Liberica Native Image Kit 23.1.13-1 (21.0.13.0.3+6) Installation Guide



Liberica NIK
21.0.13.0.3
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bellsoft

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1. Introduction

This document provides installation instructions for Liberica NIK in different operating systems.

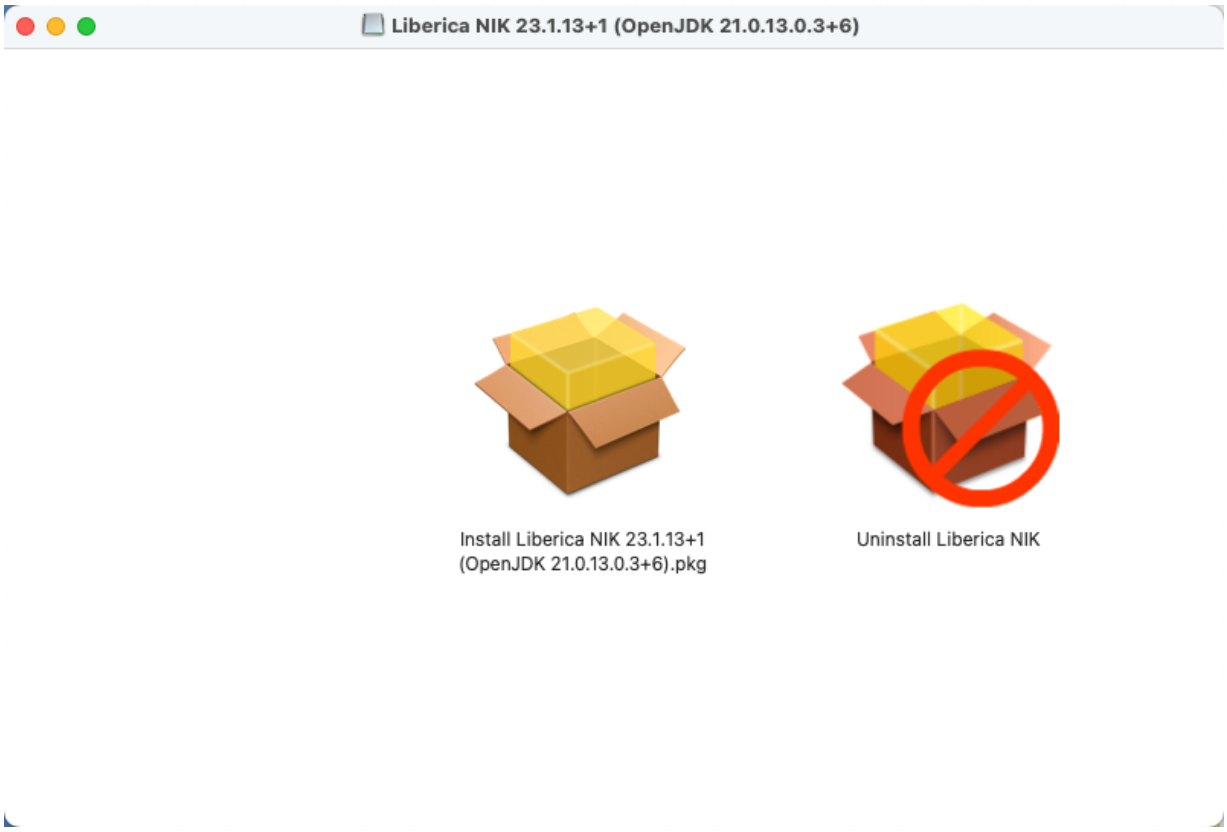
You can download Liberica NIK from either the Liberica JDK Download Center or, as a support-plan customer, via a link on the support portal. After you log in to the support portal, you can see a direct link to the version of Liberica product you requested under Technologies. If you use the Liberica Download Center page, scroll down and select the NIK version, OS, and package type. After the download is finished, you can verify the downloaded file by comparing its size on your drive to the size on the Downloads page.

> **Note:**
>
> The installer screens are provided for information purpose only and may vary in different releases.

