTY RIGHTS.
5. PSF SHALL NOT BE LIABLE TO LICENSEE OR ANY OTHER USERS OF JYTHON FOR ANY INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES OR LOSS AS A RESULT OF MODIFYING, DISTRIBUTING, OR OTHERWISE USING JYTHON, OR ANY DERIVATIVE THEREOF, EVEN IF ADVISED OF THE POSSIBILITY THEREOF.
6. This License Agreement will automatically terminate upon a material breach of its terms and conditions.
7. Nothing in this License Agreement shall be deemed to create any relationship of agency, partnership, or joint venture between PSF and Licensee. This License Agreement does not grant permission to use PSF trademarks or trade name in a trademark sense to endorse or promote products or services of Licensee, or any third party.
8. By copying, installing or otherwise using Jython, Licensee agrees to be bound by the terms and conditions of this License Agreement.

## License for Jython 2.1

Copyright (c) 2000-2009 Jython Developers.  
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of the Jython Developers nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

## License for JPython 1.1.x Software License

---

IMPORTANT: PLEASE READ THE FOLLOWING AGREEMENT CAREFULLY.

BY CLICKING ON THE "ACCEPT" BUTTON WHERE INDICATED, OR BY INSTALLING, COPYING OR OTHERWISE USING THE SOFTWARE, YOU ARE DEEMED TO HAVE AGREED TO THE TERMS AND CONDITIONS OF THIS AGREEMENT.

---

JPython version 1.1.x

1. This LICENSE AGREEMENT is between the Corporation for National Research Initiatives, having an office at 1895 Preston White Drive, Reston, VA 20191 ("CNRI"), and the Individual or Organization ("Licensee") accessing and using JPython version 1.1.x in source or binary form and its associated documentation as provided herein ("Software").

2. Subject to the terms and conditions of this License Agreement, CNRI hereby grants Licensee a non-exclusive, non-transferable, royalty-free, world-wide license to reproduce, analyze, test, perform and/or display publicly, prepare derivative works, distribute, and otherwise use the Software alone or in any derivative version, provided, however, that CNRI's License Agreement and CNRI's notice of copyright, i.e., "Copyright (c) 1996-1999 Corporation for National Research Initiatives; All Rights Reserved" are both retained in the Software, alone or in any derivative version prepared by Licensee.

Alternatively, in lieu of CNRI's License Agreement, Licensee may substitute the following text (omitting the quotes), provided, however, that such text is displayed prominently in the Software alone or in any derivative version prepared by Licensee: "JPython (Version 1.1.x) is made available subject to the terms and condi-

tions in CNRI's License Agreement. This Agreement may be located on the Internet using the following unique, persistent identifier (known as a handle): 1895.22/1006. The License may also be obtained from a proxy server on the Web using the following URL: <http://hdl.handle.net/1895.22/1006>."

3. In the event Licensee prepares a derivative work that is based on or incorporates the Software or any part thereof, and wants to make the derivative work available to the public as provided herein, then Licensee hereby agrees to indicate in any such work, in a prominently visible way, the nature of the modifications made to CNRI's Software.

4. Licensee may not use CNRI trademarks or trade name, including JPython or CNRI, in a trademark sense to endorse or promote products or services of Licensee, or any third party. Licensee may use the mark JPython in connection with Licensee's derivative versions that are based on or incorporate the Software, but only in the form "JPython-based \_\_\_\_\_," or equivalent.

5. CNRI is making the Software available to Licensee on an "AS IS" basis. CNRI MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED. BY WAY OF EXAMPLE, BUT NOT LIMITATION, CNRI MAKES NO AND DISCLAIMS ANY REPRESENTATION OR WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR THAT THE USE OF THE SOFTWARE WILL NOT INFRINGE ANY THIRD PARTY RIGHTS.

6. CNRI SHALL NOT BE LIABLE TO LICENSEE OR OTHER USERS OF THE SOFTWARE FOR ANY INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES OR LOSS AS A RESULT OF USING, MODIFYING OR DISTRIBUTING THE SOFTWARE, OR ANY DERIVATIVE THEREOF, EVEN IF ADVISED OF THE POSSIBILITY THEREOF. SOME STATES DO NOT ALLOW THE LIMITATION OR EXCLUSION OF LIABILITY SO THE ABOVE DISCLAIMER MAY NOT APPLY TO LICENSEE.

7. This License Agreement may be terminated by CNRI (i) immediately upon written notice from CNRI of any material breach by the Licensee, if the nature of the breach is such that it cannot be promptly remedied; or (ii) sixty (60) days following notice from CNRI to Licensee of a material remediable breach, if Licensee has not remedied such breach within that sixty-day period.

8. This License Agreement shall be governed by and interpreted in all respects by the law of the State of Virginia, excluding conflict of law provisions. Nothing in this Agreement shall be deemed to create any relationship of agency, partnership, or joint venture between CNRI and Licensee.

9. By clicking on the "ACCEPT" button where indicated, or by installing, copying or otherwise using the Software, Licensee agrees to be bound by the terms and conditions of this License Agreement.