
White Paper

Server

SUSE[®] Linux Enterprise Server 12 Modules

What Can Modular Packaging Do for You?

What if you could use a reliable operating system for your servers, while getting easier and faster updates to the specific packages each server needs? The new modular design of SUSE® Linux Enterprise Server 12 makes this possible.

You can now get new versions of the tools you need (such as scripting languages, cloud initialization codes and more) frequently, rather than waiting for the next operating system service pack or version release.

Requirements for Modern IT

A stable operating system is crucial, but no longer enough. Organizations now need faster and easier access to the latest open source software and innovations. Whatever technology a competitor has is something you need so you can compete. Updates to your infrastructure should come regularly and rapidly. In certain areas of technology, like development tools, waiting for a service pack release that might be about a year away leaves you unable to integrate with other technology or to support the business.

Stability and innovation are important business requirements. Another is having excellent support for your operating system and any innovations or updates that come with it.

Introducing SUSE Linux Enterprise Server Modules

SUSE is introducing a modular design in SUSE Linux Enterprise Server 12. This new design gives you timelier and easier access to the latest technology in areas of rapid innovation.

The Modules Are...

SUSE Linux Enterprise Server Modules are sets of packages grouped into their own repository and updated independently of service pack lifecycles. The lifecycle for each module is different. The packages in each module have a common use case and a common support status. SUSE fully maintains and supports the modules.

The Modules Are Not...

These modules are not replacements for patterns or packages that SUSE Linux Enterprise Server customers already have. Modules are not separate products you can order, or pricing options of SUSE Linux Enterprise Server. They are included in a SUSE Linux Enterprise Server subscription without additional cost.

The modular design approach allows faster integration with upstream updates for better agility. Your organization can get innovations quicker, letting you adapt faster to new market trends. It also lets you balance the flexibility of the modules with the stability of your infrastructure.

The Modules

There are seven modules available from SUSE

Module Name	Content	Lifecycle
Web and Scripting Module	PHP, Python; Future: Ruby on Rail, Node.js	3 years, with 18 month overlap
Legacy Module	Sendmail, old IMAP stack, old Java, etc.	September 2017
Public Cloud Module	Public cloud initialization codes and tools	Frequent releases
Toolchain Module	GNU Compiler Collection (GCC)	Yearly delivery
Certifications Module	FIP140-2 certification-specific packages	Certification-dependent
Containers Module	Docker and SUSE prepackaged images	Frequent releases
Advanced Systems Management Module	CFEngine, Puppet and the new Machinery tool	Frequent releases

Web and Scripting Module

The SUSE Linux Enterprise Web and Scripting Module is where the idea for SUSE modules began. It delivers a comprehensive suite of scripting languages, frameworks and related tools to help developers and system administrators accelerate the creation of stable, modern web applications. The module includes recent versions of dynamic languages, such as PHP and Python. If your SUSE Linux Enterprise Server installation runs a web server or hosts applications that have web portals or require server-side scripts, you will want the Web and Scripting Module.

The lifecycle of the languages in the module is three years, but SUSE plans to update each language every 18 months, based on upstream availability. As the table below illustrates, this provides an 18-month overlap period. Customers who don't wish to disrupt a stable environment can proceed slowly, while those eager for the latest developments can leap to the new version of a language immediately.

Web and Scripting Module lifecycle:

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
PHP first release					
	PHP second release				
		PHP third release			

The table above illustrates that the overlap gives you two versions of PHP to choose from. The same is true of the other languages included in the Web and Scripting Module.

Legacy Module

The Legacy Module helps you migrate applications from older systems to SUSE Linux Enterprise Server 12. For organizations contemplating a move from UNIX to Linux, this module may be essential. Many older applications require packages that are no longer available with the latest SUSE Linux Enterprise version. This module provides those packages. It includes packages such as sendmail, syslog-ng, IBM Java6 and a number of libraries (for example, openssl-0.9.8).

This module also helps in migrating applications from SUSE Linux Enterprise 10 and 11 to SUSE Linux Enterprise 12.

