SUSE

SUSE Linux Enterprise Desktop 15 SP6

Modules and Extensions Quick Start

This Quick Start gives you an overview of the modules and extensions available for the SUSE Linux Enterprise family. Learn about their purpose and features, and how to manage them.

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1 Introduction to modules and extensions

Starting with SUSE Linux Enterprise Desktop 15, the installation medium consists of only the Unified Installer: a minimal system for deploying, updating and registering SUSE Linux Enterprise Desktop. During deployment, you can add functionality by selecting modules and extensions to be installed on top of the Unified Installer.

Technically, modules and extensions are very similar. Both can be managed with YaST or the command-line tool **SUSEConnect**. Both modules and extensions add a set of online repositories (`main`, `update`, `source`, `debug`) containing all necessary packages. Additionally, both may add partitioning proposals and system roles that can be chosen during deployment.

However, there are significant differences between modules and extensions:

Modules

Modules allow you to shape the product according to your needs. Each module has a clearly defined scope ranging from tools for Web Development and Scripting, through a Public Cloud, all the way to the SUSE Package Hub, offering community-managed packages.

Modules enable you to provide only the set of packages required for the machine's purpose, making the system lean, fast, and more secure. This modular approach also makes it easy to provide tailor-made images for container and cloud environments.

Modules can be added or removed at any time during the lifecycle of the system. This allows you to easily adjust the system to changing requirements.

Modules are part of your SUSE Linux Enterprise Desktop subscription and therefore free of charge. They differ from the base of SUSE Linux Enterprise Desktop only by their lifecycle.

Extensions

Extensions provide advanced capabilities for tasks such as live patching and high availability clustering to SUSE Linux Enterprise Desktop. They are offered as subscriptions and require a registration key that is liable for costs. Usually, extensions have their own release notes that are available from https://www.suse.com/releasenotes ↗.

1.1 Support

L3 support is generally provided for packages except for `SUSE Package Hub` and third-party modules. To check the support level for a package, run **zypper info** *PACKAGE*.

`Long-Term Service Pack Support` (LTSS) is available for most modules and extensions. For more information, refer to https://www.suse.com/products/long-term-service-pack-support/ ↗.

Some modules and extensions also include `Extended Service Pack Overlay Support` (ESPOS), which gives you significantly more time to upgrade and/or skip a service pack completely.

For more information on support and lifecycles, refer to the SUSE Technical Support Policy (https://www.suse.com/support/policy/) ↗ and the Product Lifecycle Support Policies (https://www.suse.com/support/policy-products/) ↗. For a complete list of lifecycle dates by product, refer to the Product Support Lifecycle (https://www.suse.com/lifecycle/) ↗ page.

2 Modules and extensions for the SUSE Linux Enterprise product family

The following modules and extensions are available within the SUSE Linux Enterprise product family:

- *Basesystem*

- *Certifications*

- *Desktop Applications*

- *Development Tools*

- *Python 3*

- *SUSE Package Hub*

- *Systems Management*

- *Workstation Extension*

Please note that the availability depends on the product. Not all modules and extensions are available for all products. Some modules are included in one product but also available as extension for another.

2.1 Basesystem

This module adds a basic system on top of the Installer. It is required by all other modules and extensions. The scope of an installation that only contains the base system is comparable to the `minimal` system installation pattern of previous SUSE Linux Enterprise Desktop versions. This module is selected for installation by default and should not be deselected.

- **Dependencies:** None

- **Availability:** Default on all products

- **Lifecycle:** 10 years

- **Extended Support:** 3 years LTSS

- **Support level:** L3

2.2 Certifications

This module contains the FIPS certification packages.

- **Depends on:** Basesystem

- **Available for:** SLES, SLED, SLES for SAP, SUSE Linux Enterprise Real Time

- **Lifecycle:** 10 years

- **Extended support:** 3 years LTSS

- **Support level:** L3

2.3 Desktop Applications

This module adds a graphical user interface (Wayland) and essential desktop applications to the system. This module is selected for installation by default; deselecting it is not recommended.

