YaST Product Creator

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Disclaimer

Contents

Use the YaST Product Creator for SUSE Linux Enterprise 10 SP1 products to create custom product images. The custom image preparation support was developed to integrate all existing tools for image creation and simplify deployment and distribution of all SUSE Linux Enterprise products.

The YaST Product Creator is a unified graphical front-end for CD Creator, Add-On Creator, and KIWI. It was developed to provide image creation functionality in one place. All tools integrated in the YaST Product Creator are still available as separate YaST modules or applications.

The YaST Product Creator is suitable for creating the following types of images:

- Custom installation media—see Section 2.1, "Creating a Custom Installation Medium Image" (page 7)

- Add-on products—see Section 2.2, "Creating Add-On Product" (page 8)

- Live ISO images—see Section 2.3, "Creating a Live ISO Image" (page 11)

- USB stick images—see Section 2.4, "Creating a USB Stick Image" (page 12)

- Xen images—see Section 2.5, "Creating a Xen Image" (page 13)

- Virtual disk boot images—see Section 2.6, "Creating a Virtual Disk Boot Image" (page 14)

The YaST Product Creator has some limitations:

- Creates only images for the installed architecture

- Creates images only from sources added with the YaST Installation Sources module or from newly created add-on products

- Does not support creation of bootable add-on product images

The YaST Product Creator provides configurations for all types of images. These configurations can be used as a good base for most situations. If you need a special configuration and are not familiar with the add-on configuration or editing and creating a KIWI configuration, see `http://developer.novell.com/wiki/index.php/Creating_Add-ons.` and `http://en.opensuse.org/KIWI`

1 Installing the YaST Product Creator

Before you can create images with the YaST Product Creator, install the package `yast2-product-creator`. These packages are needed for a fully functional instance of YaST Product Creator: `kiwi`, `kiwi-desc-isoboot`, `kiwi-desc-wyse`, `kiwi-desc-netboot`, `kiwi-desc-xenboot`, `kiwi-pxeboot`, `kiwi-desc-xennetboot`, `kiwi-desc-vmxboot`, `kiwi-desc-livesystem`, and `kiwi-desc-usbboot`.

2 Creating Images

Before you can create an image, prepare at least one product configuration. If you do not have a product configuration, the YaST Product Creator starts the project configuration wizard by default. You can create multiple configurations and create an image as a combination of any of them. To add a new product configuration, click *Add* to start the project configuration wizard.

Figure 1 *The YaST Product Creator Main Window*
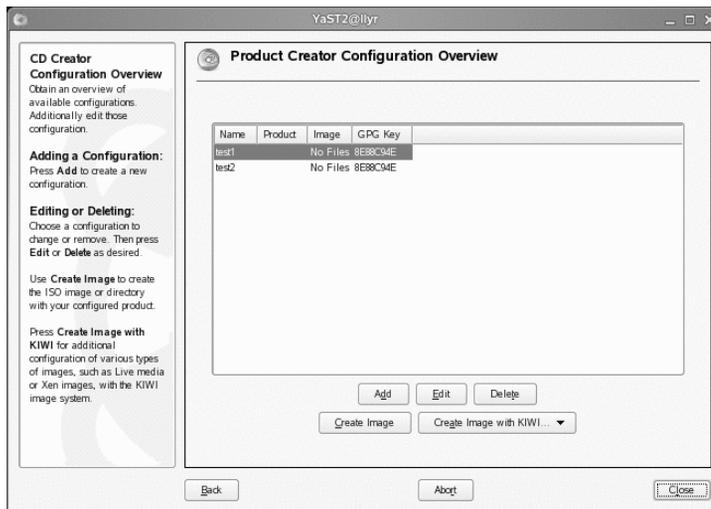
> **Installation Sources**
>
> The YaST Product Creator uses installation sources added to the system with the YaST *Installation Sources* module. The only exception is add-on products sources. It is possible to create and add an add-on product source during a product configuration in the source selection step.

Procedure 1 *Creating a Product Configuration with the Wizard*

1 Enter a name of the product configuration in *Configuration Name*. Select the method with which to select packages. If you choose *Package Manager*, no packages are preselected and you must select all needed packages manually. The other option is to use an AutoYaST control file with software configuration. Click *Next*.

2 Select or deselect sources. To select a source, select it from the table and click *Select*. To add a new source, select *Create New*. With *Create New*, create and add an add-on product source only. To add a different kind of source, add the source in the YaST *Installation Sources* module first then run the product creator. After source selection, click *Next*.