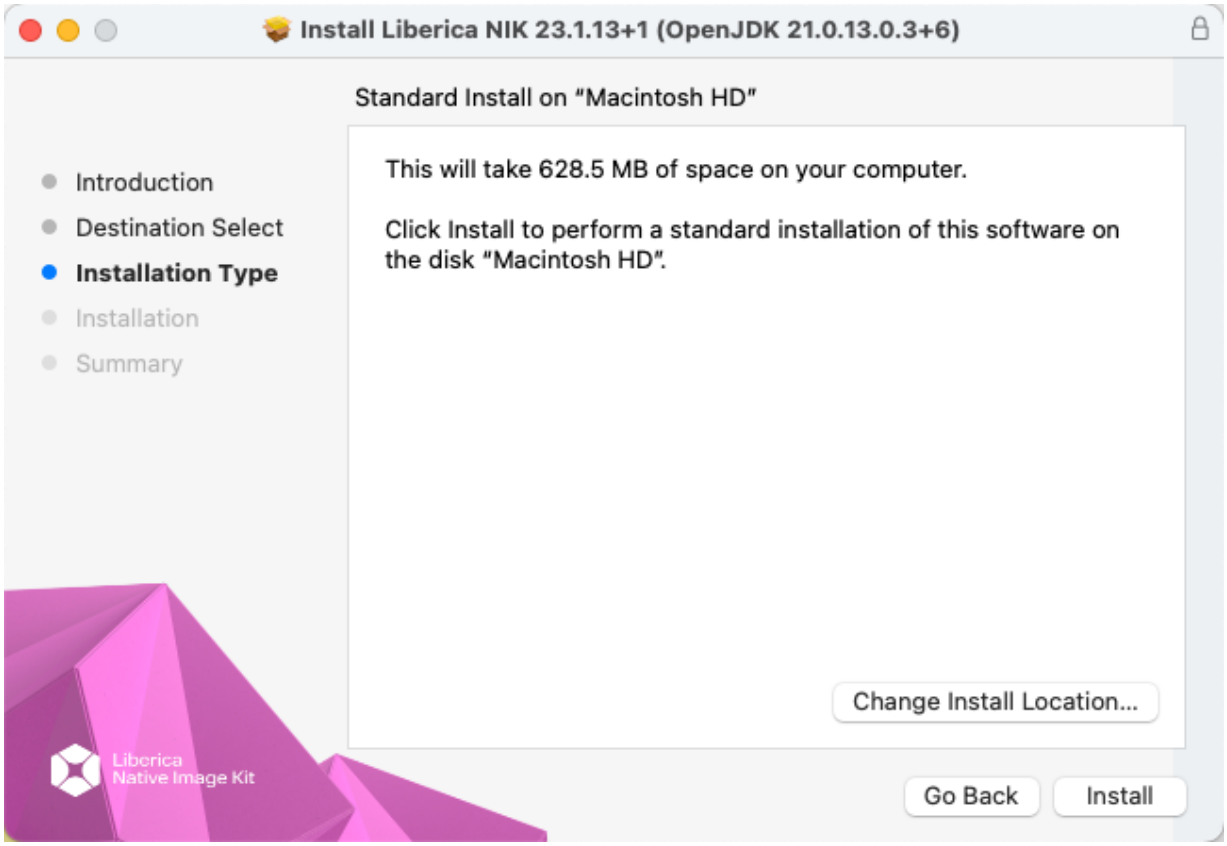
2. Apple macOS

Installing DMG bundle on Apple macOS

1. To run the installer, double-click the file you have downloaded.
2. Double-click the pkg icon to open the **Install Liberica NIK** Wizard.



3. Click **Continue** on the Welcome screen.
4. Optionally, you can change the installation location. Press **Install** to proceed.



5. Confirm new software installation. The files will start copying immediately.



6. Once the installation is complete, press **Close** to exit the installation wizard.

Liberica NIK 23.1.13 is installed to the `/Library/Java/LibericaNativeImageKit/liberica-vm-23.1.13-openjdk21/` directory, or another directory with a similar name in `/Library/Java/LibericaNativeImageKit`, depending on the selected version of the JDK and package type (core, standard, or full). You can use the `$NIK_HOME` environment variable to store the path to the installed package: `/Library/Java/LibericaNativeImageKit/liberica-vm-23.1.13-openjdk21/Contents/Home/`.