- **Dependencies:** Basesystem

- **Availability:** SLES, SLED (default), SLE WE (default), SLES for SAP, SLE RT (default)

- **Lifecycle:** 10 years

- **Extended support:** 3 years LTSS

- **Level:** L3

2.4 Development Tools

This module contains compilers (including `gcc`) and libraries required for compiling and debugging applications. Replaces the former Software Development Kit (SDK).

Dependencies: Basesystem, Desktop Applications

- **Availability:** SLES, SLES for SAP, SLED, SLE RT (default)

- **Lifecycle:** 10 years

- **Extended support:** 3 years LTSS

- **Level:** L3

2.5   Python 3

This module provides two additional Python interpreters:

- Python 3.11 and many additional maintained Python 3.11 modules. The Python 3.11 interpreter and modules are supported until the end of December 2027 and might be updated with the next service pack (if compatible and when needed).

- Python 3.12 with all necessary modules for getting Python modules from PyPI. The Python 3.12 interpreter and modules are supported for 1.5 years until general support for SLE 15 SP6 ends.

Packages from the Python 3 module can be installed alongside existing Python packages, and they can coexist in the same system without impacting Python 3.6 workloads.

- **Dependencies:** Basesystem

- **Availability:** SLES (default), SLES for SAP, SLED (default)

- **Lifecycle:** Python 3.11: 31 Dec 2027, Python 3.12: 1.5 years (end of SLE 15 SP6 general support)

- **Extended support:** None

- **Level:** L3

2.6   SUSE Package Hub

This module provides access to packages for SUSE Linux Enterprise Desktop maintained by the openSUSE community. These packages are delivered without L3 support but do not interfere with the supportability of SUSE Linux Enterprise Desktop. For more information, refer to https:// packagehub.suse.com/ ↗ .

- **Dependencies:** Basesystem

- **Availability:** SLES, SLES for SAP, SLE RT, SLED

- **Lifecycle:** None

- **Extended support:** None

- **Level:** None

2.7 Systems Management

This module provides recent and more frequently updated versions of systems management packages such as Salt and Ansible.

- **Dependencies:** Python 3

- **Availability:** SLES, SLES for SAP, SLED

- **Lifecycle:** 6 years

- **Extended support:** 3 years LTSS

- **Level:** L3

2.8 Workstation Extension

This extension offers additional desktop applications and libraries. It is installed by default on SUSE Linux Enterprise Desktop. Adding the Workstation Extension to a SUSE Linux Enterprise Server installation allows you to seamlessly combine both products to create a fully featured server workstation. For more information, refer to https://www.suse.com/products/workstation-extension ↗ .

✋ Warning: Unsupported kernel modules

The Workstation Extension installs the `kernel-default-extra` package, which includes additional kernel modules for desktop usage and enables loading of unsupported modules. If actually loaded, these modules may compromise your SLE support status.

Please evaluate if your hardware really requires additional kernel modules, and if so, test this expanded driver set in addition to the default set from the `kernel-default` package for possible configuration conflicts.

To prevent installation of the `kernel-default-extra` package, run **`zypper addlock kernel-default-extra`**.

- **Dependencies:** Basesystem, Desktop

- **Availability:** SLES, SLED (default), SLES for SAP

- **Lifecycle:** 10 years

- **Extended support:** None

- **Level:** mixed L2/L3 (depending on package)

3   Installing and managing modules and extensions

Modules and extensions can be installed when initially setting up the system and on an existing SUSE Linux Enterprise Desktop installation.

3.1   Installing modules and extensions during system installation

Modules and extensions can easily be installed when setting up the system. The respective steps are part of the installation routine. Following the default installation path, this requires network access to contact the SUSE Customer Center or a local registration server (SUSE Manager (https://www.suse.com/products/suse-manager/) ↗ or Repository Mirroring Tool), which provide the respective repositories. Offline installation is supported, too. In that case, an additional installation media is required. For detailed information, refer to *Book "Deployment Guide", Chapter 5 "Installation steps", Section 5.7 "Extension and module selection"*.

3.2   Installing modules and extensions with YaST

To install modules & extensions from the running system, you need to make sure your system is registered with the SUSE Customer Center or a local registration server. If you have not done so during the installation, refer to *Book "Deployment Guide", Chapter 6 "Registering SUSE Linux Enterprise and managing modules/extensions", Section 6.2 "Registering from the installed system"* for instructions.