Figure 2   *The YaST Product Creator Source Selection*
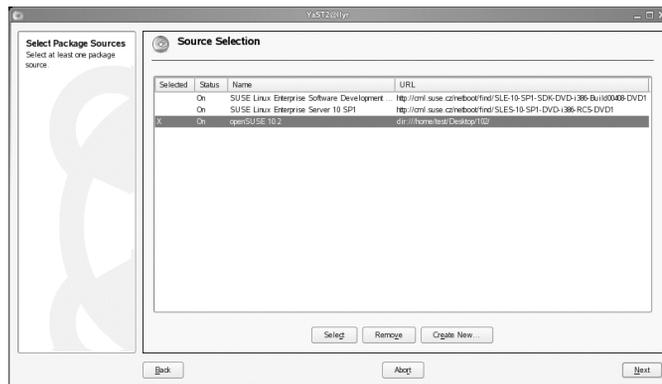
3 Enter the path in which to create the skeleton directory. Choose whether to *Generate ISO Image File* or *Create Directory Tree Only*. Click *Next*.

4 To create a bootable medium, you need an `isolinux.cfg` file. If the file is a part of the configuration, it will be read automatically and you can edit it here. If the file is not a part of the configuration, add it now. To add `isolinux.cfg`, click *Load File*. After adding the file, click *Next*. To create a product configuration for an unbootable image, click *Next* without loading a file.

5 Select patterns for your configuration and click *Next*. To select individual packages, click *Details* and select them. All package dependencies are solved automatically after *Accept* is clicked.

6 The product can be digitally signed. Here, provide a key for your product configuration. Signing your product with your GPG key provides evidence of the origin of your product. To use a GPG key, select *Digitally Sign the Product on the Medium* and select a key from the table. You can create a new key for your product configuration. To create the new key, click *Create a New GPG Key*. After key configuration, click *Next*.

7 Now the summary appears. To change any option, use *Back*. To confirm your new product configuration, click *Finish*.

A product configuration can be changed at any time. To adjust a configuration, select it from the table in the main window and click *Edit*. It opens the product configuration wizard. The steps are the same as during creation of a new product configuration.

To delete a product configuration, select a configuration from the table in the main menu and click *Delete*.

If you have prepared a complete bootable product configuration, you can quickly create an ISO image. To do so, select a product configuration from the table in the main window and click *Create Image*.

> **Note**
>
> Do not use *Create Image* to create an ISO image from unbootable product configuration, such as an add-on image. For information about add-on ISO creation, see Section 2.2, "Creating Add-On Product" (page 8).

2.1 Creating a Custom Installation Medium Image

With the YaST Product Creator, you can create a custom installation medium for your product. This medium can include only packages to install. Creating a custom installation medium saves space on your installation server or decreases the number of CDs you need to burn. Before you can create ISO image, you need a product configuration of custom installation medium. To create it, start the wizard by clicking *Add* in the YaST Product Creator *Configuration Overview* and proceed as follows:

Procedure 2 *Creating a Product Configuration for a Custom Installation Medium*

1 Enter a name of the product configuration in *Configuration Name*. Select the method with which to select packages. If you choose *Package Manager*, no packages are preselected and you must select all needed packages manually. The other option is to use an *AutoYaST Control File* with software configuration. Click *Next*.

2 Select an original product installation CD or DVD as the installation source. After source selection, click *Next*.

3 As the output, select an ISO image or an installation directory. To prepare a custom network installation source, select *Create Directory Tree Only*. You can copy it to your installation server later. To prepare custom installation CDs or DVD, select *Generate ISO Image File* and enter the name of the image. Click *Next*.

4 To create a bootable medium, you need an `isolinux.cfg` file. The file is a part of the configuration of the original medium and you can change it according to your needs now. After adjusting the `isolinux.cfg`, click *Next*.

5 Patterns include groups of packages that provide desired functionality. Select patterns for your custom configuration and click *Next*. For a more precise selection, click *Details* and select or deselect individual packages. All package dependencies are solved automatically after you click *Accept*.

6 The product should be digitally signed so that its authenticity can be verified. To use a GPG key, select *Digitally Sign the Product on the Medium* and select a key from the table. You can create a new key for your product configuration. To create a new key, click *Create a New GPG Key*. After key configuration, click *Next*.

7 Now the summary appears. If you want to change any option, use *Back*. To confirm your new product configuration, click *Finish*.

8 Select your custom product configuration and click *Create Image*.

9 The data is then verified. If it passes without error, click *Next*. If an error occurs, abort the ISO creation and fix the project configuration.

10 Enter the passphrase of the selected GPG key and click *Next* to start ISO creation.

After successful ISO image creation, YaST Product Creator displays its main window. Find the created ISO image in the directory entered in the product configuration.

2.2 Creating Add-On Product

To create an add-on product, you can use the separate *Add-On Creator* YaST module instead of the YaST Product Creator. The ability of YaST Product Creator to create add-on products is especially useful when you want to create an add-on product that

can be incorporated in another product. The add-on image creation in YaST Product Creator takes place during product configuration. If you are not familiar with add-on creation and structure, see `http://developer.novell.com/wiki/index .php/Creating_Add-ons`.