Installing ZIP bundle on macOS

1. To install Liberica NIK, download the .zip package.

   ```
   curl -O https://download.bell-sw.com/vm/23.1.13/bellsoft-liberica-vm-openjdk21.0.13.0.3+6-23.1.13+1-macos-amd64.zip
   ```

2. After the download is finished, unpack the file.

   ```
   unzip bellsoft-liberica-vm-openjdk21.0.13.0.3+6-23.1.13+1-macos-amd64.zip
   sudo mv bellsoft-liberica-vm-openjdk21-23.1.13 /Library/Java/LibericaNativeImageKit/
   ```

   This will unpack Liberica NIK to `/Library/Java/LibericaNativeImageKit/`. Either add `Contents/Home/bin` subdirectory to `$PATH`, or remember `/Library/Java/LibericaNativeImageKit/bellsoft-liberica-vm-openjdk21-23.1.13/Contents/Home/` as the `$NIK_HOME` environment variable.

To uninstall Liberica NIK, simply remove its directory and unset the related environmental variables.

Installing language packages on macOS

Except the Core version (which comes bundled with native image plugin and does not allow the installation of additional components), all packages of Liberica Native Image Kit contain a component updater called `gu`. You can use it to install or update Liberica NIK plugins or add support for additional languages in the distribution.

Open the terminal and type:

```
$NIK_HOME/bin/gu available
```

You'll see a list of available languages:

```
Downloading: Component catalog from download.bell-sw.com
ComponentId    Version  Component name      Stability    Origin
```

```
-------------------------------------------------------------------------------
icu4j          23.1.13   ICU4J               Supported    download.bell-sw.com
js             23.1.13   Graal.js            Supported    download.bell-sw.com
llvm           23.1.13   LLVM Runtime Core   Supported    download.bell-sw.com
llvm-toolchain 23.1.13   LLVM.org toolchain  Supported    download.bell-sw.com
nodejs         23.1.13   Graal.nodejs        Supported    download.bell-sw.com
python         23.1.13   GraalVM Python      Experimental download.bell-sw.com
R              23.1.13   FastR               Experimental download.bell-sw.com
regex          23.1.13   TRegex              Supported    download.bell-sw.com
ruby           23.1.13   TruffleRuby         Experimental download.bell-sw.com
wasm           23.1.13   GraalWasm           Experimental download.bell-sw.com
```

Execute `$NIK_HOME/bin/gu install [language]` to install a specific language. For example, `$NIK_HOME/bin/gu install python`.

This can be also executed manually:

```
curl -O https://download.bell-sw.com/vm/23.1.13/python-installable-
openjdk21.0.13.0.3+6-23.1.13+1-macos-amd64.jar
$NIK_HOME/bin/gu -L install python-installable-openjdk21.0.13.0.3+6-23.1.13+1-
macos-amd64.jar
```

If Liberica Native Image Kit was installed in `/Library/Java/LibericaNativeImageKit` or another location requiring root privileges, you might have to use `sudo` to perform administrative tasks, such as installing additional components or rebuilding the images.

Liberica NIK dependencies on macOS

`xcode` is required for Liberica Native Image Kit. Install the necessary tools with the following command:

```
xcode-select --install
```

3. Linux

Installing DEB and RPM packages

Download either `.rpm` or `.deb` package.

Install the package using the appropriate package manager. See the example for Apt:

```
sudo apt install ./bellsoft-liberica-vm-openjdk21.0.13.0.3+6-23.1.13+1-linux-amd64.deb
```

Or for an RPM-base system:

```
sudo yum install ./bellsoft-liberica-vm-openjdk21.0.13.0.3+6-23.1.13+1-linux-amd64.rpm
```

The package is installed to `/opt/bellsoft/liberica-vm-23.1.13-openjdk21/`.

For scripting purposes, we recommend adding the `${NIK_HOME}` environment variable that points to your Liberica Native Image Kit installation directory.