Tip: SUSE Linux Enterprise Desktop

As of SUSE Linux Enterprise 12, SUSE Linux Enterprise Desktop is not only available as a separate product, but also as a Workstation Extension for SUSE Linux Enterprise Server. If you register at the SUSE Customer Center, the Workstation Extension can be selected for installation. Note that installing it requires a valid registration key.

Note: Viewing already installed add-ons

To view already installed add-ons, start YaST and select *Software* › *Add-Ons*.

PROCEDURE 1: INSTALLING ADD-ONS AND EXTENSIONS FROM ONLINE CHANNELS WITH YAST

1. Start YaST and select *Software* › *System Extensions*. YaST connects to the registration server and displays a list of *Available Extensions and Modules*.

> **Note: Available extensions and modules**
>
> The number of available extensions and modules depends on the registration server. A local registration server may only offer update repositories and no additional extensions.

2. Click an entry to see its description.

3. To add modules or extensions, select all components you want to install. Note that all extensions require additional registration codes which are liable for cost.

4. Click *Next* to proceed.

5. Depending on the repositories to be added for the extension or module, you may be prompted to import the repository's GPG key or asked to agree to a license.

6. The YaST package manager opens to install `release`-packages for each module and, depending on your choice of modules and extensions, additional packages. It is strongly recommended *not to deselect* any of the preselected packages; you may, however, add additional packages.

   Choose *Accept* and *Finish* to conclude the process.

7. If needed, adjust the repository *Properties* as described in *Book "Administration Guide", Chapter 8 "Installing or removing software", Section 8.4.2 "Managing repository properties"*.

> **Tip: Module dependencies**
>
> Similar to software packages, which may depend on other packages to function, a module may have dependencies on other modules. If this is the case, the modules on which it depends are automatically selected for installation.

3.3   Installing extensions and third-party add-on products from media

When installing an extension or add-on product from media, you can select various types of product media, like DVD/CD, removable mass storage devices (such as flash disks), or a local directory or ISO image. The media can also be provided by a network server, for example, via HTTP, FTP, NFS, or Samba.

1. Start YaST and select *Software* › *Add-On Products*. Alternatively, start the YaST *Add-On Products* module from the command line with `sudo yast2 add-on`.

   The dialog will show an overview of already installed add-on products, modules and extensions.
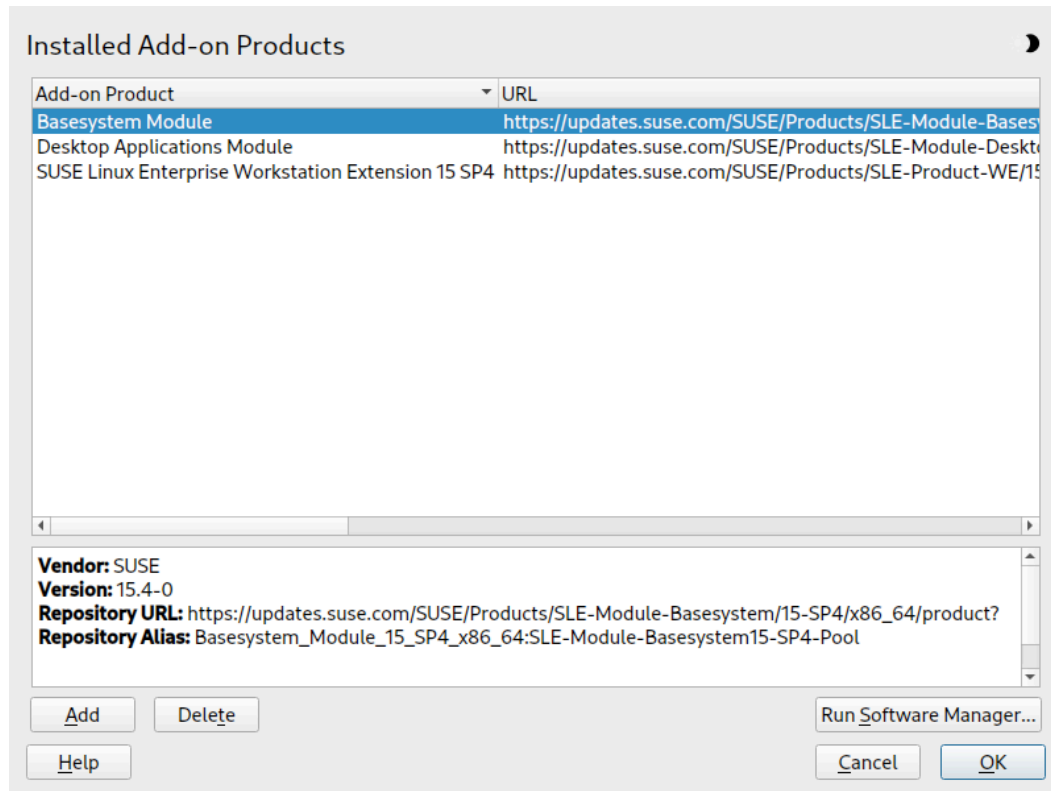
2. Click *Add* to install a new add-on product.

