

# Adoption de SUSE Linux Enterprise 16

Principales différences entre SUSE Linux Enterprise 15 et 16

## CONTENU

Cet article décrit les principales différences entre SLE 15 et 16.

## MOTIF

Cet article vous aide à évaluer une mise à niveau vers SLE 16.

## EFFORT

La lecture de l'article prend environ 10 minutes.

## OBJECTIF

Comprendre comment optimiser l'adoption de SLE 16.

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# 1 Architecture minimale de processeur prise en charge

	AMD64/ Intel 64 (x86-64)	IBM POWER (ppc64le)	IBM Z (s390x)	Arm (AArch64)
SLES 15	x86-64-v1	POWER8	z12	ARMv8.0-A
SLES 16	x86-64-v2 <sup>1, 2</sup>	POWER10 <sup>3</sup>	z14	ARMv8.0-A

<sup>1</sup> Afin d'améliorer les performances globales, SLES 16 fournit également certaines bibliothèques partagées optimisées pour x86-64-v3. Ces bibliothèques seront installées et utilisées automatiquement sur les systèmes prenant en charge la version 3. Vous pouvez savoir qu'un paquet a été optimisé si son nom contient la chaîne `x86_42_v3`.

<sup>2</sup> SLES 16 supprime la prise en charge des applications 32 bits. Le kernel Linux peut toujours activer les appels système 32 bits en installant le paquet `grub2-compat-ia32` à partir de SUSE Package Hub.

<sup>3</sup> SLES 16 peut être exécuté sous Power9, mais SUSE ne prend en charge que Power10 et les versions supérieures.

## 2 Contrôle des versions et cycle de version

- Pour les mises à jour annuelles, SLE 15 utilise des Service Packs (SP) tels que SP1, SP2, SP3, SP4, SP5, SP6 et SP7, qui est le dernier Service Pack publié pour SLE 15.
- SLE 16 introduit un nouveau schéma pour désigner les versions, en utilisant des versions mineures telles que 16.0, 16.1, au lieu de SP. La sortie des versions est prévue chaque année et toujours en novembre. La version initiale, 16.0, est prévue pour novembre 2025.

## 3 Cycle de vie

- SUSE Linux Enterprise Server 15 bénéficie d'un support général de 1,5 an par Service Pack (sauf exceptions) et propose diverses options de support étendu telles que LTSS (Long Term Service Pack Support - support à long terme au niveau des Service Packs) et

ESPOS (Extended Service Pack Overlap Support - Prise en charge étendue du chevauchement de Service Packs). Le support total pour SLE 15 couvre jusqu'à 13 ans (10 ans de support général + 3 ans de support LTSS). Le support général de SLES 15 SP7 est assuré jusqu'au 31/07/2031, celui de LTSS jusqu'au 31/07/2034 et celui de base de LTSS jusqu'au 31/12/2037. Les SP de SUSE Linux Enterprise Server 15 pour les applications SAP couvrent une période de support totale de 4,5 ans.

- SLES 16 est prêt pour l'avenir au-delà de 2038. Le support général devrait prendre fin en novembre 2035 pour LTSS et Extreme LTSS au-delà de 2040. SUSE Linux Enterprise Server 16 pour les applications SAP bénéficie d'un support général de 1,5 an et d'un support étendu de 3 ans.

## 4 Gestion des systèmes

- Dans SLE 15 et les versions antérieures, YaST était utilisé pour l'installation, la configuration et la gestion des systèmes. L'installation sans surveillance et l'installation des scripts ont été effectuées par AutoYaST.
- Dans SLE 16, des changements significatifs sont apportés à la gestion des systèmes :
  - L'installation (y compris sans surveillance) est désormais assurée par Agama. Agama est un nouveau programme d'installation avec une interface Web « front-end », une interface de ligne de commande ainsi qu'une API pour l'intégration. Il se concentre sur l'installation en faveur d'outils de gestion de la configuration logicielle (SCM - software configuration management). Agama prend en charge l'importation d'une configuration répétée.
  - La gestion de la configuration utilise Salt et Ansible via SUSE Multi-Linux Manager. Les clients reçoivent ainsi une automatisation prête à l'emploi.
  - La gestion à distance est gérée par Cockpit, une interface Web frontale pour la gestion individuelle des machines.

Ces évolutions de SLE 16 entendent offrir une meilleure intégration avec Salt et Ansible, permettent une installation à distance via un navigateur Web, et proposent différentes interfaces (Web, CLI, HTTP API) pour contrôler le processus.

## 5 Structure de sécurité

- SLE 15 utilise AppArmor par défaut. SELinux est livré sans stratégies.
- SLE 16 fournit SELinux avec des stratégies pour plus de 400 modules par défaut, confinant la quasi-totalité du système. Des parties du système peuvent fonctionner sans confinement si vous le souhaitez. SUSE Linux Enterprise Server 16 pour les applications SAP a amélioré l'isolation des charges de travail avec SELinux, en isolant les données et les flux de données, ainsi que les conteneurs.