Installing standalone NIK package on GNU/Linux

To install Liberica NIK, download the .tar.gz package.

Unpack it with the following command.

```
export INSTALL_DIR=<your directory>
tar -C $INSTALL_DIR -xzf bellsoft-liberica-vm-openjdk21.0.13.0.3+6-23.1.13+1-linux-amd64.tar.gz
```

This will unpack Liberica NIK to the selected directory. Either add `$INSTALL_DIR/bellsoft-liberica-vm-openjdk21-23.1.13/bin` to `$PATH`, or remember `$INSTALL_DIR/bellsoft-liberica-vm-openjdk21-23.1.13` as the `$NIK_HOME` environment variable.

To uninstall Liberica NIK, simply remove this directory and unset the related environmental variables.

Installing language packages on Linux

Open the terminal and type:

```
$NIK_HOME/bin/gu available
```

You'll see a list of available languages:

```
Downloading: Component catalog from download.bell-sw.com
ComponentId    Version  Component name      Stability    Origin
------------------------------------------------------------------------
icu4j          23.1.13   ICU4J               Supported    download.bell-sw.com
js             23.1.13   Graal.js            Supported    download.bell-sw.com
llvm           23.1.13   LLVM Runtime Core   Supported    download.bell-sw.com
llvm-toolchain 23.1.13   LLVM.org toolchain  Supported    download.bell-sw.com
nodejs         23.1.13   Graal.nodejs        Supported    download.bell-sw.com
python         23.1.13   GraalVM Python      Experimental download.bell-sw.com
R              23.1.13   FastR               Experimental download.bell-sw.com
regex          23.1.13   TRegex              Supported    download.bell-sw.com
ruby           23.1.13   TruffleRuby         Experimental download.bell-sw.com
wasm           23.1.13   GraalWasm           Experimental download.bell-sw.com
```

Execute `$NIK_HOME/bin/gu install [language]` to install a specific language. For example, `$NIK_HOME/bin/gu install python`.

This can be also executed manually:

```
wget https://download.bell-sw.com/vm/23.1.13/python-installable-
openjdk21.0.13.0.3+6-23.1.13+1-linux-amd64.jar
$NIK_HOME/bin/gu -L install python-installable-openjdk21.0.13.0.3+6-23.1.13+1-
linux-amd64.jar
```

If Liberica Native Image Kit was installed via a package manager or in a location requiring root privileges, you might have to use `sudo` to perform administrative tasks, such as installing additional components or rebuilding the images.

Liberica NIK dependencies on Linux

Several libraries are required for Liberica Native Image Kit on Linux systems. Install these libraries on Debian-based systems with the following command:

```
sudo apt install g++ make zlib1g-dev
```

Installed components also have additional libraries dependencies, such as `Truffleruby` depends on `libssl-dev`.

You can use a similar command to install dependencies on rpm-based systems. See this example for Rocky Linux:

```
sudo yum install gcc-c++ make zlib-devel
```

Other types of Linux systems may require different packages.

4. Alpine Linux

Installing APK package on Alpine Linux

Download the `.apk` package.

Install the package using the appropriate package manager. See our example for Apt:

```
# Add public key to check signature
wget -P /etc/apk/keys/ https://apk.bell-sw.com/info@bell-sw.com-
5fea454e.rsa.pub
# Install package
sudo apk add ./bellsoft-liberica-vm-openjdk21.0.13.0.3+6-23.1.13+1-linux-x64-
musl.apk
```

The package is installed to `/opt/bellsoft/liberica-vm-23.1.13-openjdk21/`.

For scripting purposes, we recommend adding the `${NIK_HOME}` environment variable which would point to your Liberica Native Image Kit installation directory.