3. In the *Add-On Product* dialog, select the option that matches the type of medium from which you want to install:

```
Add On Product

                    ○ Scan Using SLP...
                    ○ Extensions and Modules from Registration Server...
                    ● Specify URL...
                    ○ FTP...
                    ○ HTTP...
                    ○ HTTPS...
                    ○ SMB/CIFS
                    ○ NFS...
                    ○ CD...
                    ○ DVD...
                    ○ Hard Disk...
                    ○ USB Mass Storage (USB Stick, Disk)...
                    ○ Local Directory...
                    ○ Local ISO Image...

                    ☑ Download repository description files

  Help                                    Abort      Back      Next
```

- To scan your network for installation servers announcing their services via SLP, select *Scan Using SLP* and click *Next*.

- To add a repository from a removable medium, choose the relevant option and insert the medium or connect the USB device to the machine, respectively. Click *Next* to start the installation.

- For most media types, you will be prompted to specify the path (or URL) to the media after selecting the respective option and clicking *Next*. Specifying a *Repository Name* is optional. If none is specified, YaST will use the product name or the URL as the repository name.

The option *Download Repository Description Files* is activated by default. If you deactivate the option, YaST will automatically download the files later, if needed.

4. Depending on the repository you have added, you may be prompted to import the repository's GPG key or asked to agree to a license.

After confirming these messages, YaST will download and parse the metadata. It will add the repository to the list of *Configured Repositories*.

5. If needed, adjust the repository *Properties* as described in *Book "Administration Guide", Chapter 8 "Installing or removing software", Section 8.4.2 "Managing repository properties"*.

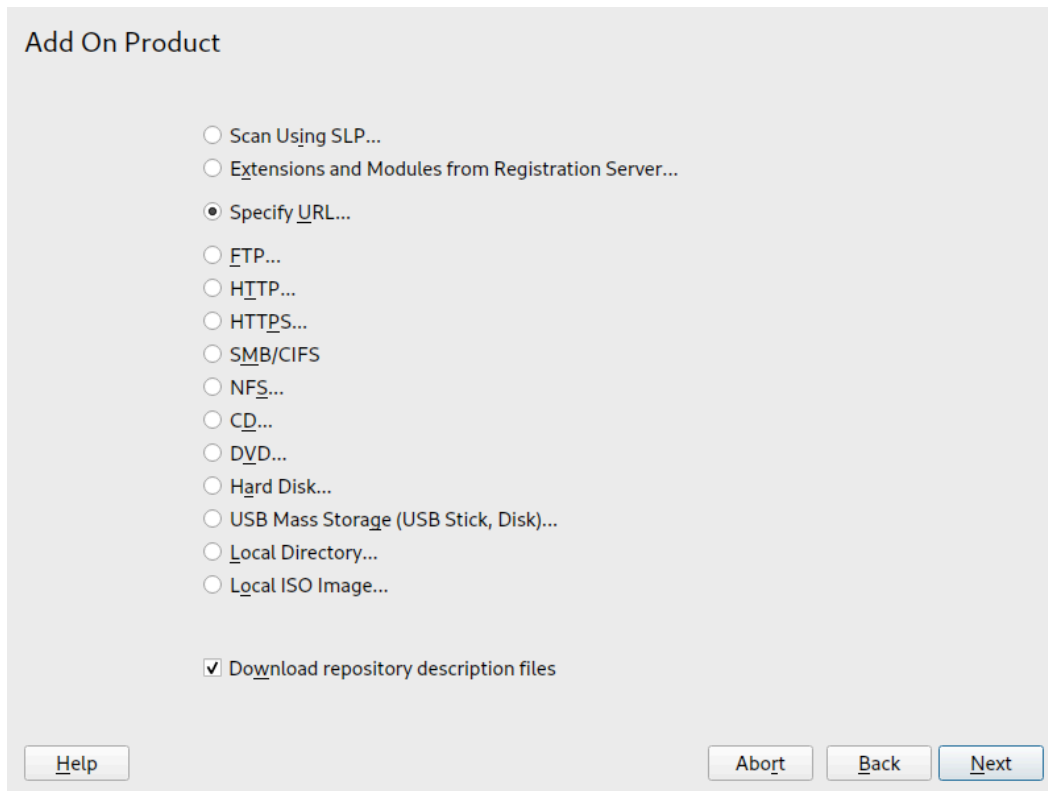6. Confirm your changes with *OK* to close the configuration dialog.