> **Note**
>
> The YaST Product Creator can create only unbootable add-on products.

To create the add-on image, proceed as follows:

Procedure 3   *Creating of the Add-On Image*

1 In the main menu, click *Add*.

2 Enter a name for the add-on product configuration and select a package source. Click *Next*.

3 Click *Create New*.

4 Select whether to create an add-on image from scratch or use an existing configuration as the base. Then click *Next*.

5 Enter *Required Product* and *Path to Directory with Add-On Packages*. Optionally, enter *Path to Directory with Required Product Packages*. These packages are not included in the add-on product, but could be used later for creating patterns. After entering the information, click *Next*.

6 Enter product definitions. To enter a definition value, select a definition and click *Edit*. Find information about the definitions in `http://developer .novell.com/wiki/index.php/Creating_Add-ons#The _content_File`. To add an additional definition, click *Add*. Instead of manually creating the definitions, you can import an existing `content` file by clicking *Import*. After entering or importing the definitions, click *Next*.

7 Edit package descriptions. You can change them or add translations for other languages. The list of available languages is taken from the `LINGUAS` value defined in the previous dialog. The value contains a space-separated list of

ISO codes of languages that should be available. After adjusting the descriptions, click *Next*.

8 You can group your packages as patterns. Making them all part of one patter makes it possible to install all packages from the add-on with a single click. To add a new pattern, click *New* and enter the name of the pattern. After creating a pattern, you can edit its configuration in the second table. To add packages to the pattern, select *Packages*, click *Edit*, and select the desired packages.

To add a translation of a summary, description, or category, click *Add*, select the appropriate language code, and enter the translated text. An add-on product can contain multiple patterns. After pattern configuration, click *Next*.

9 Enter the *Path to Output Directory*. To create an ISO image of the add-on product, also select *Create ISO Image*.

To add a custom workflow, click *Configure Workflow*. In the dialog that opens, specify the path to a file with the workflow description. To use custom YaST modules during installation of the add-on product, enter the path to the `y2update.tgz` archive containing the modules or specify individual RPM packages in *Import the Packages*. Continue with *Next*.

You can add optional files to your add-on, such as license or README files. To add optional files, click *Optional Files*.

After adjusting all options, click *Next* to continue.

10 Select a GPG key to sign your add-on product and enter the passphrase. If you have no GPG key, click *Create* to make one. After selecting the GPG key, click *Next*.

11 In the overview check the add-on configuration. To return to the configuration, click *Back*. To start the add-on product creation, click *Finish*.

To make the add-on product selectable for other product configurations, finish a product configuration. To create an ISO image of the add-on product, select *Create ISO Image* during add-on configuration in the output step.

2.3 Creating a Live ISO Image

With the YaST Product Creator, you can create a custom live ISO image of your product with only the software needed for your daily work. If you select a product configuration before you start the live ISO creation, the live image uses the software selection from the product configuration as the base of the live ISO image.

Procedure 4   *Creating a Live ISO Image*

  1 Select a project configuration from the table in the main menu.

  2 Click *Create Image with KIWI > Live ISO Image*.

  3 Configure the live ISO image settings. In the *Image Configuration* tab, adjust the configuration of the software on the resulting image. To add or remove a pattern or a package from the list, click *Change*. Under *Ignored Software* on the right side, define packages that should not be included in your package selection. To blacklist a new package, click in the list window and write the name of the package with name per line.

  In the *Description* tab, set information about the author of the image and image specification. In the *Users* tab, create users that should be available in the target system. In the *Scripts* tab, adjust configuration scripts that are used to build the image.

  The *Directories* tab contains two tables. In the *Directory with System Configuration* table, you can specify directories to copy to the root directory of the resulting system. For example, add a directory with configuration files. Example directories with configurations are stored in `/usr/share/kiwi/image/ kwliveDVD-suse-10.3/root/`. In the second table, *Directory with Scripts*, add scripts to the `config` directory to run after installation of all the image packages.

  Changes to the image configuration are saved in `/usr/share/kiwi/image/ kwiso-YaST-`*name_of_your_project_configuration* and used for your next live CD or DVD image.

  4 When satisfied with the configuration of the live ISO image, click *Create ISO*. To confirm creation of the live ISO, click *Yes*.

You can find the live ISO image in the directory defined in your system configuration. To create a live CD or DVD from the image, use any burning tool, such as K3b.

2.4 Creating a USB Stick Image

You can also create a USB stick with a live version of your product. The procedure is similar to creation of a live ISO image.