Installing standalone NIK package on Alpine Linux

To install Liberica NIK, download the `.tar.gz` package.

```
wget https://download.bell-sw.com/vm/23.1.13/bellsoft-liberica-vm-
openjdk21.0.13.0.3+6-23.1.13+1-linux-x64-musl.tar.gz
```

Unpack it with the following command.

```
export INSTALL_DIR=<your directory>
tar -C $INSTALL_DIR -xzf bellsoft-liberica-vm-openjdk21.0.13.0.3+6-23.1.13+1-
linux-x64-musl.tar.gz
```

This will unpack Liberica NIK to the selected directory. Either add `$INSTALL_DIR/bellsoft-liberica-vm-openjdk21-23.1.13/bin` to `$PATH`, or remember `$INSTALL_DIR/bellsoft-liberica-vm-openjdk21-23.1.13` as the `$NIK_HOME` environment variable.

To uninstall Liberica NIK, simply remove this directory and unset the related environmental variables.

Installing language packages on Alpine Linux

Open the terminal and type:

```
$NIK_HOME/bin/gu available
```

You'll see a list of available languages:

```
Downloading: Component catalog from download.bell-sw.com
ComponentId    Version  Component name      Stability    Origin
------------------------------------------------------------------------------
icu4j          23.1.13   ICU4J               Supported    download.bell-sw.com
js             23.1.13   Graal.js            Supported    download.bell-sw.com
llvm           23.1.13   LLVM Runtime Core   Supported    download.bell-sw.com
llvm-toolchain 23.1.13   LLVM.org toolchain  Supported    download.bell-sw.com
nodejs         23.1.13   Graal.nodejs        Supported    download.bell-sw.com
python         23.1.13   GraalVM Python      Experimental download.bell-sw.com
R              23.1.13   FastR               Experimental download.bell-sw.com
regex          23.1.13   TRegex              Supported    download.bell-sw.com
ruby           23.1.13   TruffleRuby         Experimental download.bell-sw.com
wasm           23.1.13   GraalWasm           Experimental download.bell-sw.com
```

Execute `$NIK_HOME/bin/gu install [language]` to install a specific language. For example, `$NIK_HOME/bin/gu install python`.

This can be also executed manually:

```
wget https://download.bell-sw.com/vm/23.1.13/python-installable-
openjdk21.0.13.0.3+6-23.1.13+1-linux-x64-musl.jar
$NIK_HOME/bin/gu -L install python-installable-openjdk21.0.13.0.3+6-23.1.13+1-
linux-x64-musl.jar
```

If Liberica Native Image Kit was installed via a package manager or in a location requiring root privileges, you might have to use `sudo` to perform administrative tasks, such as installing additional components or rebuilding the images.

Liberica NIK dependencies on Alpine Linux

Several libraries are required for Liberica Native Image Kit on Alpine Linux. Install these libraries with the following command:

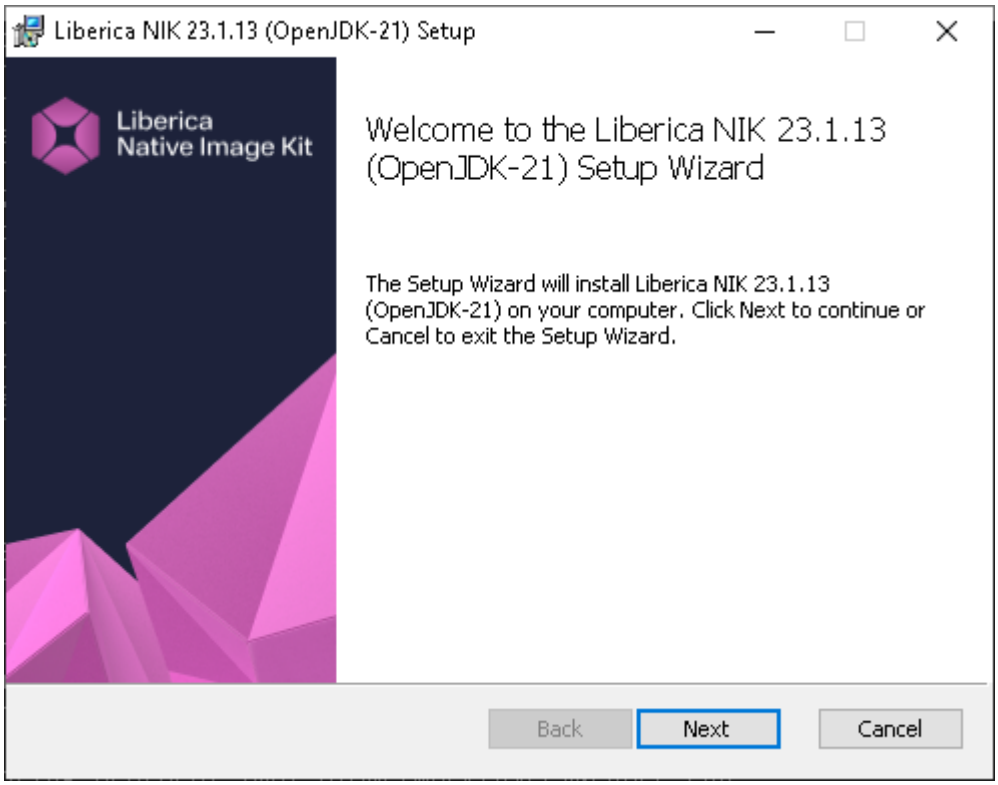
```
sudo apk add bash g++ make zlib-static
```