7. After having successfully added the repository for the add-on media, the software manager starts, and you can install packages. For details, refer to *Book "Administration Guide", Chapter 8 "Installing or removing software"*.

3.4 Deleting modules and extensions with YaST

1. Start *YaST › Software › Add-On Products*.
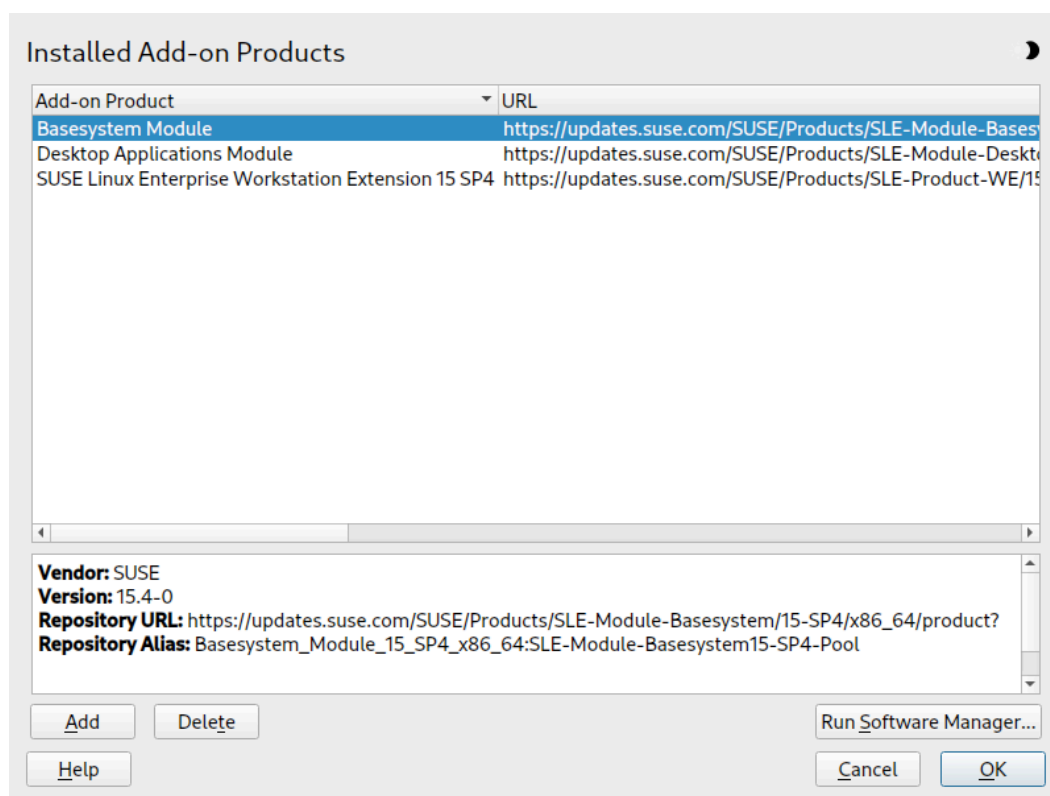
2. Choose the module or extension that should be removed and click *Delete*. Confirm the warning saying that all packages from the selected component will be removed.