To create a USB stick image, select *Create Image with KIWI > USB Stick* in the main menu. The creation of a live USB stick uses the same configuration dialog as described in Section 2.3, "Creating a Live ISO Image" (page 11). To add files to the USB stick image, add them to *Directory with System Configuration* on the *Directories* tab. During first run of the USB stick image creation, a template directory common for USB, live CD or DVD, and virtual disks is used. Changes to the image configuration are saved in /usr/share/kiwi/image/
kwusb-YaST-*name_of_your_project_configuration* and used for your next USB stick.

To start creation of the image, click *Create USB Stick Image*. To confirm creation, click *Yes*.

You can find the created USB stick image in the directory defined in your product configuration. To write a prepared image to a USB stick, use the following command in the directory with the created image:

```
kiwi --bootstick initrd*.gz\
     --bootstick-system systemImage\
     --bootstick-device your_usb_device
```

Replace *systemImage* with the filename of the created system image and *your_usb_device* with the device name of your USB stick. For example, to write an image created called *custom3-localdir* in /dev/sdb, YaST Product Creator creates the following files in the project directory:

```
custom3-localdir.x86_64-1.1.2
initrd-usbboot-suse-10.2.x86_64-2.1.1.gz
initrd-usbboot-suse-10.2.x86_64-2.1.1.kernel.2.6.18.2-34-default
custom3-localdir.x86_64-1.1.2.md5
initrd-usbboot-suse-10.2.x86_64-2.1.1.kernel
initrd-usbboot-suse-10.2.x86_64-2.1.1.md5
```

To write the image to the USB stick, enter the command:

```
kiwi --bootstick initrd-usbboot-suse-10.2.x86_64-2.1.1.gz \
    --bootstick-system custom3-localdir.x86_64-1.1.2 \
    --bootstick-device /dev/sdb
```

2.5 Creating a Xen Image

The YaST Product Creator provides an easy way to create a Xen image of your product. To create a Xen image, select *Create Image with KIWI > Xen Image* in the main menu. Xen image creation uses the same configuration dialog as described in Section 2.3, "Creating a Live ISO Image" (page 11). Adjust a virtual image configuration. To add preconfigured files to the image, use the *Directories* tab. During the first run of the virtual image creation, a template directory common for USB, live CD or DVD, and virtual disks is used. Changes to the image configuration are saved in /usr/share/ kiwi/image/kwxen-YaST-*name_of_your_project_configuration* and used for your next Xen image.

To start creation, click *Create Xen Image*. To confirm creation, click *Yes*.

The YaST Product Creator creates Xen configuration files and images. To activate the Xen image, enter the command:

```
xm create -c your_project_name.xenconfig
```

For example, if you use a product configuration with the name *livedvd*, the YaST Product Creator creates the following files:

```
initrd-xenboot-suse-10.2.x86_64-2.1.1.gz
initrd-xenboot-suse-10.2.x86_64-2.1.1.kernel
initrd-xenboot-suse-10.2.x86_64-2.1.1.kernel-xen.2.6.18.2-34-xen.gz
initrd-xenboot-suse-10.2.x86_64-2.1.1.kernel.2.6.18.2-34-xen
initrd-xenboot-suse-10.2.x86_64-2.1.1.md5
livedvd.x86_64-1.2.10
livedvd.x86_64-1.2.10.md5
livedvd.x86_64-1.2.10.xenconfig
```

To activate your image, enter:

```
xm create -c livedvd.x86_64-1.2.10.xenconfig
```

2.6 Creating a Virtual Disk Boot Image

With the YaST Product Creator you can create a virtual boot disk image for the virtualization systems QEMU or VMware.

To create a virtual disk boot image, select *Create Image with KIWI* > *Virtual Disk Image* in the main menu. The virtual disk creation has same configuration dialog as described in Section 2.3, "Creating a Live ISO Image" (page 11). Change the image configuration are saved in the directory `/usr/share/kiwi/image/`
`kwvmx-YaST-name_of_your_project_configuration` and used for your next virtual disk boot image.

To start creation, click *Create Virtual Disk Image*. To confirm creation, click *Yes*. The virtual disk `*.vmdk`, where `*` is a project name, is stored in the directory configured in the product configuration selected for the virtual image creation. You can use the resulting image for both QEMU and VMware.

> **Tip**
>
> To start your virtual boot disk image in QEMU, enter `qemu *.vmdk` in the directory with the image.

3 For More Information

Find more information about creating system images and related topics in the following documents:

- `http://en.opensuse.org/KIWI`—KIWI Project

- `/usr/share/doc/packages/kiwi/kiwi.pdf`—KIWI documentation

- `http://developer.novell.com/wiki/index.php/Creating_Add-ons` — Whitepaper about add-on creation

- `http://en.opensuse.org/Installing_Xen3`—Information about Xen configuration

- `http://en.opensuse.org/Creating_YaST_Installation_Sources`—YaST installation source creation