Installed components also have additional libraries dependencies, such as `Truffleruby` depends on `openssl-dev`.

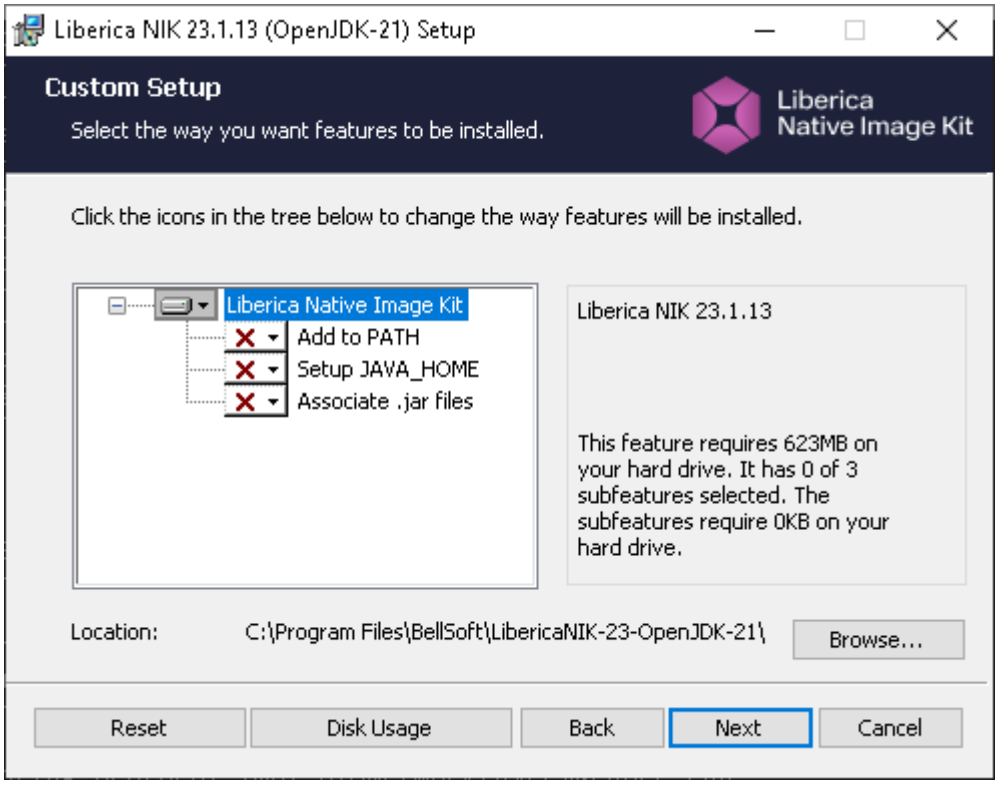
5. Microsoft Windows

Installing with Microsoft Windows Installer package

1. Double-click the Windows installation file you downloaded. The **Liberica NIK Setup** Wizard opens.
2. Click **Next** on the Welcome screen.



3. On the **Custom Setup** window, choose the features you need. Select a feature to see its description. In most cases, you can use the default setup. Click **Disk Usage** to see the available and required space on your disk. Click **Next**.