3. The YaST Software Manager opens and lists all installed packages from the deleted module or extension. Click *Accept* to remove all of them. It is strongly recommended to do so, because you will no longer get updates for packages from deleted modules or extensions. If you keep packages, make sure to at least remove the `*-release` package for each module or extension that gets deleted.

   Proceed with *Accept* and then *OK*.

✋ Warning: Deleting modules

Note that you should never delete the *Basesystem Module*. It is also not recommended to delete the *SUSE Linux Enterprise Workstation Extension* and *Desktop Applications Module*.

✋ Warning: No updates for packages from deleted modules and extensions

If you choose to keep packages from deleted modules or extensions, you will no longer receive updates for these packages. Because this includes security fixes, keeping such packages may introduce a security risk to your system.

3.5   Adding or deleting modules and extensions with SUSEConnect

1. Run **SUSEConnect --list-extensions** to get an overview of available extensions:

```
> sudo SUSEConnect -list-extensions
AVAILABLE EXTENSIONS AND MODULES

    Basesystem Module 15 SP6 x86_64 (Activated)
    Deactivate with: SUSEConnect -d -p sle-module-basesystem/15.6/x86_64

        Desktop Applications Module 15 SP6 x86_64 (Activated)
        Deactivate with: SUSEConnect -d -p sle-module-desktop-applications/15.6/
x86_64

            Development Tools Module 15 SP6 x86_64
            Activate with: SUSEConnect    -p sle-module-development-tools/15.6/
x86_64

            SUSE Linux Enterprise Workstation Extension 15 SP6 x86_64 (Activated)
            Deactivate with: SUSEConnect -d -p sle-we/15.6/x86_64
```

```
        Python 3 Module 15 SP6 x86_64
        Activate with: SUSEConnect -p sle-module-python3/15.6/x86_64

        SUSE Package Hub 15 SP6 x86_64
        Activate with: SUSEConnect    -p PackageHub/15.6/x86_64

    Certifications Module 15 SP6 x86_64
    Activate with: SUSEConnect -p sle-module-certifications/15.6/x86_64


REMARKS

(Not available) The module/extension is not enabled on your RMT/SMT
(Activated)     The module/extension is activated on your system

MORE INFORMATION

You can find more information about available modules here:
https://www.suse.com/documentation/sles-15/singlehtml/art_modules/art_modules.html
```

2. Run the commands in the listing for activating/deactivating a module or extension to add or delete a component. Note that adding an extension requires additional registration codes which are liable for cost.

✋ Warning: Deleting modules

Note that you should never delete the *Basesystem Module*. It is also not recommended to delete the *SUSE Linux Enterprise Workstation Extension* and *Desktop Applications Module*.

❗ Important: No automatic installation or removal of packages

`SUSEConnect` only adds or removes modules and extensions. It registers or deregisters the components and enables or disables their repositories, but it does not install or remove any packages. If you want this to be done automatically, use YaST to manage modules and extensions.

When adding a module or extension, `SUSEConnect` does not install default packages or patterns. To do this manually, use Zypper or *YaST › Software Management*.

When deleting a module or extension, `SUSEConnect` does not perform a cleanup. Packages from the module or extension remain installed on the system, but are no longer updated from a repository. To list these "orphaned" packages, run `zypper packages --orphaned`.

To remove one or more packages, run `zypper remove PACKAGE [ANOTHER_PACKAGE]`.
Alternatively, use *YaST* › *Software Management* and then *View* › *Package Classification* › *Orphaned Packages* to list and delete orphaned packages.

> ✋ Warning: No updates for packages from deleted modules and extensions
>
> If you choose to keep packages from deleted modules or extensions, you will no longer receive updates for these packages. Because this includes security fixes, keeping such packages may introduce a security risk to your system.