## 6 Pile de mise en réseau

- SLE 15 utilisait wicked et NetworkManager.
- SLE 16 se concentre sur une seule pile à l'aide de NetworkManager.

## 7 Déploiement

- SLE 15 proposait des images prêtes à l'emploi pour les machines virtuelles ou les clouds publics et des supports d'installation pour un déploiement manuel à l'aide de YaST ou automatisé à l'aide d'AutoYaST. Il utilisait un environnement d'installation spécial avec une configuration linuxrc. L'importation du profil AutoYaST ne devait être effectuée qu'une seule fois.
- SLE 16 utilise des images prêtes à l'emploi pour les machines virtuelles ou les clouds publics, et un déploiement manuel/automatisé avec Agama. Le programme d'installation d'Agama est accessible via une interface Web, une ligne de commande ou une API HTTP. Agama autorise l'importation d'une configuration répétée. Il utilise un support en direct standard avec dracut, systemd et NetworkManager et fournit une couche de rétrocompatibilité avec certaines options linuxrc.

## 8 Système d'initialisation

- SLE 15 utilisait systemd avec des unités natives et la compatibilité avec les scripts d'initialisation SysV tiers.
- SLE 16 achève la transition de SysV init et utilise exclusivement les unités natives systemd.

## 9 Configuration du système d'exploitation par défaut

- Dans SLE 15, la configuration par défaut du système d'exploitation se trouvait principalement dans /etc.
- Dans SLE 16, les valeurs par défaut se trouvent dans /usr et /etc sert à la personnalisation. Cette distinction entre les valeurs par défaut provenant du fournisseur et la personnalisation de l'administrateur facilite les mises à jour et, éventuellement, un système de fichiers /usr en écriture seule.

## 10 Utilisation de tmpfs par /tmp

- Dans SLE 15, /tmp était un dossier ou une partition ordinaire. Dans la configuration par défaut avec Btrfs comme système de fichiers racine, il s'agissait d'un sous-volume Btrfs.
- Dans SLE 16, /tmp utilise le système de fichiers tmpfs, qui stocke les données dans la mémoire vive (RAM) physique et/ou dans l'espace d'échange, ce qui le rend très rapide pour les opérations de lecture et d'écriture.



### Important : /tmp n'est plus persistant

Sur tmpfs, le contenu de /tmp n'est pas persistant entre les redémarrages. Si vous avez des applications qui écrivent des données persistantes dans /tmp, ajustez-les pour qu'elles utilisent un emplacement différent tel que /var/cache.

## ! Important : ne surdimensionnez pas /tmp

Le surdimensionnement des instances du système de fichiers `tmpfs` au-delà de la somme de la RAM physique et de l'espace d'échange d'un système peut conduire à des situations de blocage où le système ne répond plus en raison de l'insuffisance de la mémoire disponible.

## 11 Environnement de bureau

- SLE 15 utilisait GNOME comme environnement de bureau par défaut. SUSE Linux Enterprise Desktop et SUSE Linux Enterprise Workstation Extension partageaient des outils de productivité de bureau.
- SLE 16 utilise un bureau GNOME minimal. Cela permet de minimiser la surface de sécurité. SUSE Linux Enterprise Desktop n'est pas prévu pour la version 16.0.

## 12 Pile High Availability modernisée

	SLE HA 15	SLE HA 16
Pacemaker	version 2	version 3
Corosync	version 2	version 3
Système de fichiers distribués	OCFS2, GFS2 (lecture seule)	GFS2 (prise en charge intégrale)
Agents d'isolation	Tous les agents dans un seul paquet	Agents dans des paquets séparés

## 13 Technologie supprimée

SLE 16 supprime certaines technologies afin de réduire l'empreinte du système d'exploitation et le vecteur d'attaque de sécurité :

- Système : la prise en charge des applications 32 bits est supprimée. Le kernel Linux peut toujours activer les appels système 32 bits en installant le paquet `grub2-compat-ia32` à partir de SUSE Package Hub.
- Système : les scripts d'initialisation SysV sont supprimés ; utilisez des unités `systemd` natives à la place.
- Réseau : `wicked` est supprimé au profit de NetworkManager.
- Réseau : NIS n'est plus utilisé ; choisissez LDAP à la place.
- Réseau : le serveur DHCP ISC a été supprimé au profit d'un serveur DHCP Kea plus moderne.
- Sous-système Windows pour Linux : la prise en charge de WSL1 a été supprimée en faveur de WSL2, qui offre un kernel Linux complet avec une compatibilité totale avec les appels système.

## 14 Mentions légales

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