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Public Cloud Module

The Public Cloud Module is a collection of tools that enables you to create and manage cloud images from the command line in SUSE Linux Enterprise Server. SUSE Linux Enterprise Server is the best operating system choice for running in public clouds, but to do so, your SUSE Linux Enterprise Server image must include an initialization (init) code specific to the target public cloud, so that cloud's software knows how to boot and initialize the image. This init code is different for each cloud provider. With the Public Cloud Module, SUSE provides the necessary init codes and other tools to work with popular public clouds such as Amazon EC2, Google Cloud Engine and Microsoft Azure as well as private and public clouds based on OpenStack.

This module is updated frequently, which means that if a public cloud changes the init code or upload tool it requires, you don't have to wait for a new release of the module. The SUSE team providing the codes will update the module to keep pace with cloud requirements.

This module can significantly increase operational efficiency when combined with a build tool such as KIWI or SUSE Studio™. You can build an image in your build tool and include the necessary init code in the image, then use the tools provided in the module to upload that image to the public cloud quickly and easily, giving your business the efficient and rapid IT response it expects from cloud operations.

Toolchain Module

The GNU toolchain is a collection of programming tools produced by the GNU Project. Developers use these tools for creating applications and operating systems. This module offers software developers a current toolchain consisting of the GNU Compiler Collection (GCC) and related packages. This enables independent software vendors and customers to deliver applications that take advantage of new standards and additional hardware features. This module is essential for any workstation that developers will use.

In SUSE Linux Enterprise Server 11 and other past versions, new toolchains were available every 18 to 24 months. By delivering

the Toolchain Module every year, we can provide developers with more up-to-date and effective tools.

Certifications Module

The Federal Information Processing Standard (FIPS) Publication 140-2, (FIPS 140-2) is a U.S. government computer security standard used to accredit cryptographic modules. With this certification, customers will have more confidence to handle sensitive information on SUSE Linux Enterprise Server 12. In the context of the FIPS 140-2 certification, the status of specific packages needs to be "unchanged" or "frozen". The Certifications Module provides those package versions separated from the packages in SUSE Linux Enterprise Server which get regular maintenance updates.

Containers Module

Next-generation application delivery with Docker and containers. Docker, the open platform for distributed applications that allows developers and IT administrators to build, ship and run applications anywhere, is supported in SUSE Linux Enterprise Server 12 for production environments. Consisting of Docker Engine, a portable, lightweight runtime and packaging tool, and Docker Hub, a cloud service for sharing applications and automating workflows, Docker enables applications to be quickly assembled from components and deployed into a production environment. In SUSE Linux Enterprise Server 12, Docker is fully supported to improve operational efficiency in your enterprise environment.

This Module contains several packages revolving around containers and related tools, including Docker and prepackaged images for SUSE Linux Enterprise Server 11 and SUSE Linux Enterprise Server 12.

Advanced Systems Management Module

This module contains three components to support system administrators in automating tasks in the data center and cloud: the configuration management tools CFEngine and Puppet, and the new Machinery infrastructure.

We have previously included CFEngine and Puppet in SUSE Linux Enterprise Server. Now we have pulled them out of the base OS and included them in this module so we can update these popular and widely adopted tools more regularly.

The third component of the Advanced Systems Management Module is Machinery, which is based on the open source Machinery project. Machinery is a systems management toolbox that enables you to inspect systems remotely and store and compare their system descriptions. You can then use these system descriptions in migrations, server consolidations, disaster recovery scenarios, when building and maintaining a golden image or in cluster and scale-out scenarios.

You can learn more about Machinery at: **machinery-project.org**

The Advanced Systems Management Module will be updated frequently, so you have the latest systems management tools possible and will get updates as they become available. Using the Modular approach, SUSE will continue to provide new packages and updates to existing software in the Modules, as appropriate to the needs of our customers and partners.



**Contact your local SUSE Solutions Provider,
or call SUSE at:**

1 800 796 3700 U.S./Canada
1 801 861 4500 Worldwide

SUSE
Maxfeldstrasse 5
90409 Nuremberg
Germany

www.suse.com