4 Module membership of packages

By default, tools for searching software packages (YaST Software Management or `zypper search`) are restricted to searching within active repositories. For an extended search including not yet activated remote repositories, you can run

```
zypper search-packages PACKAGE
```

> 💡 Tip: Searching for packages in the SUSE Customer Center
>
> You can also search for packages and their respective modules in the SUSE Customer Center Web interface at https://scc.suse.com/packages ↗. A SUSE login is *not* required for this service.

To refine the search results, `zypper search-packages` offers the following options:

`-x, --match-exact`
Searches for exact matches.

`-g, --group-by-module`
Groups the search results by modules rather than by package name.

`-d, --details`
Additionally lists version numbers and repositories containing the package.

`--xmlout`
Generates XML output.

Below are a few examples of how to use **zypper search-packages**.

The following command searches for the packages `nodejs` and `hawk`. The first one is available in the `Web and Scripting` module, while the second one is part of SUSE Linux Enterprise High Availability. Both packages are not yet installed:

```
> zypper search-packages openjdk nodejs
Following packages were found in following modules:

Package         Module or Repository
                  SUSEConnect Activation Command
--------------- ----------------------------------------------------------------
----------------- ----------------------------------------------------------------
java-11-openjdk  Basesystem Module (sle-module-basesystem/15.4/x86_64)
                  SUSEConnect --product sle-module-basesystem/15.4/x86_64
java-17-openjdk  Basesystem Module (sle-module-basesystem/15.4/x86_64)
                  SUSEConnect --product sle-module-basesystem/15.4/x86_64
nodejs14         Web and Scripting Module (sle-module-web-scripting/15.4/x86_64)
                  SUSEConnect --product sle-module-web-scripting/15.4/x86_64
nodejs16         Web and Scripting Module (sle-module-web-scripting/15.4/x86_64)
                  SUSEConnect --product sle-module-web-scripting/15.4/x86_64
[...]
```

If you know the exact package names, you can narrow the results down to exact matches by using the option `-x`:

```
> zypper search-packages -x java-11-openjdk nodejs14
Following packages were found in following modules:

Package         Module or Repository
                  SUSEConnect Activation Command
--------------- ----------------------------------------------------------------
----------------- ----------------------------------------------------------------
java-11-openjdk  Basesystem Module (sle-module-basesystem/15.4/x86_64)
                  SUSEConnect --product sle-module-basesystem/15.4/x86_64
nodejs14         Web and Scripting Module (sle-module-web-scripting/15.4/x86_64)
                  SUSEConnect --product sle-module-web-scripting/15.4/x86_64
[...]
```

If you search for packages that are already installed or are available in one of the modules that are available on your system, the search results differ. In the following example, the package `vim` is already installed. The package `emacs` is not installed, but is available for installation without having to add a module.

```
> zypper search-packages -x vim
Following packages were found in following modules:


Package  Module or Repository
          SUSEConnect Activation Command
--- ------------------------------------------------------------------------------------
---------- --------------------------------------------------------------------------------
vim Basesystem Module (sle-module-basesystem/15.4/x86_64)
      SUSEConnect --product sle-module-basesystem/15.4/x86_64
vim Installed
vim Available in repo Basesystem_Module_15_SP4_x86_64:SLE-Module-Basesystem15-SP4-Pool
vim Available in repo Basesystem_Module_15_SP4_x86_64:SLE-Module-Basesystem15-SP4-Updates

> zypper search-packages -x emacs
Following packages were found in following modules:


Package Module or Repository
          SUSEConnect Activation Command
----- ------------------------------------------------------------------------------------
---------- --------------------------------------------------------------------------------
emacs Basesystem Module (sle-module-basesystem/15.4/x86_64)
        SUSEConnect --product sle-module-basesystem/15.4/x86_64
emacs Available in repo Basesystem_Module_15_SP4_x86_64:SLE-Module-Basesystem15-SP4-Pool
```

Instead of searching for packages, you can also view the list of packages that belong to a module or extension. Start the YaST *Software Management* module and click *View › Services*. Select an entry to display the list of packages that belong to this module or extension.

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