4. The package is ready to install. Press **Install**. If you see the User Account Control warning, verify the publisher (BELLSOFT) and click **Yes**.
5. After the installation is complete, click **Finish** to quit the **Liberica NIK Setup** Wizard.

> **Note:**
>
> The installer screens above may vary in different releases.

If you want to install Liberica NIK silently, open the command line and run the following command:

```
msiexec /quiet /i bellsoft-liberica-vm-openjdk21.0.13.0.3+6-23.1.13+1-windows-amd64.msi
```

Liberica NIK is installed to the `C:\Program Files\BellSoft\LibericaNIK-23-OpenJDK-21` directory by default. For scripting purposes, we recommend adding the `$NIK_HOME` environment variable that points to your Liberica Native Image Kit installation directory.

Installing standalone package on Microsoft Windows

To install Liberica NIK as a standalone package on your computer, download the `.zip` package file and unpack it to a folder. You can also use Windows PowerShell to download and unpack the zip file as follows:

```
Invoke-WebRequest "https://download.bell-sw.com/vm/23.1.13/bellsoft-liberica-vm-openjdk21.0.13.0.3+6-23.1.13+1-windows-amd64.zip"
Expand-Archive bellsoft-liberica-vm-openjdk21.0.13.0.3+6-23.1.13+1-windows-amd64.zip -DestinationPath .
```

This will unpack Liberica NIK to the current directory. Either add bin subdirectory to `PATH`, or remember this directory as the `$NIK_HOME` environment variable.

Installing language packages on Windows

Open the command prompt and type:

```
"%NIK_HOME%\bin\gu.cmd" available
```

You'll see a list of available languages:

```
Downloading: Component catalog from download.bell-sw.com
ComponentId    Version  Component name      Stability    Origin
------------------------------------------------------------------------------
icu4j          23.1.13   ICU4J               Supported    download.bell-sw.com
js             23.1.13   Graal.js            Supported    download.bell-sw.com
llvm           23.1.13   LLVM Runtime Core   Supported    download.bell-sw.com
llvm-toolchain 23.1.13   LLVM.org toolchain  Supported    download.bell-sw.com
nodejs         23.1.13   Graal.nodejs        Supported    download.bell-sw.com
regex          23.1.13   TRegex              Supported    download.bell-sw.com
wasm           23.1.13   GraalWasm           Experimental download.bell-sw.com
```

Execute `"%NIK_HOME%\bin\gu.cmd" install [language]` to install a specific language. For example, `"%NIK_HOME%\bin\gu.cmd" install nodejs`.

Liberica NIK dependencies on Windows

Microsoft Visual Studio 2017 with Microsoft Visual C++ (MSVC) 15 or later is required for Liberica Native Image Kit.

Start `x64 Native Tools Command Prompt` to allow `native-image` and other utilities to find development tools and work from command prompt.

6. Verifying downloaded files

It is a good practice to verify the downloaded installation file by comparing its size on your drive to the size on the Downloads page.

A more advanced approach is to obtain the checksum of the downloaded file in a command-line interface and compare it to the one you can find next to the Liberica NIK link on the Downloads page. Check the OS-specific commands below.

Windows

To get the checksum of the downloaded file in the command-line, run the following command in Windows PowerShell. To run PowerShell, open the **Start** menu or press the Windows key + R, type powershell in the **Run** dialog box, and click **OK**.

```
(Get-FileHash .\bellsoft-liberica-vm-openjdk21.0.13.0.3+6-23.1.13+1-windows-amd64.msi -Algorithm SHA1).Hash
```

Apple macOS

To get the checksum of the downloaded file, use the following command.

```
shasum -a 1 bellsoft-liberica-vm-openjdk21.0.13.0.3+6-23.1.13+1-macos-amd64.dmg
```

Linux

To get the checksum of the downloaded file, use the following command. The installation file extension depends on the Linux version.

```
shasum -a 1 bellsoft-liberica-vm-openjdk21.0.13.0.3+6-23.1.13+1-linux-amd64.deb
```



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